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“I Thought I was Going to War”: Experiences of Health-Care Workers During the COVID-19 Pandemic – An Exploration of *ProjectCOPE*

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“I THOUGHT I WAS GOING TO WAR”: EXPERIENCES OF HEALTH-CARE WORKERS DURING THE COVID-19 PANDEMIC – AN EXPLORATION OF PROJECT COPE

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ABSTRACT

The COVID-19 pandemic continues to strain health-care systems throughout the world. While early reports compared its impacts to other contemporary disease outbreaks (e.g., SARS and MERS), it quickly became apparent that COVID-19 would dwarf these contemporary crises, escalating to a scale more on par with the 1918 influenza outbreak. This disaster will have unprecedented effects on health-care workers, among whom burnout was already a serious concern. Burnout and linked phenomena moral distress, compassion fatigue, and secondary trauma are associated with increased turnover and intent to leave health-care professions, decreased quality of care delivered to patients, and poor mental and physical health outcomes among health-care workers.

ProjectCOPE: Chronicling health-care prOviders' Pandemic Experiences is a mixed-methods study exploring the perceptions and capturing the stories of a diverse cohort of health-care workers representing more than 21 distinct professions during the COVID-19 pandemic.

Chapter 1 includes an extensive review of literature and summary of methodology for this dissertation's aims. Special attention is paid to two professions, nursing and massage therapy, which are the subject of analysis in Aim 2. Subsequent chapters are formatted as stand-alone manuscripts, each presenting significance, methodology, results, and discussion for one of the aims.

Chapter 2 presents Aim 1: "Describe the sample and experiences of *ProjectCOPE* participants." In this mixed-methods study of all *ProjectCOPE* participants, we explore the differences between professions labeled "essential" versus "non-essential", and lay

the foundation for future study of the potential impact of such policies. The study identified four themes: 1) professional identity, 2) intrinsic stressors, 3) extrinsic factors, and 4) coping strategies.

Chapter 3 presents Aim 2: "Compare and contrast experiences of nurses and massage therapists during the COVID-19 pandemic." This study draws on findings from Aim 1, delving into a mixed-methods analysis of the differences and similarities between nurses' and massage therapists' experiences of working during the COVID-19 pandemic, specifically burnout and coping strategies. This study found that, despite some differences in experienced burnout as measured by instruments validated in nurses, similar experiences were reported by both professions.

As part of *ProjectCOPE*, we developed a novel approach to meaningfully include medical students in the processing and sorting of data. Chapter 4 covers Aim 3: "Evaluate novel methodology developed for *ProjectCOPE*." This novel methodology is called #Evaluation (pronounced "hashtag evaluation"), and builds on medical students' knowledge and understanding of social media platforms. This chapter demonstrates #Evaluation is a valuable tool for rapid evaluation and assessment, and for teaching qualitative research to students with little-to-no experience.

Finally, Chapter 5 provides an executive summary of findings, limitations, and directions for future research. Here, we highlight this dissertations contributions to science, including an inventory of topics for which these chapters represent the first or early exploration.

DEDICATION

To the friends and colleagues we lost to COVID-19.

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Completing a dissertation requires a lot of support, and it is not possible for me to acknowledge all that I received in two short pages. In addition to the colleagues and mentors listed here are countless friends and family members who sat and listened while I attempted to explain my research, brought me homemade pasta to fuel weekend writing marathons, cheered me on through challenges and successes, or simply shared a bottle of wine with me in silence. They know who they are and how important they are to me.

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Throughout my academic career, I have been fortunate to know many incredible teachers including Jennifer Hulehan, who taught me how to write, and Julie Vernon, who taught me how to be a nurse. There are two teachers, however, who have become family and without whom I would not have made it this far: Stephanie Billioux and Nancy LeMaster.

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CHAPTER ONE

BACKGROUND, METHODOLOGY, AND THE LAUNCH OF PROJECT COPE

Introduction

The COVID-19 pandemic continues to tax health-care systems throughout the world, some to the point of breaking. According to the World Health Organization, ninety percent of countries have seen essential health services disruption.[1] The disruption exposed inequities, deficits, and gaps, especially in the United States. Financial hardships resulting from economic disruption disproportionally impact the well-being and health-care access of ethnic minorities,[2] and may be responsible for increased morbidity and mortality in other diseases. Worsening outcomes in acute myocardial infarction have been observed,[3] and some experts fear long-term consequences of interruptions to preventative and maintenance care of chronic conditions, such as diabetes.[4] While decreased incidence of cerebral vascular accidents are reported, it is simply possible that this is a case of competing outcomes, with patients who would have been susceptible to stroke succumbing to COVID-19.[5] Added to this, providers scrambled to adapt clinical practice to the necessities of social distancing and other precautions. An article from the American College of Cardiology includes mention of assessing jugular vein distention via web call, a complex and nuanced exam, with significant implications.[6] These realities limit the impact health-care workers (HCW) can have on their patients' health. ***HCW who feel powerless to address the pain, suffering, and death of their patients may experience moral distress and injury, placing them at risk of "burning out" or developing serious mental health issues such as post-traumatic stress disorder.***[7,8]

There is a fair amount of data from de-briefs from a variety of HCW following major events, but far less data have been collected from these individuals actively experiencing disasters. Study of previous disasters, such as hurricanes Katrina and Rita and September 11, suggest HCW are likely to subjugate their own needs and safety for those of their patients. During recovery efforts of the record-breaking 2005 hurricanes Katrina and Rita, one emergency nurse reported, "There were so many people who needed so many things, all at the same time." Others working across the impacted region echoed this sentiment of facing seemingly endless human need with little-to-no resources.[9] Professional counselors and first responders witnessing the suffering of those effected struggled to cope with the emotional toll.[10,11] The scarcity of resources led many to feel they had no choice but to keep working, skipping meals, breaks, and rest to ensure as many as possible were helped.[12] The loss of life, gruesome images, and dangerous conditions weighed considerably on first responders, with many suffering from post-traumatic stress disorder decades after the events.[13] "It was horrible. The smells...and what we had to do. I remember the first day, we were finding whole bodies. Then as the days went on, the stench started to tell us where to look. Soon, we were only finding pieces. Every day you'd be down there digging and if we found a bone, well, that was a good day," an emergency medical technician said of his experience of the September 11 terrorist attack on the World Trade Center. Some workers felt tremendous guilt over lost colleagues or a sense of failure, internalizing blame for not finding more survivors.[14] Some mental health providers caring for these first responders also experienced secondary trauma, a phenomenon in which those in proximity to the victims of violent

events may show similar symptoms of psychological distress to the one experiencing those events firsthand.[15,16]

The impact on HCW during the 2003 severe acute respiratory syndrome (SARS) outbreak was studied extensively,[17] but the broader impact of ***the COVID-19 pandemic potentiates cascading effects of moral distress on a scale heretofore unseen.*** Early reports warned that COVID-19 could grow into a "SARS-like pandemic,"[18] but there is now little comparison between the diseases. SARS infected a total of 8,098 people and killed 774.[19] As of the writing of this chapter, more than 226.2 million cases of COVID-19 have been reported worldwide, and 4.6 million people have died from the disease.[20] The United States has reported 41.5 million cases and 666,440 deaths.[21] HCW treating SARS patients feared transmitting the disease to family members or falling ill themselves and experienced increased rates of burnout, moral distress, and compassion fatigue.[22] HCW faced significant ethical challenges as resources grew scarce,[23] suffering moral injury as they worked to provide care in an ill-equipped health-care system.[24] Fear, anger, depression, and anxiety are common in the general population during pandemics, as well.[25] The ubiquitous disruption, continuous sources of stress, and staggering death toll are a recipe for disaster. In a health-care system which has yet to prioritize the emotional and physical needs of HCW,[26] the full impact of these cascading issues are not yet known.

The perspectives of HCW are needed to prepare for future major events to provide the best support and care for those whose professions intersect with the public in potentially meaningful and tragic ways during these events. While we have evidence of

the experiences of many workers in these different events, we have not empirically examined the experience of HCW who want to help but cannot due to policy, location, or profession. Famously, Mr. Rogers said, "When I was a boy and I would see scary things in the news, my mother would say to me, 'Look for the helpers. You will always find people who are helping.'" But what happens to the helpers when they cannot help? By systematically gathering data during the COVID-19 pandemic from HCW from an interprofessional standpoint, we allow for an examination of these providers experiences from two perspectives: 1) ***those HCW who are "locked in" the health-care system with little control to make changes*** (e.g., MD/DOs, RNs, respiratory therapists) and 2) ***those "locked out" of the same system and being told they are not allowed to help*** (e.g., dentists, massage therapists, mental health practitioners). Results of this study will be used to report on HCW experiences during the COVID-19 pandemic.

This dissertation will characterize the experiences of a diverse sample of HCW participating in an ongoing study, Project COPE. As an exemplar, we will more deeply explore two professions, nursing and massage therapy, to examine the experiences of those "locked in" versus "locked out." These groups are often referred to as "essential" and "non-essential" HCW, but those distinctions are known to contribute to the emotional damage and sense of isolation of workers during a crisis.[17]

Theory and Practice of Nursing

Modern nursing traces its roots to the work of Florence Nightingale, whose extraordinary, if somewhat apocryphal, accomplishments and mission during the Crimean War (1853-1856) are credited with revolutionizing care of the sick and injured.

She promoted handwashing and exposing the infirm to sunlight and fresh air. True theoretical models of nursing, however, would not begin to form until a century later, at Columbia University Teachers College. The 1950s saw the first appointment of a professor of nursing, and the first articulation of nursing as an interpersonal relationship by Hildegarde Peplau.[27]

Born in 1909, Peplau witnessed the 1918 influenza pandemic as a child, an experience which greatly informed her perceptions of illness. In her personal writings, Peplau recounts seeing those suffering delirium from influenza and, in part, credits that experience for her decision to enter the nursing profession.[28] Peplau's work represents the first theoretical publications on nursing since Nightingale and a major paradigm shift. Prior to her work, patients were viewed as objects. She argued the importance of a nurse-patient relationship with collaborative goal setting.[29] The interpersonal connectedness is the core of nursing,[30] regardless of the current role the nurse fills.[31]

Theoretical models of nursing continued to develop at Teachers College, but many of these models we now view as reductionist, with patients viewed in the context of an illness or surgery, a problem to solve, rather than a being in need of care. In the 1960s, we began to see a second paradigm shift where "nursing care can meet the needs of the patient—not as defined by nurses, but as perceived by the patient."[27(p68)] By the 1980s, the need for true, prescriptive theory was broadly accepted.[27]

In one of the most influential contemporary nursing theories, Dorothea Orem describes patients as experiencing a self-care deficit—their care needs exceed their ability to provide care for themselves. The purpose, then, of nursing care is to address these

deficits.[32] This may be achieved through education, physical assistance, or application of clinical treatment, but the aim remains to address the deficit, rather than curing any illness.[33]

Similarly, Afaf Meleis, PhD, describes nursing as a process of facilitating transition from one state to the next in the appropriately named "Transitions Theory." Meleis argues that a "cure" should not be the aim of nursing care, because return to a disease-free state or even to a prior level of function and health is sometimes not possible (e.g., in the case of a severe stroke). She writes, "A goal for nursing is that the client emerge from any nursing encounter not only more comfortable and better able to deal with the present health problem, but also better equipped to protect and promote health for the future."[34(p53)] Jean Watson's "Theory of Human Caring" describes nursing as a process of *facilitating* health and wellness with care and compassion in a patient-centered approach, contrasting with the treatment and curative approach of medicine.[35] While the framework offered here may border on anecdotal ethereal hyperbole to some, Watson's emphasis on caring touch and compassion offers a more spiritual lens to the practice of nursing.[36,37]

Theory and Practice of Massage Therapy

While there is a relative paucity of theoretical work in massage therapy, existing literature points to a similar philosophy of facilitating health and optimizing wellness based on client goals and needs. Some massage therapists see themselves as health-care practitioners[38] and understand their work to be client-centered and holistic.[39] Massage practices are incorporated into nursing competencies[40] as a valued alternative to

pharmaceutical pain and anxiety intervention,[41] but the professionals specifically trained in this type of care are often omitted from empirical investigation of its application.

In 1813, Per Henrik Ling founded the Royal Central Gymnastic Institute. He would be remembered, by some, as the father of modern massage therapy. Ling called his technique "medical gymnastics," which he developed, at least in part, to treat his own ailments. The methods would evolve into Swedish Massage, with a series of passive movements, stroking, pressing, and kneading the body. The practice spread with medical gymnasts working in hospitals and clinics across Europe and the United States in the 1850s, but it would take another hundred years for massage therapy to emerge as a clinical profession, with the formation of the American Massage Therapy Association in the 1950s.[42]

The profession remains divided in several domains. Debate continues over whether practice standardization or even tiered licensure will benefit the field.[43] For some massage therapists who view their practice as clinical, practice standardization represents legitimacy. Regulated practice ensures consistent quality of care.[44] For others, this seems intrusive. Many massage therapists view their work through a less clinical lens and sometimes through a more spiritual one.[45] There is, however, growing support for continuing education, conscious consideration of the massage therapist-client relationship, and other means to increase the sense of professionalism in the field.[46]

Through a 2010 semistructured symposium, the Massage Therapy Foundation engaged a group of massage therapy thought leaders with the intent of developing best practice guidelines for the practice of massage, but discussion included clarification of

definitions of massage and massage therapy, as well as the practice thereof.[47] Following a Grounded Theory approach, Kennedy et al. conducted a secondary analysis of the data, aiming to form a new theory of massage therapy practice. They write:

> *Massage therapy consists of the application of massage and non-hands-on components, including health promotion and education messages, for self-care and health maintenance; therapy, as well as outcomes, can be influenced by: therapeutic relationships and communication; the therapist's education, skill level, and experience; and the therapeutic setting.*[48(p22)]

In framing massage therapy practice, the authors highlight the importance of safety for clients, drawing a corollary to nursing literature concepts of trust and comfort being cared for by a clinician. Care is holistic and addresses the mind, body, and social needs of the client. Massage therapy practice is further influenced by practice setting; the solo nature of practice may lead to feelings of isolation, anxiety, and intent to leave the profession. Finally, massage therapy practice may be conceptualized as part of either the service or health industry. This system-level factor may be the distinction between massage as a means of relaxation, as in a spa, versus massage as part of integrative and complementary medicine.[48]

Further works seek to define a process for massage therapy practice. This includes stages of assessment of client needs and health, developing a plan of care, delivering treatment, reassessment, health promotion (often integrated during treatment), documentation, and closure.[49] Throughout this process is a sense of client-centeredness.[50] While the massage therapist develops the plan of care, there is an understanding that the

client should be in agreement. Moreover, there is acknowledgement that when treatment is ineffective, consideration should be given to whether the client needs a different therapist or a different mode of treatment altogether.[49] Though in many jurisdictions there are not formal regulatory requirements to support these practices, the culture of the profession itself helps to reinforce evidence informed practice.[44]

The massage therapy profession has been growing tremendously over the past several decades and although there has been little tracking of the profession in the scientific literature, news reports and evaluation reports indicate the profession is having a wide impact on public life.[51–53] A stakeholder report to the Massage Therapy Foundation details service projects the organization has supported. Grant applicants overwhelmingly reported seeking funding to address needs seen in their communities. Sponsored programs included offering massage therapy to seniors, people living with HIV/AIDS, and survivors of large scale disasters.[54]

Burnout, Moral Distress, and Compassion Fatigue

Maslach and Jackson's seminal 1981 publication, "The measurement of experienced burnout," described construction of the Maslach Burnout Inventory, one of the first validated tools to measure burnout. Maslach and Jackson define the phenomenon:

> *Burnout is a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of some kind. A key aspect of the burnout syndrome is increased feelings of emotional exhaustion. As their*

emotional resources are depleted, workers feel they are no longer able to give of themselves at a psychological level.[55]

Maslach and colleagues developed the Maslach Burnout Inventory (MBI), a twenty-two item survey, which has been validated in nurses[56] and physicians[57] and used in studying a wide range of professions, including respiratory therapists, mental health workers, health-care educators, and human resources.[58,59] The MBI comprises a series of Likert-type items and includes five subscales measuring emotional exhaustion, depersonalization, personal accomplishment, cynicism, and professional efficacy.[60] In the personal accomplishment and professional efficacy subscales, lower scores correspond to greater levels of experienced burnout. In the other three scales, greater burnout is indicated by higher scores.[55] Emotional exhaustion is thought to be the core factor associated with burnout, and results from a mismatch between job demands and resources.[61] Despite high validity, the MBI can be difficult to implement and utilize due to its length.[62]

A single-item burnout measure was originally validated against the MBI in a primary care setting.[63] This item, the Physician Work Life Study (PWLS) burnout item, is included in the American Medical Association's "Mini-Z" burnout survey along with additional, physician-specific contextual questions.[64] The PWLS has been used widely with physicians and is specifically validated against the emotional exhaustion construct within MBI.[63] Important to the present study, PWLS has been used in emergency medical technicians, nurses, and research and non-clinical staff.[65,66] The PWLS asks respondents to consider their own definition of "burnout" and select a response on a scale from "I

enjoy my work. I have no symptoms of burnout." to "I feel completely burned out. I am at the point where I may need to seek help." The item is included in Table 1.1.

Many factors are associated with burnout syndrome including perceived lack of support, high workload and increased patient acuity,[67] poor work–life balance,[68] sleep disruption,[69] and low emotional intelligence.[70] Burnout is more common in women, younger HCW, and those with higher educational debt.[71] Burnout is more commonly linked to work–home conflicts in women and predicted by workload in men.[71] Burnout is observed across multiple cultural[72] and clinical settings.[73] Burnout is associated with decreased quality of care including increased risk of medical and nursing errors.[74] In turn, errors may harm not only patients, but also the providers themselves as secondary emotional victims leading to increased risk of burnout.[75] HCW suffering from burnout are at increased risk for anxiety, depression, suicide, substance abuse, and motor vehicle crashes,[71] as well as being more likely to leave their profession.[76]

Table 1.1: Physician Work–Life Study burnout item

Using your own definition of "burnout," please select one of the answers below:
I enjoy my work. I have no symptoms of burnout.
I am under stress, and don't always have as much energy as I did, but I don't feel burned out.
I am definitely burning out and have one or more symptoms of burnout (e.g., emotional exhaustion).
The symptoms of burnout that I am experiencing won't go away. I think about work frustrations a lot.
I feel completely burned out. I am at the point where I may need to seek help.

Evidence suggests that nurses prefer organizational approaches to address burnout such as work schedules designed to promote rest and adequate staffing, and to ensure adequate and appropriate equipment is available (e.g., personal protective equipment). However, a significant portion of interventions are aimed at individual coping strategies

and offering professional services, such as counseling or mindfulness training.[77] Similarly, physician burnout can be significantly reduced by optimizing workflows, reducing administrative burdens (e.g., using scribes to document patient encounters), and increasing amount of time off.[78] Job satisfaction,[79] unit cohesion,[80] and interpersonal relationships may provide some protection against burnout.[81] Specifically, nurse–physician relationships can be protective[82] as can a sense of personal and professional alignment with the organization.[83]

> *"The biggest challenge was the justice component...because we had so much we could offer but we were treating hardly any patients and that didn't sit very well with any of us because working in a place where there is lots and lots of suffering and disease and death and things and knowing that we could help but we're not allowed to, that was awful."*

Figure 1.1: An HCW describes working during an Ebola outbreak.

Moral distress is the experience of conflict when organizational, professional, or other restraints prevent a person from acting according to what they believe is the right thing to do.[8,84] This may occur in clinical settings when HCW perceive treatments as unnecessary or cruel.[85] The latter may occur when a frail, elderly patient undergoes cardiopulmonary resuscitation following cardiac arrest. Such heroic measures have low success rates, even in healthy patients, and can seem violent, as patients' ribs are often broken during chest compressions.[86] Clinical educators may experience moral suffering when students are uninterested in key content.[87] Unaddressed, moral distress can lead to emotional dysregulation, poor performance, turnover, and even suicide.[88,89]

Figure 1.1 includes a quote from a HCW who served in a military Ebola treatment unit during the 2014–2015 outbreak in Sierra Leone. Limited supplies and political

constraints prohibited the unit from treating the community; they cared for UK military personnel only.[90] Such experiences could easily lead to moral distress. This individual feels quite strongly they can and should address the needs of this suffering community but is limited by the rules of their unit.[85]

Table 1.2: Moral Distress measure

In the last week how often have you felt moral distress in relation to your job/profession?
never
once a week or less
2–3 times per week
once per day
2–3 times a day
4 times a day or more

Moral distress may be predicted by the frequency of ethical issues, perceived ability to voice ethical concerns, and organizational support.[91] HCW in an overwhelmed emergency room or intensive care unit might experience daily moral insults, knowing better care could be provided with additional resources and staff.[84] Conversely, a HCW deemed "non-essential" might feel similarly to the HCW quoted in Figure 1.1, if they felt there were ways for them to be useful in "essential" care settings. HCW workers who perceive an ability to express ethical concerns (e.g., a clear pathway to report situations to leaders without fear of retribution) and perceive such concerns are taken seriously are less at risk from negative outcomes associated with moral distress.[92] Social support is exceedingly important. HCW experiencing moral distress may be hesitant to engage with professional support systems (e.g., mental health), and often rely on peers to process and cope with difficult decisions.[93] Experienced moral distress can be surprisingly easy to measure. Rathert et al.

developed a single-item measure of experienced moral distress (included in Table 1.2), which has been used with nurses.[91]

While the terms have been used interchangeably, compassion fatigue is conceptually distinct from burnout and moral distress. Identified in psychologists, it refers to an emotional exhaustion due to secondary trauma.[16] Compassion fatigue may result from a lack of self-care,[15] when HCW "take on" or internalize the pain and suffering of their patients and are unable to compartmentalize or recover.[94] Even when delivering optimum care, HCW can experience secondary trauma, developing maladaptive behaviors simply from providing care to patients experiencing difficult health issues.[16,95]

Traumatic events may be brief, such as an unexpected death,[96] but often, HCW struggle to cope with sustained trauma when they are confronted with prolonged periods of increased suffering, death, or illness. These HCW may experience guilt over having survived when colleagues didn't, or feeling like they could have done more to help.[97] In Figure 1.2, we see an excerpt from an interview with a first responder still struggling with his experiences of working at Ground Zero following the September 11 terrorist attack. A full decade after the event, this individual still feels tremendous guilt over not having rescued any survivors.[13]

I just, you know… I feel guilty…. (pause)…. [Interviewer: 'Why do you feel guilty?'] Because I didn't find anyone alive…(crying)

Figure 1.2: A first responder describes the September 11 terrorist attack.

Multiple ethical frameworks exist to assist in addressing the scarcity of resources during disaster situations. In a mass casualty event, such as a mass shooting, disaster triage protocols recommend a nonclinical individual screen victims and assign color tags on the basis of objective decisions. Green tags indicate a person is in no urgent need of medical care, yellow tags indicate an urgent need for care within the next hour, orange tags are applied to patients with imminently life-threatening injuries, and red to those who need immediate care. Under these situations, no care is given to victims who are not breathing spontaneously. It is recommended that a nonclinical person conduct triage based on a simple algorithm which considers only the victim's respiratory rate, presence or absence of a radial pulse, and ability to follow simple commands; victims are then sorted into these categories. A clinical professional will be more acutely aware of the care that could have been delivered under ideal circumstances, and therefore more at risk for moral injury.[98] In other frameworks, an attempt is made to shield HCW with a utilitarian understanding of resource allocation. In a more prolonged emergency, such as a pandemic, subjective decisions are required to determine which patients receive treatment on the basis of likelihood of survival.[99] The unfortunate reality is that HCW ultimately bear the burden of untenable decisions[100] and suffer the consequences.[101]

These concerns are not limited to veteran HCW. Poor coping and mental health outcomes in response to prolonged stress and instability are also evident in health-care students,[102] police officers,[103] parents,[104,105] and academic professionals.[106] The interconnected nature of these outcomes (burnout, moral distress, and compassion fatigue), have prompted the development of broader measures of well-being. In the Well-Being Index (Table 1.3),

respondents are asked a series of yes/no questions. Respondents selecting "yes" on a higher number of items ranked as worse versus those selecting a lower number. Respondents with scores of four or greater (i.e., selecting yes to at least four items) are likely to have a quality of life score well below the population mean and are more likely to have had recent suicidal ideation.[71] This measure was originally developed to assess well-being and quality of life in medical students, but has been adapted to physicians.[107]

Table 1.3: Well-Being Index

During the past week (yes/no):
Have you worried that your work is hardening you emotionally?
Have you often been bothered by feeling down, depressed, or hopeless?
Have you fallen asleep while stopped in traffic or driving?
Have you felt that all things you had to do were piling up so high that you could not overcome them?
Have you been bothered by emotional problems (such as feeling anxious or irritable)?
Has your physical health interfered with your ability to do your daily work at home and/or away from home?

Mindfulness is an oft-studied approach to reduce the risk of burnout and compassion fatigue,[108] but sample sizes of interventional studies are small, limiting the generalizability of findings.[109] A meta-analysis of seven interventional studies incorporating "coping strategies" demonstrated a protective effect up to one year postintervention,[110] but interventions ranged from four weeks to six months and compared these structured interventions to no intervention at all. In other words, there is no contol for the effect of collegiality and team cohesion.

Nurses are well-versed in the importance of self-care to well-being, often recommending mindfulness practices to their own patients.[111] Despite this extensive knowledge, nurses often neglect their own self-care,[112] with many neglecting basic

approaches, such as sleep hygiene, exercise, and balanced diet.[113] Nurses fail to apply their own practice to themselves, omitting consideration of the needs of the nurse from the nurse–patient relationship.[114] Not only does this omission lead to worsening clinical outcomes in patients, secondary trauma, burnout, and emotional strain are correlated with increased morbidity in nurses, including coronary artery disease and stroke[115] and significant psychiatric illnesses.[116] Self-care is essential to the well-being of nurses, and while some adjustments can be made by individuals, it will likely require system-level intervention to ensure adequate support to implement such practices.[117]

Many sources specifically encourage massage therapy as part of coping strategies for burnout, compassion fatigue,[118] and moral distress,[94,112] yet we are not aware of any studies examining the role of massage therapists in such intervention, let alone these professional's risk for similar outcomes. It is hypothesized that isolation resulting from the way massage therapy is practiced (i.e., therapists working independently) may contribute to feelings of anxiety, depression, and intent to leave the profession.[45] Massage therapists have responded to large scale disasters including offering services to first responders working during the September 11 terrorist attack in New York City,[119] tornado recovery efforts in Joplin, Missouri,[54] and victims of hurricane Katrina.[118] If massage therapists do, indeed, perceive their work similarly to other HCW,[43] they may have similar experiences of secondary trauma, moral distress, and burnout.

COVID-19 and Previous Pandemics

With the emergence of COVID-19, many authorities were quick to sound the alarm about a potential crisis for HCW. Even conservative estimates projected significant

shortages of personal protective equipment and clinical devices, especially ventilators.[120] A rapidly growing body of literature describes the impact of COVID-19 on HCW. Some early works from the first months of the pandemic suggested perceived exposure risk correlated with mental health strain, but other factors including gender, occupation, and age, were more significant predictors of burnout, anxiety, and depression symptoms.[121] Bohlken et al published a brief review of stress in HCW related to the COVID-19 pandemic in May 2020. The review identified 14 quantitative studies between January and March 2020. Based on instruments such as the PHQ-9, the authors found severe mental health symptoms were reported in up to 14.5% of participants, and the severity of symptoms were influenced by proximity to COVID-19 patients.[122] A larger review of 59 studies included evidence through May 11, 2020. Muller et al. highlighted a discrepancy that indicated HCW prefer social support solutions to mental health impacts over professional treatment (i.e., therapy), but most documented interventions "focus on relieving individual symptoms." Importantly, Muller et al. note that the disconnect between the expressed needs of HCW and documented interventions existed long before the COVID-19 pandemic.[77]

"I remember seeing John and we just hugged. He told me to be careful, and then ran off in the other direction. I never saw him again"

Figure 1.3: An emergency medical technician remembers working in the aftermath of the September 11 terrorist attacks.

The 2003 the severe acute respiratory syndrome (SARS) outbreak had a profound impact on HCW.[23] High rates of HCW infection and mortality left professionals feeling isolated and stigmatized,[17] with many considering leaving their professions.[22,123] A lack of support and training, compounded with sudden scarcity of resources, meant HCW

faced ethical dilemmas daily and saw the impact of their decisions in real time.[124] Since then, multiple sources have provided robust ethical frameworks to guide allocation of critical care treatments in general,[125] and mechanical ventilators specifically,[24] but the realities of the COVID-19 pandemic pose larger challenges still. The global spread and crushing patient volumes mean almost all HCW could face similar circumstances.[126]

Barello et al. conducted a rapid review of the psychosocial impact of previous respiratory disease pandemics in the first months of 2020. This review included a wide range of HCW, including traditional Chinese medicine practitioners. Thirty-six articles were included in a narrative synthesis of evidence. Across SARS, Middle East respiratory syndrome, and swine flu pandemic, common themes emerged. HCW reported social isolation, a reluctance to work, consideration of absenteeism and, overwhelmingly, fears of stigmatization.[127] Similar experiences are evident in HCW treating ebola.[128]

> *I comforted the patient while I gave the injection, [I told him] 'Patients who were more serious finally recovered.' I wanted to give him some hope and kept encouraging him, 'We will not give up on you. You cannot give up on yourself either'*

Figure 1.4: A nurse recounts caring for a COVID-19 patient.

Qualitative studies during respiratory pandemics provide some depth. A systematic review of thirteen studies including a total of 348 nurses found that nurses felt it was their duty to provide high quality care, relied on colleagues for support, feared for the safety of their families and themselves, and feared stigmatization. Nurses look to organizational and professional leadership for guidance around safety and personal protective equipment, as well as concise and timely communication of evidence and best practice in care of patients, and they expect leaders to plan and prepare for staffing

shortages.[129] Review of quantitative studies in clinicians echoed these findings, adding a need for adequate training both in clinical interventions and personal resilience.[130]

Harrowing narratives from the early months of the COVID-19 pandemic, laid bare the depth of fear, remorse, and frustration experienced by frontline health-care workers. Nurses describe a disconnection with their patients. Covered in masks and gowns and goggles, HCW struggled to ensure patients felt supported and cared for. As they tried to comfort patients fighting a novel disease, they struggled to provide reassurance, because the outcomes were not well known. One nurse (Figure 1.4), described sedating a patient in preparation for intubation when most patients who became sick enough to require mechanical ventilation did not survive.[131] Others (Figure 1.5) struggled to reconcile a sense of professional duty with desires to keep their families safe.[132]

In some contexts, HCW have been forced to standby, unable to assist with the ongoing crises or having their normal workflows interrupted. Elective procedures are cancelled to keep resources available for COVID-19 patients. Surgeons and nurses specializing in these procedures were furloughed in many parts of the world, and despite acknowledgement that these HCW are at risk for moral distress and burnout,[133] their voices have yet to be captured. HCW often connect feelings of job satisfaction with a sense of purpose,[134] but it has not

I am expected to be there and stay there and provide care for those patients suffering from COVID- 19, but know that I am at risk and know that I have a family to go home to

Figure 1.5: An HCW describes fears for their family's safety

been empirically explored whether being barred from providing care could increase risk of emotional exhaustion.

Meta-analysis of studies including 3,745 nurses (I_2=97.4%) and 2,123 physicians (I_2=97.3%) found 34.8% (95% CI: 24.8-46.4%) and 41.6% (95% CI: 27.7-57%) experienced sleep disturbances, respectively, while caring for COVID-19 patients.[135] An especially concerning finding since adequate rest is a key coping strategy to prevent burnout.[136] For HCW infected with COVID-19 or other coronaviruses (i.e., SARS, MERS), there may be additional psychological impacts. In a meta-analysis of 40 studies by Alazar de Pablo et al., 34.4% of HCW exposed to the diseases reported burnout (95%CI=19.3–53.5%, k=3, n=1337), 14.0% feelings of stigmatization (95%CI=6.4–28.1%, k=2, n=411), 37.9% insomnia (95%CI=30.9–45.5%, k=6, n=5067), and 37.8% psychological distress (95%CI=28.4–48.2%, k=15, n=24,346).[137] The impact of the pandemic itself on those with pre-existing mental health disorders is yet to be seen,[138] and the pandemic is expected to have lasting psychological consequences for HCW and the general public.[139–141]

In hospitals heavily impacted by SARS, 68% of HCW reported severe levels of stress, and 57% experienced psychological distress.[142] The exponentially larger impact and global spread of COVID-19 create the potential for far worse experiences. With COVID-19 in every state, region, and community in most countries, there are no resources to be shared.[143] During SARS and H1N1, HCW and other resources were relocated from less heavily impacted areas to those more heavily impacted. This kind of support is less available during COVID-19, because there are very few regions not

actively strained.[143] This reality may lead to increased feelings of isolation,[139] and increased anxiety in the general population may contribute to HCW perceptions of feeling stigmatized.[140]

Clearly, factors and consequences of burnout syndrome are well explored in nurses, physicians, and a handful of other health-care professions working in traditional health-care settings. The impacts of pandemics on the mental health of these professionals are also well documented. What is lacking from the literature is empirical investigation of the modifying effect of work and patient care disruption on the experience of burnout and an assessment of moral distress, burnout, and compassion fatigue in "non-essential" HCW. The COVID-19 pandemic has resulted in dramatic changes to the delivery of health care in every setting, profession, and culture. This dissertation seeks to measure and explore perceptions of support and disruption in a diverse cohort of HCW.

ProjectCOPE

Project COPE is an IRB-approved (University of South Carolina) mixed-methods ethnography led by an interdisciplinary team of thirteen researchers from five institutions launched in April 2020 measuring burnout, wellness, and moral suffering in "locked in" and "locked out" health-care workers. I conceived of the study in March and reached out to a colleague at the University of South Carolina School of Medicine Greenville, Ann Blair Kennedy, DrPH, to discuss the concept. We identified that we were seeing similar trends in our professional circles and on social media. I heard ***nurses in various settings expressing fear over their own risk and feeling unprepared to care for the imminent***

wave of sick patients, feeling trapped or "locked in." Dr. Kennedy, who serves as Executive Editor/Editor-in-Chief of the *International Journal of Therapeutic Massage and Bodywork* and is the chair of the Governance Committee for the American Massage Therapy Association, saw ***similar emotions in massage therapy colleagues but with an added sense of feeling helpless and "locked out"*** of the health-care system.

We gathered a team, including a second massage therapy scholar, organizational and clinical psychologists, a physician, evaluators, and graduate and medical students. Two colleagues, with whom Dr. Kennedy and I have previously worked, had an ongoing quality improvement project assessing burnout in our health system's emergency department. Drs. Marrisa Shuffler and Thomas Britt provided a great deal of insight as we planned and developed *ProjectCOPE* and granted us permission to use two items developed for their work: a wellness-to-burnout sliding scale, which we hope to help validate in work beyond the scope of this dissertation, and an inventory of coping methods, which we discuss in a later section of this chapter.

We launched our first survey on April 16, 2020 less than three weeks after Dr. Kennedy and I first discussed the need for the work. *ProjectCOPE* has continued to rely on rapid evaluation and assessment methodologies and the broad relevance of evaluation science[144–149] to adjust survey design and recruitment in response to both participant feedback and the course of the pandemic.

Recruitment

ProjectCOPE involves participation recruitment and data collection from individuals who self-identify as eligible and are interested in participating. It is important

to note that *ProjectCOPE* is open to any participant who identifies as a health-care provider or student in a health-care field. Our ***participants represent more than 20 fields including nursing, medicine, massage therapy, dentistry, social work, and even hospital supply chain and informatics professionals***. This dissertation will include preliminary analysis of all *ProjectCOPE* respondents, and an in-depth analysis of nurses and massage therapists. Recruitment materials posted on social media platforms direct these individuals to a secured data collection site (Qualtrics™) where they consent to participate. Once participants consent to participate, they are directed to the baseline survey; at the end of the survey, participants indicate whether they are interested in uploading a video journal and if they would be willing to be contacted in the future. Participants who indicate an interest in further participation are provided instructions on how to record a video journal based upon selected prompts from the research team. Finally, we contact those who agree to participate in the longitudinal nature of the study by sending surveys and video prompts weekly. We detail our survey instruments in the next sections.

Initial Survey

The initial survey consists of four qualifying items, including a statement of consent and verification that the participant is at least 18 years old, is a health-care provider/worker or student in a health-care profession, and can read and understand English. Demographics are collected including age in years, gender identity, ethnicity, race, and highest level of education. Participants are then asked, “Are you a health-care provider/allied health professional or a health/health-care student?” Providers and

professionals are asked to indicate their years of practice, and students are asked what year or semester of program they have completed. Participants are asked to define the location of their school or practice as urban, rural, suburban, or tribal.

Participants can indicate their professional field from twenty categories, including acupuncture, allied health, chiropractic, dental, massage therapy, medicine, mental health, midwifery, naturopathy, nursing, occupational therapy, pharmacy, physical therapy, psychology, dietitian, respiratory therapy, therapy, social work, athletic training, pre-hospital, or "other." Fifty-six subcategories allow respondents to further identify with specialties or specific licensures. Participants may also enter free text responses by selecting "other."

Participants are then asked if they stopped seeing patients or clients and, if so, prompted to enter an approximate date. Participants are asked which of the following reasons best describes the reason they stopped seeing patients: required by government action, required by employer, recommended by employer, required by professional association, recommended by professional association, required by educational institution, furloughed/laid off by employer, personal choice, or other. Respondents choosing "other" are prompted to describe the reason in a free text field. Participants indicating that they have not stopped seeing patients are asked about other changes to their patient/client interactions including telehealth, changes in patient volume, or reassignment to another department, unit, or field. We assess proximity to the pandemic, asking participants whether any immediate family members or close friends have been

diagnosed with COVID-19, and that person's health status (e.g., recovered, still in care, expired).

The intake survey includes a validated measure of moral distress, preceded by a prompt. "Moral distress is the stress health-care workers feel when they believe they know the 'right' thing to do on the job, but something in the environment prevents them from being able to do it, such as law/policies, other team members/colleagues, patient/family members, etc."[91] The stem and responses for this Moral Distress measure (MS) are included in Table 1.2. At the conclusion of the intake survey, participants are offered an opportunity to opt into weekly follow-up surveys by providing an email address and invited to submit a 5-minute video blog in response to one of the following prompts: 1) What types of experiences led you to feel moral stress this week? 2) How are you feeling about the next time you go to work? or 3) How are you coping with the pandemic while you are at home?

Weekly Survey

Participants electing to participate in weekly surveys are entered into our distribution system. Respondents receive a personalized survey invitation link via email, allowing us to track measures longitudinally. Our weekly survey repeats the moral distress measure captured in the initial survey and includes two additional validated measures, the Well-Being Index and a single-item burnout measure.

The Well-Being Index (Table 1.3) is a six-item validated measure of professional and emotional well-being.[107] This constructs an ordinal scale of well-being, with

respondents selecting a higher number of items ranked as worse versus those selecting a lower number.[71]

The single-item burnout measure (Table 1.1) was validated against the Maslach Burnout Inventory in a primary care setting.[63] This is a significantly more concise measure than the twenty-two-item Maslach Burnout Inventory, which has been validated in nurses[56] and physicians[57] and used in studying a wide range of professions, including respiratory therapists, mental health workers, health-care educators, and first responders.[58,59]

The weekly survey repeats questions about whether the respondent is seeing patients and whether any family members or friends have been infected as in the initial survey, then includes a series of investigator developed items. These items capture potential sources of stress drawn from literature available at the time of study design including perceived lack of personal protective equipment,[128] insufficient communication,[22] fears for personal and family safety, and stigmatization.[142]

We included an item developed for the emergency department quality improvement project to assess respondents coping strategies. Under the prompt, "Which of the following have you found helpful in the past week?" participants may select from a list of twenty strategies. These include positive, evidence-based strategies such as seeking support from coworkers, exercise, or recognizing the meaning in their work, as well as maladaptive strategies such as alcohol and tobacco use.[78,112,113,115]

An inclusive list of items contained and logic in the initial and weekly surveys is attached in Appendix A.

Dissertation Goals

The overarching aim of this dissertation was to examine development and implementation, methodology, and preliminary findings in *ProjectCOPE*. We analyzed responses from over 1,000 participants representing more than 20 professions and 13 countries. This dissertation elucidates the human components of the health-care system, ***adding to the extant literature on moral distress and compassion fatigue*** in nurses and physicians. We also add a novel consideration of the cause of health-care practice disruption, hypothesizing that HCW forced out of practice by decisions made by organizational, government, or other authorities will report increased burnout compared to those interrupting practice voluntarily. This work was also ***one of the first assessments of burnout and moral distress in massage therapists*** and, to our knowledge, the largest study of the profession with nearly 500 respondents. Finally, we ***evaluated a novel methodology*** developed as part of the formative evaluation of *ProjectCOPE*, which facilitates involvement of novice researchers and stakeholders in qualitative data analysis.

The specific aims and core research questions are below.

Aim 1: Describe the sample and experiences of ProjectCOPE participants

- RQ1) How do "locked-in" compared with "locked-out" health-care workers feel prepared for and supported during the COVID-19 pandemic?
- RQ2) To what extent do "locked-in" compared with "locked-out" health-care workers report feelings of well-being, burnout, moral distress and/or moral injury?

- RQ3) How do “locked-in” compared with “locked-out” health-care workers describe their experiences before, during, and after the peak of new COVID-19 cases in their areas?

Given the breadth of inquiry and the enormous volume of data already collected, preliminary analysis is warranted to understand the broadest patterns of respondent experiences. We examined moral distress, burnout, and coping mechanisms among key demographic groupings, including gender, years of experience, urbanicity, and broad professional categories such as acute care, complementary and integrative therapies (e.g., naturopathy, massage, and acupuncture), and allied health (e.g., physical therapy, pre-hospital, and dentistry).

Aim 1 Methods

Following a convergent parallel mixed-methods design, we analyzed quantitative survey responses from all participants. In a convergent parallel design, researchers concurrently implement the quantitative and qualitative portions of the study during the same phases of the research process. This study gave equal priority to the quantitative and qualitative data, yet kept the data separate until each portion of the analysis was completed. The modified approach for this study collected quantitative and qualitative data concurrently, with qualitative data collected from a voluntary subsample of quantitative data participants, but data were independently analyzed concurrently and merged at the end to assess what the data reveal about essential and non-essential health-care workers during the COVID-19 pandemic. This design is denoted “QUAN-QUAL.”[150]

Quantitative analysis included a series of logistic regression models. Dependent variables included the validated measures of burnout, moral distress, and well-being, and key independent variables included demographics (e.g., race, gender) and professional characteristics (e.g., years of practice, whether the respondent stopped seeing patients).

The research questions under Aim 1 address "locked-in" and "locked-out" HCW. These groups are identified through questions about whether participants stopped seeing patients and why. Those indicating they stopped seeing patients at the direction of government, organizational, or other authorities (as opposed to by their own decision) were considered "locked-out." We explored differences in this group versus "non-essential" professions (e.g., massage therapy, athletic trainer, acupuncture) as a whole. Question One prompts descriptive analysis of respondents' work experiences and stressors (e.g., lack of PPE, staffing shortages, insufficient training).

Findings from this descriptive analysis were used to inform logistic regression models under Question Two. We modeled differences in burnout, moral distress, and well-being scores between "locked-in" and "locked-out" HCW in three separate regression models controlling for demographics, years of experience, and work experiences and stressors as indicated.

Qualitative analysis of video blogs followed the Rapid Identification of Themes from Audio Recordings (RITA) methodology. Under this method, recordings are not transcribed but analyzed in one-minute segments. Three evaluators created a detailed codebook of themes. This included themes deduced from the literature presented in this dissertation, as well as induced from a selection of video blogs. Inductive theme

development was conducted independently on the same recordings, and findings compared to finalize the codebook. The codebook was then applied to remaining video blogs. We followed a consensus approach to resolve any disagreements.[151]

Finally, quantitative and qualitative findings were merged.

Aim 2: Compare and contrast experiences of nurses and massage therapists during the COVID-19 pandemic.

- RQ4) How are nurses, compared to massage therapists, coping with disruptions to routine patient care during the COVID-19 pandemic?
- RQ5) What are the differences between nurses' and massage therapists' well-being and feelings of support?

Many professions represented in *ProjectCOPE* are underrepresented or even absent from the compassion fatigue and moral distress literature. ***There is a dearth of studies of the experiences of massage therapists particularly given the nearly ubiquitous recommendation of their services to other professions as a balm against burnout, as "self-care."*** This is particularly noticeable in the nursing literature, a profession which is the focus of a considerable portion of all inquiry on the subject.

Our study includes considerable representation of both massage therapists (N=592) and nurses (N=273), and includes a broad range of measures validated in the latter profession. This study offers a unique opportunity to explore similarities between the professions, which have been explored as complementary.[41]

Aim 2 Methods

We followed a modified convergent parallel mixed methods design as in Aim 1, only this study emphasized qualitative data over quantitative (i.e., QUAL-quan).[150] Following an inductive/deductive thematic approach, we transcribed verbatim and coded a sample of vlogs from nurses and massage therapists (QUAL) drawing sensitizing topics from nursing theory and extant literature on the practice of massage therapy.[152(p32)] We then incorporated findings from survey responses (quan) to aid in interpreting the results. The quantitative analysis in this aim was informed by that in Aim 1.

Aim 3: Evaluate novel methodology developed for ProjectCOPE.

- RQ6) What is the value of #Evaluation in understanding a project like *ProjectCOPE*?

We developed #Evaluation (pronounced: "Hashtag Evaluation") to promote including medical students and others who would not possess advanced skills in qualitative analysis. United States Medical Licensing Examination guidelines require medical schools teach qualitative research to medical students,[153,154] but there is a significant lack of methodologies providing meaningful ways of relaying this content.[155] Often, physicians are ill-equipped to conduct or even interpret qualitative research.[156]

We instructed students involved in *ProjectCOPE* to view video blogs as they were received and consider: "What hashtags would be included if the video were posted to social media?" Hashtags perform multiple linguistic functions in social media, including categorizing posts or providing additional context.[157,158] Moreover, social

media users (e.g., millennial medical students) are natural users of these functions and seem to intuitively understand the full function of hashtags.[159,160]

Students were asked to limit the number of hashtags applied, but were not given a strict maximum. Subsequently, most video blogs have no more than three hashtags, but some have more than five. ***We have found these hashtags to be exceedingly helpful in the sorting and preliminary analysis of our qualitative data,*** allowing us to identify subsets of responses around themes of financial stress, concern for safety, burnout, and even hope.

Aim 3 Methods

We assessed the value of this novel methodology in evaluation and judged its merit as a tool for teaching and conducting qualitative data analysis by comparing the hashtags to qualitative findings from other chapters and inductive coding of a random sample of video journal entries. Here, we compared this novel methodology involving students to findings from an expert panel of qualitative researchers for the evaluation of *ProjectCOPE*. We worked with students to develop a formal codebook from their hashtags, then instructed expert evaluators to apply these codes deductively to a representative sample of video journal entries. This constitutes an initial assessment of #Evaluation to lay the foundation for further investigation. Similar to evaluations of other rapid evaluation and assessment methodologies, this analysis considered level of detail produced, ability to capture nuance, and time required.[151]

REFERENCES

1. World Health Organization. In WHO global pulse survey, 90% of countries report disruptions to essential health services since COVID-19 pandemic. Published 2020. Accessed September 13, 2020. https://www.who.int/news-room/detail/31-08-2020-in-who-global-pulse-survey-90-of-countries-report-disruptions-to-essential-health-services-since-covid-19-pandemic
2. Dodds C, Fakoya I. Covid-19: Ensuring equality of access to testing for ethnic minorities. *The BMJ*. 2020;369. doi:10.1136/bmj.m2122
3. Barach P, Fisher SD, Adams MJ, et al. Disruption of healthcare: Will the COVID pandemic worsen non-COVID outcomes and disease outbreaks? *Prog Pediatr Cardiol*. Published online 2020. doi:10.1016/j.ppedcard.2020.101254
4. Calo WA, Murray A, Francis E, Bermudez M, Kraschnewski J. Reaching the Hispanic Community About COVID-19 Through Existing Chronic Disease Prevention Programs. *Prev Chronic Dis*. 2020;17:E49. doi:10.5888/pcd17.200165
5. Association of American Medical Colleges. COVID-19 disrupted health care for other serious conditions. Now, physicians worry about the long-term consequences | AAMC. Published August 20, 2020. Accessed September 13, 2020. https://www.aamc.org/news-insights/covid-19-disrupted-health-care-other-serious-conditions-now-physicians-worry-about-long-term
6. American College of Cardiology. COVID-19: Disruption and the Innovation it Demands From Early Career Cardiologists - American College of Cardiology. Published April 22, 2020. Accessed September 13, 2020.

https://www.acc.org/membership/sections-and-councils/early-career-section/section-updates/2020/04/21/12/42/covid-19-coronavirus-disease-2019-disruption-and-the-innovation-it-demands-from-early-career-cardiologists

7. Epstein EG, Delgado S. Understanding and addressing moral distress. *Online J Issues Nurs*. 2010;15(3):1-13. doi:10.3912/OJIN.Vol15No03Man01

8. Corley MC. Nurse moral distress: A proposed theory and research agenda. *Nurs Ethics*. 2002;9(6):636-650. doi:10.1191/0969733002ne557oa

9. Frank IC. Emergency response to the gulf coast devastation by hurricanes Katrina and Rita: Experiences and impressions. *J Emerg Nurs*. 2005;31(6):526-547. doi:10.1016/j.jen.2005.10.008

10. Lambert SF, Lawson G. Resilience of professional counselors following hurricanes Katrina and Rita. *J Couns Dev*. 2013;91(3):261-268. doi:10.1002/j.1556-6676.2013.00094.x

11. Osofsky HJ, Osofsky JD, Arey J, Kronenberg ME, Hansel T, Many M. Hurricane Katrina's first responders: The struggle to protect and serve in the aftermath of the disaster. *Disaster Med Public Health Prep*. 2011;5(SUPPL. 2). doi:10.1001/dmp.2011.53

12. Eisenman DP, Cordasco KM, Asch S, Golden JF, Glik D. Disaster planning and risk communication with vulnerable communities: lessons from Hurricane Katrina. *Am J Public Health*. 2007;97 Suppl 1(Suppl 1):S109. doi:10.2105/AJPH.2005.084335

13. Smith E, Walker T, Burkle FM. Lessons in post-disaster self-care from 9/11 paramedics and emergency medical technicians. *Prehospital Disaster Med*. 2019;34(3):335-339. doi:10.1017/S1049023X19004382

14. Smith EC, Burkle FM. Paramedic and emergency medical technician reflections on the ongoing impact of the 9/11 terrorist attacks. *Prehospital Disaster Med*. 2019;34(1):56-61. doi:10.1017/S1049023X18001255

15. Boscarino J, Adams R, Figley C. Secondary Trauma Issues for Psychiatrists. *Psychiatr Times*. 2010;27(11):24-26. doi:10.1021/nl061786n.Core-Shell

16. Figley CR. Compassion Fatigue: Psychotherapists Chronic Lack of Self Care. *J Clin Psychol*. 2002;58(11):1433-1441. doi:10.1002/jclp.10090

17. Maunder R, Hunter J, Vincent L, et al. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *Can Med Assoc J*. 2003;168(10):1245-1251.

18. Ammad Ud Din M, Boppana LKT. An update on the 2019-nCoV outbreak. *Am J Infect Control*. 2020;48(6):713. doi:10.1016/j.ajic.2020.01.023

19. SARS | Frequently Asked Questions | CDC. Accessed January 9, 2021. https://www.cdc.gov/sars/about/faq.html#global

20. WHO. WHO Coronavirus (COVID-19) Dashboard. Accessed September 17, 2021. https://covid19.who.int

21. CDC. Coronavirus Disease 2019 (COVID-19). Centers for Disease Control and Prevention. Published February 11, 2020. Accessed September 17, 2021. https://www.cdc.gov/coronavirus/2019-ncov/index.html

22. Lancee WJ, Maunder RG, Goldbloom DS. Prevalence of psychiatric disorders among Toronto hospital workers one to two years after the SARS outbreak. *Psychiatr Serv*. 2008;59(1):91-95. doi:10.1176/ps.2008.59.1.91

23. Singer PA, Benatar SR, Bernstein M, et al. Ethics and SARS: Lessons from Toronto. *Br Med J*. 2003;327(7427):1342-1344. doi:10.1136/bmj.327.7427.1342

24. Bernheim RG, Crawley LM, Daniels N, et al. *Ethical Considerations for Decision Making Regarding Allocation of Mechanical Ventilators during a Severe Influenza Pandemic or Other Public Health Emergency*.; 2011.

25. Chew QH, Wei KC, Vasoo S, Chua HC, Sim K. Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: Practical considerations for the COVID-19 pandemic. *Singapore Med J*. 2020;61(7):350-356. doi:10.11622/SMEDJ.2020046

26. Bodenheimer T, Sinsky C. From triple to Quadruple Aim: Care of the patient requires care of the provider. *Ann Fam Med*. 2014;12(6):573-576. doi:10.1370/afm.1713

27. Meleis AI. *Theoretical Nursing: Development and Progress*. 6th ed. Wolters Kluwer; 2018.

28. Calloway BJ. *Hildegard Peplau: Psychiatric Nurse of the Century*. Springer Publishing; 2002.

29. Peplau HE. Interpersonal Relations: A Theoretical Framework for Application in Nursing Practice. *Nurs Sci Q*. 1992;5(1):13-18. doi:10.1177/089431849200500106

30. Peplau HE. Peplau's theory of interpersonal relations. *Nurs Sci Q*. 1997;10(4):162-167. doi:10.1177/089431849701000407

31. Hart VA. Communication and Nursing : Historical Roots and Related Theory. Published online 2006:1-42.

32. Orem DE, Taylor SG, Renpenning KM. *Nursing Concepts of Practice*. Mosby Inc.; 2001.

33. Denyes MJ, Orem DE, Bekel G. Self-Care: A Foundational Science. *Nurs Sci Q*. 2001;14(1):48-54. doi:10.1177/089431840101400113

34. Meleis A. *Transitions Theory*. Springer; 2010.

35. Watson J. The theory of human caring: retrospective and prospective. *Nurs Sci Q*. 1997;10(1):49-52. doi:10.1177/089431849701000114

36. Watson J. THEORY OF HUMAN CARING Content of the Theory. *Watson Caring Sci Inst*. Published online 2016:1-14.

37. Shellner P. *Relationship-Based Care: A Model for Transforming Practice*. Vol 27. Creative Health Care Management; 2007.

38. Baskwill A, Vanstone M, Harnish D, Dore K. I am a healthcare practitioner: A qualitative exploration of massage therapists' professional identity. *J Complement Integr Med*. 2020;17(2):1-13. doi:10.1515/jcim-2019-0067

39. Fortune LD, Hymel GM. Creating integrative work: A qualitative study of how massage therapists work with existing clients. *J Bodyw Mov Ther*. 2015;19(1):25-34. doi:10.1016/j.jbmt.2014.01.005

40. Ruffin PT. A History of Massage in Nurse Training School Curricula (1860-1945). *J Holist Nurs*. 2011;29(1):61-67. doi:10.1177/0898010110377355

41. Horner P, Abshari S, Grove C. Massage: An alternative approach to pain management. *Nursing (Lond)*. 2020;50(4):17-19. doi:10.1097/01.NURSE.0000657036.52377.00

42. Pettman E. A history of manipulative therapy. *J Man Manip Ther*. 2007;15(3):165-174. doi:10.1179/106698107790819873

43. Shroff FM, Sahota IS. How Can Massage Therapy Move Forward? Registered Massage Therapists Touch on Key Points Shaping Their Profession in British Columbia, Canada. *Home Health Care Manag Pract*. 2012;24(4):182-192. doi:10.1177/1084822311429563

44. Baskwill A. A guiding framework to understand relationships within the profession of massage therapy. *J Bodyw Mov Ther*. 2016;20(3):542-548. doi:10.1016/j.jbmt.2015.12.003

45. Fortune, LMT, MA LD, Gillespie, MA E. The Influence of Practice Standards on Massage Therapists' Work Experience: A Phenomenological Pilot Study. *Int J Ther Massage Bodyw Res Educ Pract*. 2010;3(3):5-11. doi:10.3822/ijtmb.v3i3.73

46. Kemp J. *Improving Professionalism in Massage Therapy through Continuing Education in the Development of Successful Therapeutic Relationships*.; 2016.

47. Grant KE, Balletto J, Gowan-Moody D, et al. Steps toward massage therapy guidelines: A first report to the profession. *Int J Ther Massage Bodyw Res Educ Pract*. 2008;1(1):19-36. doi:10.3822/ijtmb.v1i1.5

48. Kennedy AB, Cambron JA, Sharpe PA, Travillian RS, Saunders RP. Clarifying Definitions for the Massage Therapy Profession: the Results of the Best Practices Symposium†. *Int J Ther Massage Bodyw*. 2008;9(3):15-26.

49. Kennedy AB, Cambron JA, Sharpe PA, Travillian RS, Saunders RP. Process for massage therapy practice and essential assessment. *J Bodyw Mov Ther*. 2016;20(3):484-496. doi:10.1016/j.jbmt.2016.01.007

50. Kennedy AB, Munk N. Experienced practitioners' beliefs utilized to create a successful massage therapist conceptual model: A qualitative investigation. *Int J Ther Massage Bodyw Res Educ Pract*. 2017;10(2):9-19. doi:10.3822/ijtmb.v10i2.367

51. Sommers BD, Baicker K, Epstein AM. Mortality and Access to Care among Adults after State Medicaid Expansions. *N Engl J Med*. 2012;367(11):1025-1034. doi:10.1056/NEJMsa1202099

52. Steffen SL, Fothergill A. 9/11 Volunteerism: A pathway to personal healing and community engagement. *Soc Sci J*. 2009;46(1):29-46. doi:10.1016/j.soscij.2008.12.005

53. Gonzales AR, Schofield RB, Schmitt GR. *Lessons Learned From 9/11: DNA Identification in Mass Fatality Incidents*.

54. Kennedy AB. *Massage Therapy Foundation Community Service Grant Program: Stakeholder Report for The Board of Trustees, Community Service Grant Award Committee, and Staff*.; 2013.

55. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organ Behav*. 1981;2(2):99-113. doi:10.1002/job.4030020205

56. Poghosyan L, Aiken LH, Sloane DM. Factor structure of the Maslach Burnout Inventory. *Int J Nurs Stud*. 2009;46(7):894-902. doi:10.1016/j.ijnurstu.2009.03.004.Factor

57. Rafferty JP, Lemkau JP, Purdy RR, Rudisill JR. Validity of the Maslach burnout inventory for family practice physicians. *J Clin Psychol*. 1986;42(3):488-492. doi:10.1002/1097-4679(198605)42:3<488::AID-JCLP2270420315>3.0.CO;2-S

58. Garcia LC, Shanafelt TD, West CP, et al. Burnout, Depression, Career Satisfaction, and Work-Life Integration by Physician Race/Ethnicity. *JAMA Netw Open*. 2020;3(8):e2012762. doi:10.1001/jamanetworkopen.2020.12762

59. Maslach C, Leiter MP. Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry*. 2016;15(2):103-111. doi:10.1002/wps.20311

60. Beckstead JW. Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. *Int J Nurs Stud*. 2002;39(8):785-792. doi:10.1016/S0020-7489(02)00012-3

61. Demerouti E, Nachreiner F, Bakker AB, Schaufeli WB. The job demands-resources model of burnout. *J Appl Psychol*. 2001;86(3):499-512. doi:10.1037/0021-9010.86.3.499

62. Li-Sauerwine S, Rebillot K, Melamed M, Addo N, Lin M. A 2-question summative score correlates with the Maslach Burnout inventory. *West J Emerg Med*. 2020;21(3):610-617. doi:10.5811/westjem.2020.2.45139

63. Dolan ED, Mohr D, Lempa M, et al. Using a Single Item to Measure Burnout in Primary Care Staff: A Psychometric Evaluation. *J Gen Intern Med*. 2015;30(5):582-587. doi:10.1007/s11606-014-3112-6

64. Locke AB, Fortenberry KT, Sullivan E, et al. Use of a Feedback Survey as a Part of a Wellness Champions Program to Improve Academic Faculty Satisfaction and Burnout: Implications for Burnout in Academic Health Centers. *Glob Adv Health Med*. 2020;9:216495612097363. doi:10.1177/2164956120973635

65. Firew T, Sano ED, Lee JW, et al. Protecting the front line: A cross-sectional survey analysis of the occupational factors contributing to healthcare workers' infection and psychological distress during the COVID-19 pandemic in the USA. *BMJ Open*. 2020;10(10). doi:10.1136/bmjopen-2020-042752

66. Cavanaugh KJ, Lee HY, Daum D, et al. An Examination of Burnout Predictors: Understanding the Influence of Job Attitudes and Environment. *Healthcare*. 2020;8(4):502. doi:10.3390/healthcare8040502

67. Pastores SM, Kvetan V, Coopersmith CM, et al. Workforce, Workload, and Burnout among Intensivists and Advanced Practice Providers: A Narrative Review. *Crit Care Med*. 2019;47(4):550-557. doi:10.1097/CCM.0000000000003637

68. Boamah SA, Read EA, Spence Laschinger HK. Factors influencing new graduate nurse burnout development, job satisfaction and patient care quality: a time-lagged study. *J Adv Nurs*. 2017;73(5):1182-1195. doi:10.1111/jan.13215

69. Stehman CR, Testo Z, Gershaw RS, Kellogg AR. Burnout, drop out, suicide: Physician loss in emergency medicine, part I. *West J Emerg Med*. 2019;20(3):485-494. doi:10.5811/westjem.2019.4.40970

70. Vlachou, Efstathia M.; Damigos, Dimitrios; Lyrakos, George; Chanopoulos, Konstantinos; Kosmidis, George; Karavis M. The Relationship between Burnout Syndrome and Intelligence in Healthcare Providers. *Health Sci J*. 2016;10(5):1-9. doi:http://dx.doi.org/10.4172/1791-809X.1000100502

71. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med*. 2018;283(6):516-529. doi:10.1111/joim.12752

72. Elbarazi I, Loney T, Yousef S, Elias A. Prevalence of and factors associated with burnout among health care professionals in Arab countries: A systematic review. *BMC Health Serv Res*. 2017;17(1). doi:10.1186/s12913-017-2319-8

73. Parola V, Coelho A, Cardoso D, Sandgren A, Apóstolo J. Prevalence of burnout in health professionals working in palliative care: a systematic review. *JBI Database Syst Rev Implement Rep*. 2017;15(7):1905-1933. doi:10.11124/JBISRIR-2016-003309

74. Tawfik DS, Scheid A, Profit J, et al. Evidence relating health care provider burnout and quality of care a systematic review and meta-analysis. *Ann Intern Med*. 2019;171(8):555-567. doi:10.7326/M19-1152

75. Cabilan CJ, Kynoch K. Experiences of and support for nurses as second victims of adverse nursing errors: a qualitative systematic review. *JBI Database Syst Rev Implement Rep*. 2017;15(9):2333-2364. doi:10.11124/JBISRIR-2016-003254

76. Khan A, Teoh KRH, Islam S, Hassard J. Psychosocial work characteristics, burnout, psychological morbidity symptoms and early retirement intentions: A cross-sectional study of NHS consultants in the UK. *BMJ Open*. 2018;8(7). doi:10.1136/bmjopen-2017-018720

77. Muller AE, Hafstad EV, Himmels JPW, et al. The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. *Psychiatry Res*. 2020;293:113441. doi:10.1016/j.psychres.2020.113441

78. Linzer M, Poplau S, Grossman E, et al. A Cluster Randomized Trial of Interventions to Improve Work Conditions and Clinician Burnout in Primary Care: Results from the Healthy Work Place (HWP) Study. *J Gen Intern Med*. 2015;30(8):1105-1111. doi:10.1007/s11606-015-3235-4

79. Sellgren SF, Ekvall G, Tomson G. Leadership behaviour of nurse managers in relation to job satisfaction and work climate. *J Nurs Manag*. 2008;16(5):578-587. doi:10.1111/j.1365-2934.2007.00837.x

80. Li A, Early SF, Mahrer NE, Klaristenfeld JL, Gold JI. Group Cohesion and Organizational Commitment: Protective Factors for Nurse Residents' Job Satisfaction, Compassion Fatigue, Compassion Satisfaction, and Burnout. *J Prof Nurs*. 2014;30(1):89-99. doi:10.1016/j.profnurs.2013.04.004

81. Van Bogaert P, Timmermans O, Weeks SM, van Heusden D, Wouters K, Franck E. Nursing unit teams matter: Impact of unit-level nurse practice environment, nurse work characteristics, and burnout on nurse reported job outcomes, and quality of care, and patient adverse events-A cross-sectional survey. *Int J Nurs Stud*. 2014;51(8):1123-1134. doi:10.1016/j.ijnurstu.2013.12.009

82. Galletta M, Portoghese I, Carta MG, D'Aloja E, Campagna M. The Effect of Nurse-Physician Collaboration on Job Satisfaction, Team Commitment, and Turnover Intention in Nurses. *Res Nurs Health*. 2016;39(5):375-385. doi:10.1002/nur.21733

83. Risman KL, Erickson RJ, Diefendorff JM. The Impact of Person-Organization Fit on Nurse Job Satisfaction and Patient Care Quality. *Appl Nurs Res*. 2016;31:121-125. doi:10.1016/j.apnr.2016.01.007

84. Corley MC, Minick P, Elswick RK, Jacobs M. Nurse moral distress and ethical work environment. *Nurs Ethics*. 2005;12(4):381-390. doi:10.1191/0969733005ne809oa

85. Corley MC, Elswick RK, Gorman M, Clor T. Development and evaluation of a moral distress scale. *J Adv Nurs*. 2001;33(2):250-256. doi:10.1046/j.1365-2648.2001.01658.x

86. Asayesh H, Mosavi M, Abdi M, Masoud MP, Jodaki K. The relationship between futile care perception and moral distress among intensive care unit nurses. *J Med Ethics Hist Med*. 2018;11.

87. Duarte CG, Lunardi VL, Silveira RS da, Barlem ELD, Dalmolin G de L. Moral suffering among nurse educators of technical courses in nursing. *Rev Bras Enferm*. 2017;70(2):301-307. doi:10.1590/0034-7167-2016-0185

88. Embriaco N, Papazian L, Kentish-Barnes N, Pochard F, Azoulay E. Burnout syndrome among critical care healthcare workers. *Curr Opin Crit Care*. 2007;13(5):482-488. doi:10.1097/MCC.0b013e3282efd28a

89. Cavaliere TA, Daly B, Dowling D, Montgomery K. Moral distress in neonatal intensive care unit RNs. *Adv Neonatal Care*. 2010;10(3):145-156. doi:10.1097/ANC.0b013e3181dd6c48

90. Draper H, Jenkins S. Ethical challenges experienced by UK military medical personnel deployed to Sierra Leone (operation GRITROCK) during the 2014-2015 Ebola outbreak: A qualitative study. *BMC Med Ethics*. 2017;18(1). doi:10.1186/s12910-017-0234-5

91. Rathert C, May DR, Chung HS. Nurse moral distress: A survey identifying predictors and potential interventions. *Int J Nurs Stud*. 2016;53:39-49. doi:10.1016/j.ijnurstu.2015.10.007

92. Rushton CH. Defining and addressing moral distress: Tools for critical care nursing leaders. *AACN Adv Crit Care*. 2006;17(2):161-168. doi:10.1097/01256961-200604000-00011

93. Wei E, Segall J, Villanueva Y, et al. Coping With Trauma, Celebrating Life: Reinventing Patient And Staff Support During The COVID-19 Pandemic. *Health Aff Proj Hope*. 2020;39(9):1597-1600. doi:10.1377/hlthaff.2020.00929

94. Nolte AGW, Downing C, Temane A, Hastings-Tolsma M. Compassion fatigue in nurses: A metasynthesis. *J Clin Nurs*. 2017;26(23-24):4364-4378. doi:10.1111/jocn.13766

95. Shannonhouse L, Barden S, Jones E, Gonzalez L, Murphy A. Secondary Traumatic Stress for Trauma Researchers: A Mixed Methods Research Design. *J Ment Health Couns*. 2016;38(3):201-216. doi:10.17744/mehc.38.3.02

96. Cantu LA, Thomas L. Baseline Well-being, Perceptions of Critical Incidents, and Openness to Debriefing in Community Hospital Emergency Department Clinical Staff Before COVID-19, A Cross-Sectional Study. *BMC Emerg Med*. 2020;20(1):82. doi:10.21203/rs.3.rs-34196/v1

97. Hobfoll SE, Tracy M, Galea S. The impact of resource loss and traumatic growth on probable PTSD and depression following terrorist attacks. In: *Journal of Traumatic Stress*. Vol 19. John Wiley & Sons, Ltd; 2006:867-878. doi:10.1002/jts.20166

98. Bazyar J, Farrokhi M, Khankeh H. Triage systems in mass casualty incidents and disasters: A review study with a worldwide approach. *Open Access Maced J Med Sci*. 2019;7(3):482-494. doi:10.3889/oamjms.2019.119

99. Daugherty Biddison EL, Faden R, Gwon HS, et al. Too Many Patients…A Framework to Guide Statewide Allocation of Scarce Mechanical Ventilation During Disasters. *Chest*. 2019;155(4):848-854. doi:10.1016/j.chest.2018.09.025

100. Christian MD, Sprung CL, King MA, et al. Triage: Care of the critically ill and injured during pandemics and disasters: CHEST consensus statement. *Chest*. 2014;146:e61S-e74S. doi:10.1378/chest.14-0736

101. Vagni M, Maiorano T, Giostra V, Pajardi D. Coping With COVID-19: Emergency Stress, Secondary Trauma and Self-Efficacy in Healthcare and Emergency Workers in Italy. *Front Psychol*. 2020;11:566912. doi:10.3389/fpsyg.2020.566912

102. Rotenstein LS, Ramos MA, Torre M, et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students a systematic review and meta-analysis. *JAMA - J Am Med Assoc*. 2016;316(21):2214-2236. doi:10.1001/jama.2016.17324

103. Papazoglou K, Chopko B. The role of moral suffering (Moral Distress and Moral Injury) in police compassion fatigue and PTSD: An unexplored topic. *Front Psychol*. 2017;8(NOV):1-5. doi:10.3389/fpsyg.2017.01999

104. Chamberlain C, Gee G, Harfield S, et al. Parenting after a history of childhood maltreatment: A scoping review and map of evidence in the perinatal period. *PLoS ONE*. 2019;14(3). doi:10.1371/journal.pone.0213460

105. Brown SM, Doom JR, Lechuga-Peña S, Watamura SE, Koppels T. Stress and parenting during the global COVID-19 pandemic. *Child Abuse Negl*. Published online 2020. doi:10.1016/j.chiabu.2020.104699

106. Ivankova N V, Stick SL. Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. *Res High Educ*. 2007;48(1):93-135. doi:10.1007/s11162-006-9025-4

107. Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Utility of a Brief Screening Tool to Identify Physicians in Distress. *J Gen Intern Med*. 2013;28(3):421-427. doi:10.1007/s11606-012-2252-9

108. Botha E, Gwin T, Purpora C. The effectiveness of mindfulness based programs in reducing stress experienced by nurses in adult hospital settings: a systematic review of quantitative evidence protocol. *JBI Database Syst Rev Implement Rep*. 2015;13(10):21-29. doi:10.11124/jbisrir-2015-2380

109. Lee HF, Kuo CC, Chien TW, Wang YR. A Meta-Analysis of the Effects of Coping Strategies on Reducing Nurse Burnout. *Appl Nurs Res*. 2016;31:100-110. doi:10.1016/j.apnr.2016.01.001

110. van der Riet P, Levett-Jones T, Aquino-Russell C. The effectiveness of mindfulness meditation for nurses and nursing students: An integrated literature review. *Nurse Educ Today*. 2018;65:201-211. doi:10.1016/j.nedt.2018.03.018

111. Myers RE. Cultivating Mindfulness to Promote Self-Care and Well-Being in Perioperative Nurses. *AORN J*. 2017;105(3):259-266. doi:10.1016/j.aorn.2017.01.005

112. Ross A, Bevans M, Brooks AT, Gibbons S, Wallen GR. Nurses and Health-Promoting Behaviors: Knowledge May Not Translate Into Self-Care. *AORN J*. 2017;105(3):267-275. doi:10.1016/j.aorn.2016.12.018

113. Dort J, Romanelli J, Choudhury N, et al. SAGES primer for taking care of yourself during and after the COVID-19 crisis. *Surg Endosc*. 2020;34(7):2856-2862. doi:10.1007/s00464-020-07631-3

114. Callis AM. Application of the Roy Adaptation Theory to a care program for nurses. *Appl Nurs Res*. Published online 2020. doi:10.1016/j.apnr.2020.151340

115. Trudel-Fitzgerald C, Chen Y, Singh A, Okereke OI, Kubzansky LD. Psychiatric, Psychological, and Social Determinants of Health in the Nurses' Health Study Cohorts. *Am J Public Health*. 2016;106(9):1644-1649. doi:10.2105/AJPH.2016.303318

116. Kashani P, Mirbaha S, Forouzanfar MM, Meschi F, Baratloo A. The prevalence of personality disorders among emergency nurses based on MMPI-2 questionnaire; a crosssectional study. *Emergency*. 2017;5(1):1-5. doi:10.22037/emergency.v5i1.13403

117. Crowe L. Tips on building resilience and improving well-being. *Emerg Nurse J RCN Accid Emerg Nurs Assoc*. 2017;24(10):14. doi:10.7748/en.24.10.14.s16

118. *Tapping Your Resilience After Hurricane Katrina: Pointers for Practitioners*.; 2005.

119. Sommers E, Porter K, DeGurski S. Providers of complementary and alternative health services in Boston respond to September 11. *Am J Public Health*. 2002;92(10):1597-1598. doi:10.2105/AJPH.92.10.1597

120. The Lancet. COVID-19: protecting health-care workers. *The Lancet*. 2020;395(10228):922. doi:10.1016/S0140-6736(20)30644-9

121. Milgrom Y, Tal Y, Finestone AS. Comparison of hospital worker anxiety in COVID-19 treating and non-treating hospitals in the same city during the COVID-19 pandemic. *Isr J Health Policy Res*. 2020;9(1):55. doi:10.1186/s13584-020-00413-1

122. Bohlken J, Schömig F, Lemke MR, Pumberger M, Riedel-Heller SG. COVID-19Pandemie: Belastungen des medizinischen Personals Ein kurzer aktueller Review. *Psychiatr Prax*. 2020;47(4):190-197. doi:10.1055/a-1159-5551

123. Bai YM, Lin CC, Lin CY, Chen JY, Chue CM, Chou P. Survey of stress reactions among health care workers involved with the SARS outbreak. *Psychiatr Serv*. 2004;55(9):1055-1057. doi:10.1176/appi.ps.55.9.1055

124. Chen CS, Wu HY, Yang P, Yen CF. Psychological distress of nurses in Taiwan who worked during the outbreak of SARS. *Psychiatr Serv*. 2005;56(1):76-79. doi:10.1176/appi.ps.56.1.76

125. Riccioni L, Bertolini G, Giannini A, et al. Clinical ethics recommendations for the allocation of intensive care treatments, in exceptional, resource-limited circumstances. *Recenti Prog Med*. 2020;111(4):207-211. doi:10.1701/3347.33183

126. Turale S, Meechamnan C, Kunaviktikul W. Challenging times: ethics, nursing and the COVID-19 pandemic. *Int Nurs Rev*. 2020;67(2):164-167. doi:10.1111/inr.12598

127. Barello S, Falcó-Pegueroles A, Rosa D, Tolotti A, Graffigna G, Bonetti L. The psychosocial impact of flu influenza pandemics on healthcare workers and lessons

learnt for the COVID-19 emergency: a rapid review. *Int J Public Health*. 2020;65(7):1205-1216. doi:10.1007/s00038-020-01463-7

128. Li Y, Wang H, Jin XR, et al. Experiences and challenges in the health protection of medical teams in the Chinese Ebola treatment center, Liberia: a qualitative study. *Infect Dis Poverty*. 2018;7(1):92. doi:10.1186/s40249-018-0468-6

129. Fernandez R, Lord H, Halcomb E, et al. Implications for COVID-19: A systematic review of nurses' experiences of working in acute care hospital settings during a respiratory pandemic. *Int J Nurs Stud*. 2020;111:103637. doi:10.1016/j.ijnurstu.2020.103637

130. Schwartz R, Sinskey JL, Anand U, Margolis RD. Addressing Postpandemic Clinician Mental Health. *Ann Intern Med*. Published online August 21, 2020. doi:10.7326/m20-4199

131. Liu Q, Luo D, Haase JE, et al. The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *Lancet Glob Health*. 2020;8(6):e790-e798. doi:10.1016/S2214-109X(20)30204-7

132. Algunmeeyn A, El-Dahiyat F, Altakhineh MM, Azab M, Babar Z-U-D. Understanding the factors influencing healthcare providers' burnout during the outbreak of COVID-19 in Jordanian hospitals. *J Pharm Policy Pract*. 2020;13(1). doi:10.1186/s40545-020-00262-y

133. Balasubramanian A, Paleri V, Bennett R, Paleri V. Impact of COVID-19 on the mental health of surgeons and coping strategies. In: *Head and Neck*. Vol 42. John Wiley and Sons Inc.; 2020:1638-1644. doi:10.1002/hed.26291

134. Yu X, Zhao Y, Li Y, et al. Factors Associated With Job Satisfaction of Frontline Medical Staff Fighting Against COVID-19: A Cross-Sectional Study in China. *Front Public Health*. 2020;8(August):1-9. doi:10.3389/fpubh.2020.00426

135. Salari N, Khazaie H, Hosseinian-Far A, et al. The prevalence of sleep disturbances among physicians and nurses facing the COVID-19 patients: a systematic review and meta-analysis. *Glob Health*. 2020;16(1). doi:10.1186/s12992-020-00620-0

136. Altena E, Baglioni C, Espie CA, et al. Dealing with sleep problems during home confinement due to the COVID-19 outbreak: Practical recommendations from a task force of the European CBT-I Academy. *J Sleep Res*. 2020;29(4). doi:10.1111/jsr.13052

137. Salazar de Pablo G, Vaquerizo-Serrano J, Catalan A, et al. Impact of coronavirus syndromes on physical and mental health of health care workers: Systematic review and meta-analysis. *J Affect Disord*. 2020;275:48-57. doi:10.1016/j.jad.2020.06.022

138. Sergeant A, Van Reekum EA, Sanger N, et al. Impact of COVID-19 and other pandemics and epidemics on people with pre-existing mental disorders: A systematic review protocol and suggestions for clinical care. *BMJ Open*. 2020;10(9). doi:10.1136/bmjopen-2020-040229

139. Nochaiwong S, Ruengorn C, Awiphan R, et al. Mental health circumstances among health care workers and general public under the pandemic situation of COVID-19 (HOME-COVID-19). *Medicine (Baltimore)*. 2020;99(26):e20751. doi:10.1097/MD.0000000000020751

140. Blackman JS. A psychoanalytic view of reactions to the coronavirus pandemic in China*. *Am J Psychoanal*. 2020;80(2):119-132. doi:10.1057/s11231-020-09248-w

141. Griffith AK. Parental Burnout and Child Maltreatment During the COVID-19 Pandemic. *J Fam Violence*. Published online 2020. doi:10.1007/s10896-020-00172-2

142. Tam CWC, Pang EPF, Lam LCW, Chiu HFK. Severe acute respiratory syndrome (SARS) in Hongkong in 2003: Stress and psychological impact among frontline healthcare workers. *Psychol Med*. 2004;34(7):1197-1204. doi:10.1017/S0033291704002247

143. Williamson V, Murphy D, Greenberg N. COVID-19 and experiences of moral injury in front-line key workers. *Occup Med Oxf Engl*. 2020;70(5):317-319. doi:10.1093/occmed/kqaa052

144. Scriven M. Hard-Won Lessons in Program Evaluation. *New Dir Program Eval*. 1993;58:1-107.

145. Scriven M. The logic of evaluation. In: Hansen H, ed. *Dissensus and the Search for Common Ground*. Department of Philosophy, University of Windsor; 2007.

146. Scriven M. The concept of a transdiscipline: And of evaluation as a transdiscipline. *J Multidiscip Eval*. 2008;5(10):65-66.

147. Patton MQ. Developmental Evaluation. *Am J Eval*. 1994;15(3):311-319. doi:10.1177/109821409401500312

148. Miller RL. On Messes, Systems Thinking, and Evaluation: A Response to Patton. *Am J Eval*. 2016;37(2):266-269. doi:10.1177/1098214015626294

149. Patton MQ. Evaluation Science. *Am J Eval*. 2018;39(2):183-200. doi:10.1177/1098214018763121

150. Creswell J, Plano Clark V. Choosing a mixed method design. In: *Designing and Conducting Mixed Methods Research*. ; 2007:58-89.

151. Neal JW, Neal ZP, VanDyke E, Kornbluh M. Expediting the Analysis of Qualitative Data in Evaluation: A Procedure for the Rapid Identification of Themes From Audio Recordings (RITA). *Am J Eval*. 2015;36(1):118-132. doi:10.1177/1098214014536601

152. Padgett DK. *Qualitative and Mixed Methods in Public Health*. SAGE Publications; 2012.

153. Federation of State Medical Boards of the United States. *USMLE Physician Tasks/Competencies*.; 2020:12. Accessed September 30, 2021. https://www.usmle.org/pdfs/tcom.pdf

154. Federation of State Medical Boards of the United States. *USMLE Content Outline*.; 2020:34. Accessed September 30, 2021. https://www.usmle.org/pdfs/usmlecontentoutline.pdf

155. Sawatsky AP, Ratelle JT, Beckman TJ. Qualitative Research Methods in Medical Education. *Anesthesiology*. 2019;131(1):14-22. doi:10.1097/ALN.0000000000002728

156. Ghirotto L, De Panfilis L, Di Leo S. Health professionals learning qualitative research in their workplace: a focused ethnography. *BMC Med Educ*. 2020;20(1):269. doi:10.1186/s12909-020-02191-5

157. Zappavigna M. Searchable talk: the linguistic functions of hashtags. *Soc Semiot*. 2015;25(3):274-291. doi:10.1080/10350330.2014.996948

158. Zappavigna M. *Searchable Talk: Hashtags and Social Media Metadiscourse*. Bloomsbury Publishing; 2018.

159. Wikström P. #srynotfunny : Communicative functions of hashtags on Twitter. *SKY J Linguist*. 2014;27:127-152.

160. Geboers MA, Van De Wiele CT. Machine Vision and Social Media Images: Why Hashtags Matter. *Soc Media Soc*. 2020;6(2):2056305120928485. doi:10.1177/2056305120928485

CHAPTER TWO

"I DON'T WANT TO GO TO WORK": A MIXED-METHODS ANALYSIS OF HEALTH-CARE WORKER EXPERIENCES FROM THE FRONT- AND SIDE-LINES OF COVID-19

Abstract

Background

During the COVID-19 pandemic, health-care workers (HCW) were categorized as "essential" and "non-essential," creating a division where some were locked into a system with little ability to prepare for or control the on-coming crisis and others were locked out regardless of whether their skills might be useful. Despite the reasonable utilitarian justifications for these decisions, this reality created a new potential source for stress and factor in burnout and moral distress.

Methods

ProjectCOPE: Chronicling health-care prOviders' Pandemic Experiences is a mixed-methods study capturing perspectives of HCW representing nearly two dozen health-care professions. Validated outcome measures of burnout, moral distress, and well-being, along with investigator-developed items capturing work related and personal concerns as well as coping mechanisms, comprise a survey administered to participants recruited via social media. The survey further gathered participant demographics, experience, education, and whether the respondent stopped seeing patients during the COVID-19 pandemic. Participants were also invited to submit video blogs.

Following a convergent parallel design, we analyzed quantitative data using a series of logistic regression models examining the differences in outcome measures by

professional category controlling for demographic factors of gender, race, years of experience, and whether the respondent stopped seeing patients. Qualitative analysis followed methodology derived from the Rapid Identification of Themes from Audio recordings (RITA) analysis. Qualitative and quantitative results were given equal weight as findings were merged and interpreted together.

Results

The study identified four themes and six subthemes: 1) professional identity (subthemes a desire to help and a feeling of being stuck or trapped), 2) intrinsic stressors (fear of COVID-19, allostatic load), 3) extrinsic factors (policy and financial impact), and 4) coping strategies.

Conclusion

In this mixed-methods study, we explored the experiences and perspectives of a diverse pool of health-care providers. We draw three key findings from this study: 1) there are some differences in the experiences of "locked-in" and "locked-out" health-care providers; 2) this did not always lead to differing reports of moral distress and burnout; 3) both groups struggled to cope with the realities of living and working through a pandemic.

Significance

The impact on health-care workers (HCW) during the 2003 severe acute respiratory syndrome (SARS) outbreak was studied extensively,[1] but the broader impact of ***the COVID-19 pandemic potentiates cascading effects of moral distress on a scale heretofore unseen.*** Early reports warned that COVID-19 could grow into a "SARS-like pandemic,"[2] but there is now little comparison between the impact of these diseases. SARS infected a total of 8,098 people and killed 774.[3] As of the writing of this manuscript, more than 226.2 million cases of COVID-19 have been reported worldwide, and 4.6 million people have died from the disease.[4] The United States has reported 41.5 million cases and 666,440 deaths.[5]

HCW treating SARS patients feared transmitting the disease to family members or falling ill themselves, and experienced increased rates of burnout, moral distress, and compassion fatigue.[6] HCW faced significant ethical challenges as resources grew scarce,[7] suffering moral injury as they worked to provide care in an ill-equipped health-care system.[8] Fear, anger, depression, and anxiety are common in the general population during pandemics, as well.[9] The ubiquitous disruption, continuous sources of stress, and staggering death toll are a recipe for a mental health crisis. In a health-care system which has yet to prioritize the emotional and physical needs of HCW,[10] the full impact of these cascading issues are not yet known.

The perspectives of HCW are needed to prepare for future major events. While we have evidence of the experiences of many workers in these different events, our review of literature failed to discover empirical examination of the experience of HCW

who want to help but cannot due to policy, location, or profession. By systematically gathering data during the COVID-19 pandemic from HCW from an interprofessional standpoint, we allow for an examination of these providers experiences from two perspectives: 1) ***those HCW who are "locked in" the health-care system with little control to make changes*** (e.g., MD/DOs, RN, respiratory therapists), 2) ***and those "locked out" of the same system and being told they are not allowed to help*** (e.g., dentists, massage therapists, mental health practitioners).

This study reports on HCW experiences during the COVID-19 pandemic. We examine three research questions:

- RQ1) How do "locked-in" compared with "locked-out" health-care workers feel prepared for and supported during the COVID-19 pandemic?
- RQ2) To what extent do "locked-in" compared with "locked-out" health-care workers report feelings of well-being, burnout, moral distress and/or moral injury?
- RQ3) How do "locked-in" compared with "locked-out" health-care workers describe their experiences of COVID-19?

Given the breadth of inquiry and the enormous volume of data already collected, preliminary analysis is warranted to understand the broadest patterns of respondent experiences.

Methods

Project COPE is an IRB approved (University of South Carolina) mixed-methods study led by an interdisciplinary team of thirteen researchers from five institutions

launched in April 2020 measuring burnout, wellness, and moral suffering in “locked in” and “locked out” health-care workers. Recruitment materials posted on social media platforms, including Facebook™, Instagram™, and LinkedIn™, directed interested individuals to a secured data collection site (Qualtrics™) to share their experiences during the pandemic. No geographical restrictions were placed on recruitment.

Initial Survey

The initial survey consisted of four qualifying items, including a statement of consent and verification that the participant is at least 18 years old, is a health-care provider/worker or student in a health-care profession, and can read and understand English. Demographics were collected including age in years, gender identity, ethnicity, race, and highest level of education. Participants are asked to define the location of their practice as urban, rural, suburban, or tribal.

Participants could indicate their professional field from twenty categories, including acupuncture, allied health, chiropractic, dental, massage therapy, medicine, mental health, midwifery, naturopathy, nursing, occupational therapy, pharmacy, physical therapy, psychologist, registered dietitian, respiratory, therapist, social work, athletic training, pre-hospital, or “other.” Fifty-six subcategories allowed respondents to further identify with specialties or specific licensures. Participants could also enter free text responses by selecting “other.”

Participants were then asked if they stopped seeing patients or clients and, if so, prompted to enter an approximate date. Participants were asked which of the following reasons best described the reason they stopped seeing patients: required by government

action, required by employer, recommended by employer, required by professional association, recommended by professional association, required by educational institution, furloughed/laid off by employer, personal choice, or other. Respondents choosing “other” were prompted to describe the reason in a free text field. Participants indicating that they had not stopped seeing patients were asked about other changes to their patient/client interactions including telehealth, changes in patient volume, or reassignment to another department, unit, or field.

The intake survey included a validated measure of moral distress, preceded by a prompt. "Moral distress is the stress health-care workers feel when they believe they know the ‘right’ thing to do on the job, but something in the environment prevents them from being able to do it, such as law/policies, other team members/colleagues, patient/family members, etc."[11] The stem and responses for this Moral Distress measure (MS) are included in Table 2.1.

Table 2.1: Moral Distress measure

In the last week how often have you felt moral distress in relation to your job/profession?
never
once a week or less
2–3 times per week
once per day
2–3 times a day
4 times a day or more

At the conclusion of the intake survey, participants were offered an opportunity to opt into weekly follow-up surveys by providing an email address, and invited to submit a 5-minute video blog in response to one of the following prompts: 1) What types of experiences led you to feel moral stress this week?; 2) How are you feeling about the next

time you go to work?; or 3) How are you coping with the pandemic while you are at home?

Weekly Survey

Participants electing to participate in weekly surveys were entered into our distribution system. Respondents receive a personalized survey invitation link via email, allowing us to track measures longitudinally. Our weekly survey repeated the moral distress measure captured in the initial survey, and included two additional validated measures, the Well-Being Index (WBI) and a single-item burnout measure.

The WBI is a six-item validated measure of professional and emotional well-being.[12] This constructs an ordinal scale of well-being, with respondents selecting a higher number of items ranked as worse versus those selecting a lower number.[13] The item is included in Table 2.2.

Table 2.2: Well-Being Index

During the past week (check all that apply):
Have you worried that your work is hardening you emotionally?
Have you often been bothered by feeling down, depressed, or hopeless?
Have you fallen asleep while stopped in traffic or driving?
Have you felt that all things you had to do were piling up so high that you could not overcome them?
Have you been bothered by emotional problems (such as feeling anxious or irritable)?
Has your physical health interfered with your ability to do your daily work at home and/or away from home?

The single-item burnout measure, from the Physician Work Life Study (PWLS, Table 2.3), was validated against the Maslach Burnout Inventory in a primary care setting.[14] This single item scale is a significantly more concise measure than the twenty-two-item Maslach Burnout Inventory, which has been validated in nurses[15] and

physicians[16] and used in studying a wide range of professions, including respiratory therapists, mental health workers, health-care educators, and first responders.[17,18]

The weekly survey repeats questions about whether the respondent is seeing patients and whether any family members or friends have been infected as in the initial survey, then includes a series of investigator developed items. These items capture potential sources of stress drawn from literature available at the time of study design including perceived lack of personal protective equipment,[19] insufficient communication,[6] fears for personal and family safety, and stigmatization.[20]

Table 2.3: Physician Work Life Study burnout item

Using your own definition of "burnout," please select one of the answers below:
I enjoy my work. I have no symptoms of burnout.
I am under stress, and don't always have as much energy as I did, but I don't feel burned out.
I am definitely burning out and have one or more symptoms of burnout (e.g., emotional exhaustion).
The symptoms of burnout that I am experiencing won't go away. I think about work frustrations a lot.
I feel completely burned out. I am at the point where I may need to seek help.

We included an item developed by the investigator team for a quality improvement project to assess respondents' coping strategies. Under the prompt, "Which of the following have you found helpful in the past week?" participants may select from a list of twenty strategies. These include positive, evidence-based strategies such as seeking support from coworkers, exercise, or recognizing the meaning in their work, as well as maladaptive strategies such as alcohol and tobacco use.[21–24]

An inclusive list of items contained in the initial and weekly surveys, as well as survey logic, is attached in Appendix A.

Study Design

Following a convergent parallel mixed-methods design, we analyzed responses from all participants. In a convergent parallel design, researchers concurrently implement the quantitative and qualitative portions of the study. In this study, the qualitative data was prioritized over the quantitative, yet kept separate until each portion of the analysis was completed.[25–27] While merging qualitative and quantitative data, researchers carefully considered how each data stream contextualizes the other, and what meaning might be gleaned from observing confirmation, disconfirmation, or expansion of one data source with—and from—the other.[25,28] This process is depicted in Figure 2.1.

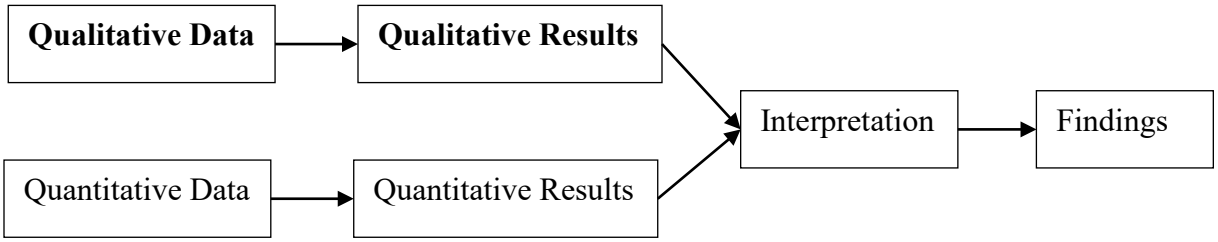

Figure 2.1: Convergent Parallel Design for Aim 1. Qualitative data and results are bolded to show emphasis.

Qualitative Analysis

Qualitative analysis of 257 video blogs followed the Rapid Identification of Themes from Audio Recordings (RITA) methodology. Under this method, recordings are not transcribed but analyzed in one-minute segments.[29] Two evaluators created a detailed codebook of themes, including themes deduced from the literature presented in this dissertation, as well as induced from video blogs collected in Project COPE. Inductive theme development was conducted collaboratively, with evaluators viewing video segments together and comparing notes and coding in real time.

Quantitative Analysis

Quantitative analysis was limited to the baseline and first weekly survey collected from each respondent due to a significant skew in long-term participation towards complementary and integrative HCW (i.e., massage therapists). Analysis included a series of logistic regression models. Model specification was informed by extant literature but limited by skewed sampling. We modeled burnout, moral distress, and well-being scores in "locked-in" and "locked-out" HCW in three separate cumulative logistic regression models, controlling for demographics and years of experience. Due to a significant sampling bias towards individuals identifying as white women, we collapsed race and gender into binary categories of "other races and ethnicities versus white non-Hispanic/non-Latinx" and "other gender identities versus women." For both variables, analyses considered the "other" category as the reference group. In addition to modeling the full ordinal scales, measures were collapsed into binary "high" and "low" categories in additional logistic regression models. Four or more items on the WBI, a score of 4 or 5 on moral distress, 6 or more on the burnout slider, and a score of 4 or 5 on the PWLS were all considered "high."

To further compare between "locked-in" and "locked-out" professionals, coping strategies and work concerns were compared between those seeing patients and those not seeing patients using single-tailed Fisher's exact tests. Professional categories were created to aid in analysis. These categories included allied health (surgical technicians, radiology technicians, athletic trainers, occupational therapists, and physical therapists), medicine (physicians, advanced practice providers, respiratory therapists, emergency

medical technicians, and paramedics), mental health (psychiatrists, counselors, and social workers), and other (acupuncturists, chiropractors, dentists and dental technicians, midwives, naturopaths, optometrists, and pharmacists). Nurses and massage therapists were left in their own categories due to the large numbers represented in the study.

Statistical analysis was performed using Microsoft Excel™ and SAS™ software version 9.4. Alpha was set at 0.05 for all analyses.

Results

We present our results integrated under four themes and six subthemes identified in our analysis: 1) professional identity (subthemes a desire to help and a feeling of being stuck or trapped), 2) intrinsic stressors (fear of COVID-19, allostatic load), 3) extrinsic factors (policy and financial impact), and 4) coping strategies. Themes are depicted in the theoretical model in Figure 2.2, showing their relationships with burnout and moral distress. We will review this theoretical model in detail in the discussion section.

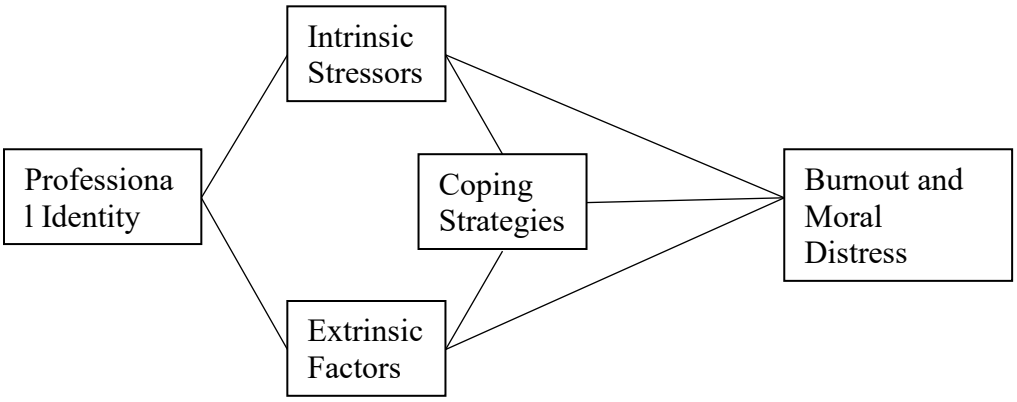

Figure 2.2: Theoretical model of themes.

Throughout the results section, quantitative results are nested under themes to indicate how results were merged to develop interpretations and findings. To provide

additional depth of meaning, descriptions of respondents' appearance, demeanor, and context from the video blogs are included with all quotes.

Theme 1: Professional Identity

Respondents almost universally framed their response and experience of the pandemic in their professional identity. Two subthemes emerged: a desire to help ("locked-out") and a feeling of being stuck or trapped ("locked-in").

Out of a total 1,299 baseline survey responses collected from April 15, 2020 to March 16, 2021, 592 (45.6%) unique respondents identified themselves as massage therapy professionals, and 273 (21.0%) indicated they were nursing professionals. A small contingent of 81 (6.2%) respondents identified as dual role professionals (e.g., holding both nursing and massage therapy credentials). Fifty-four (4.2%) identified as allied health professionals (e.g., surgical technician, radiology technician), 171 (13.2%) identified with medicine professions (e.g., pre-hospital, physicians, physician assistant), and 100 (7.7%) identified as other professions including naturopathy, dentistry, acupuncture, chiropractic, midwifery, optometry, and physical and occupational therapy. *ProjectCOPE* respondents overwhelmingly identified as women (83.7%) and white (80.6%). A breakdown of all professions reported by gender, race, and education is available in Appendix B.

Of baseline survey respondents, 70.7% (918) enrolled in the prospective arm of *ProjectCOPE* and provided a valid email address. These participants submitted a total of 2,411 responses and 257 video blogs over the study period. Table 2.4 details responses by professional categories.

Table 2.4: Baseline survey professional categories, vlog submissions, and prospective enrollment

Professional Category	**Total Baseline Surveys** (% of total)	**Baseline Vlog** (% of Profession)	**Enrolled in Prospective** (% of Profession)	**Weekly Responses** (% of total)	**Weekly Vlogs** (% of total)
Allied Health	54 (4.2)	2 (3.7)	37 (68.5)	94 (3.9)	1 (0.7)
Massage Therapy	592 (45.6)	41 (6.9)	469 (79.2)	1,559 (64.5)	123 (84.8)
Medicine	171 (13.2)	4 (2.3)	96 (56.1)	214 (8.9)	9 (6.2)
Mental Health	28 (2.2)	-	21 (75.0)	43 (1.8)	-
Nursing	273 (21.0)	5 (1.8)	178 (65.2)	242 (10.0)	8 (5.5)
Dual Profession	81 (6.2)	1 (1.2)	56 (69.1)	124 (5.1)	2 (1.4)
Other	100 (7.7)	-	61 (61.0)	135 (5.6)	2 (1.4)
Total	1,299	53 (4.1)	918 (70.7)	2,411	155

Multiple respondents identified as massage therapists discussed cross-training or holding additional certifications (e.g., registered nurse, nursing assistant, or lab technician) during video blog submissions, but only indicated massage therapy as their profession on intake surveys. This included one massage therapist who described her experience as a new registered nurse working on a COVID unit. She sits on the floor in front of a pair of folding doors. Her hair is wet and her face red. As she speaks, she looks away from the camera, and she begins to slouch as she describes her realization that she can't be both a massage therapist and a nurse during the pandemic.

I work with COVID patients and potentially rule out COVID patients at the hospital…I realized I am the one that is in contact every single day that I work

with COVID patients, so…I had an epiphany that I will not be able to do massage for a really long time.

Like other respondents, she reflected on the realities of holding dual professions.

Subtheme 1: Locked-Out

Many participants, particularly massage therapists, described feeling cut off from their work and sought to find meaning in other ways. One respondent exemplified this experience and explained her decision to stop seeing clients, citing the risk of spreading COVID-19. She told us about her desire to resume caring for her patients. The video is well lit, and she sits in front of an overflowing bookcase. Her hair is fixed with stiff curls, and her eyes are bright, but the camera shakes as she speaks: "I don't know what it's going to feel like the next time I have my hands on someone. I think it's going to feel really great, but I also think it's going to feel really scary."

As displayed in Table 2.5, a total of 768 respondents reported they stopped seeing patients. Participants described this interruption in patient care as required by government action (403, 52.5%), employer (132, 17.2%), professional association (66, 8.6%), or educational institution (81, 10.6%), or recommended by employer (28, 3.6%) or professional association (181, 23.6%). Eighty-one (10.6%) respondents reported being furloughed or laid off, and 362 (47.1%) described the decision to stop seeing patients as a personal choice.

Table 2.5: Reasons respondents stopped seeing patients

Why did you stop seeing patients (check all that apply)? (PatReas)	**N (%)**
Required by government action (1)	403 (52.5)
Required by employer (2)	132 (17.2)
Recommended by employer (3)	28 (3.6)

Required by professional association (4)	66 (8.6)
Recommended by professional association (5)	181 (23.6)
Required by educational institution (6)	81 (10.6)
Furloughed/laid off by employer (7)	81 (10.6)
Personal choice (8)	362 (47.1)
Total Responses	**768**

Subtheme 2: Locked-In

Others, particularly those working in acute care settings (e.g., emergency room and intensive care), described a sense of feeling trapped. In one video blog example of this experience, there are dark circles under the respondent's eyes and a faint redness on the bridge of their nose and down their cheeks, presumably from wearing a respirator at work. Their hair is pulled into a messy ponytail, and they are wearing a wrinkled, grey t-shirt. "I've even thought about calling in sick for shifts because I just don't want to go in and have to deal with all of this stuff. I don't want to be a lowly paid EMT during a pandemic. That's been the hardest part. I don't want to go to work."

At baseline, 521 respondents reported they were continuing to see patients. Changes in patient interactions (Table 2.6) included incorporating telehealth (137, 26.3%), decreased patient load (230, 44.2%), increased patient load (195, 37.4%), assisting in critical care (99, 19.0%), and assisting in other departments (127, 24.4%).

Table 2.6: Ways that interactions with patients changed

How has the way you have interacted with patients otherwise changed? (Check all that apply) (PatInt)	**N (%)**
Seeing patients/clients via telehealth (phone/video) (1)	137 (26.3)
Decrease in number of patients (2)	230 (44.2)
Increase in number of patients (3)	195 (37.4)
Assisting in critical care (4)	99 (19.0)
Assisting in departments other than my own (5)	127 (24.4)
Total Responses	**521**

Many respondents described feeling unsupported and ill-equipped to provide care to COVID-19 patients. One advanced practice provider said in a video blog, “Yes, I chose to do training in medicine, and yes I wanted to be there, but I didn’t want to feel like the resources weren’t there or feel like I couldn’t provide the right answers.”

Theme 2: Intrinsic Stressors

The second theme centers on stress and anxiety related to the pandemic and other social factors. These stressors were internalized; participants expressed a sense of responsibility to help control these stressors. Two subthemes were identified: 1) Fear of COVID-19 and Concern about Spread, and 2) Allostatic Load.

Subtheme 1: Fear of COVID-19 and Concern about Spread

Fear of the disease itself included general concerns about death and suffering, but, more often, many respondents specifically highlighted aspects of the disease process they feared experiencing or watching others experience. Concerns over the spread of COVID-19 took two distinct forms: concern about spread in the clinical environment (e.g., spread between patients and providers), and a fear of spreading COVID-19 to family members and friends. The overwhelming majority of responses included concerns about spreading COVID-19 either to, from, or between patients or bringing the infection home to their families. This led to feelings of isolation as respondents struggled to balance anxieties and reasonable precautions. In an extreme example of this subtheme, a medical assistant and massage therapist reported testing positive. She is visibly short of breath and speaks rapidly as if to be able to get out full sentences before needing to breathe again. “Unfortunately, because I felt fine on Saturday, I saw three of my massage clients, and so

they were all exposed. I was wearing a mask and a face shield…and one of the three have tested positive." Her face falls, and she sits in silence for a few seconds.

Concern about spreading the virus was even prevalent among students. A first-year medical student describes her concerns visiting her parents: "There was quite a bit of stress in that having parents above the age of 65 and have comorbidities and then coming to a family's house and having to deal with potentially spreading the virus to them unknowingly. It's the unknowing part of COVID. That's the most stressful."

Table 2.7: Personal concerns among those continuing to see patients versus those who stopped seeing patients

Which of the following are you currently concerned about regarding yourself? Check all that apply: (PRC)	**Seeing Patients** N (%)	**Not Seeing Patients** N (%)	**Total** N (%)	**X^2**	**p-Value**
Concern that my colleagues will get sick (1)	77 (40.1)	61 (31.8)	138 (35.9)	2.90	0.06
Fear of getting sick and/or dying myself (2)	105 (54.7)	95 (49.5)	200 (52.1)	1.04	0.18
Fear of my loved ones getting sick and/or dying (3)	140 (72.9)	134 (69.8)	274 (71.4)	0.46	0.29
Feeling socially isolated/lonely (4)	100 (52.1)	72 (37.5)	172 (44.8)	8.26	*0.002
Feeling like I can't share my concerns/feelings safely with others (5)	73 (38.0)	63 (32.8)	136 (35.4)	1.14	0.17
Difficulty sleeping due to increased stress from the pandemic (6)	67 (34.9)	73 (38.0)	140 (36.5)	0.40	0.30
Difficulty making arrangements for dependent care (e.g., children, elderly relatives) (7)	32 (16.7)	19 (9.9)	51 (13.3)	3.82	*0.04
Uncertainty about how long the pandemic will continue (8)	165 (85.9)	169 (88.0)	334 (87.0)	0.37	0.32
Fears of societal instability (9)	133 (69.3)	124 (64.6)	257 (66.9)	0.95	0.19
Personal resource worries (e.g., financial concerns, not having a will/advance directive in place, not having adequate	83 (43.2)	114 (59.4)	197 (51.3)	10.02	*0.001

supplies at home) (10)			
Total Responses	**192**	**192**	**384**

*Indicates significant results.

These concerns were also represented in our quantitative results. In response to an investigator-developed item, 71.4% of respondents endorsed fears of loved ones getting sick or dying, 52.1% endorsed concern for their own health, and 35.9% indicated they were concerned about their colleagues falling ill. A higher proportion of those seeing patients reported feeling isolated or lonely (52.1% vs. 37.5%, p=0.002) and concerns about care of family members (16.7% vs. 9.9%, p=0.04). More respondents who reported not seeing patients endorsed concerns about personal resources such as financial concerns, advanced directives, and home supplies (59.4% vs. 43.2%, p=0.001). Full results are displayed in Table 2.7.

Subtheme 2: Allostatic Load

Some respondents felt the burden of additional social, political, and cultural stress added to concerns about COVID-19. This includes the contention surrounding the 2020 US presidential election and the racial disparities highlighted by the death of George Floyd. Participants pointed out that the pandemic wasn't occurring in a vacuum. Comments about politics, the Black Lives Matter movement, and the environment were made exclusively by those with "non-essential" roles (e.g., massage therapists, counselors), but some did hold dual certification. For example, a massage therapist shared her excitement about finishing a medical assistant course and getting to start work in an urgent care unit, then she shifted to describing struggling with the political views of her massage clients: "I'm worried that if I make [wearing masks] a mandatory thing, I'm

going to lose that client, and then they're going to talk bad about me in the community. It's a very conservative town, and a lot of people don't like to wear masks." She is pacing through her house, presumably recording on her phone which is held low in her hand.

One respondent, who did not disclose their profession stated in a video blog, "I have a lot of people that are stressed by the politics and the election…there's different stress stimulus that wasn't present a few months ago." She sits close to the camera, and the light from the screen highlights heavy circles under her eyes.

Theme 3: Extrinsic Factors

Respondents frequently discussed economic impacts of the pandemic including being furloughed or laid off, as well as making decisions to open or close their businesses or to furlough or lay off team members. This was frequently seen among non-acute care and so called "non-essential" professions (e.g., massage therapists), but one nurse described her experience:

> *Our hospitals have a huge decrease of patients, which means starting next week we start furloughs, so my feeling has changed a lot because I might get furloughed next week…which is a very strange feeling thinking that you're very important and you're going to do all this good and you are not needed and that's weird.*

One respondent described the frustrations of her practice and work as a massage therapist being labeled as "non-essential" by her state. She sits on the floor in her bathroom, leaning against the cabinets wearing a bathrobe. She describes her decision to comply with the state orders despite hearing of other practitioners who have found

loopholes to continue practicing, such as being part of a medical office or hiring attorneys. “I’d be putting my livelihood, my business, and my professional recognition at stake if I were to justify to myself that medically necessary massage was ok with the mandates that our governor has made.”

Descriptive statistics of work-related experiences and concerns captured by *ProjectCOPE* are included in Appendix C.

Theme 4: Coping Strategies

Respondents often reported activities intended to help them cope with the realities of the pandemic. These ranged from healthy to unhealthy in the respondent’s own opinion, and could often be categorized by researchers as maladaptive behaviors. Common activities included walking, gardening, reading, and meditation. Several participants described their coping strategies (e.g., smoking, overeating) as “unhealthy,” but often they presented their activities without judgment. “I am sleeping a lot,” one massage therapist told us. “I don’t get out of bed very often. I have been looking for something to fill my time, so I’ve taken up some gardening and getting some ideas ready for yard work.”

Further representing this theme, one nurse shared, “I’ve been coping by eating a lot of comfort food, which is, I’m gaining weight like crazy, like 20 pounds since quarantine started.” She is standing in front of a bathtub. Her hair is fixed with large curls, and she wears a sheep’s fleece jacket.

Respondents often reported difficulty with feelings of isolation. “I’ve noticed with the downtime the social isolation has gotten to me. Some of my less healthy coping

patterns have resurfaced like, um, tobacco smoking and comfort foods, um, and staying up way too late." Her speech is pressured, and she looks down while speaking, rarely making eye contact with the camera.

In some cases, respondents described activities we coded as "hypervigilance." This included obsessive news and media consumption, attempts to calculate their own exposure risk, and robust decontamination procedures. Below is an extreme example of this kind of response:

> *We have a quarantine station we set up in the front door, which is a constant reminder when I'm home or when I have a day off, that we're working the frontlines in a middle, in the middle of a pandemic, and we wipe everything down as soon as we get home, strip our clothes, they go right into the wash, we go right to the shower before we do anything else when we get home.*

The respondent is sitting on her couch. Her hair is wet, and her face is reddened as though freshly washed. There are lines on her face tracing the impression of a face mask or respirator.

In another example, one participant submitted an audio only recording. She speaks slowly, stumbling over her words.

> *"I feel more vulnerable to COVID, and I've been doing my own research, if you will. I've been paying a lot of attention to the number of people I've massaged and their occupation. Once I reached a hundred and fifty since we've been reopened, I looked at my data and, um, you know, just calculated that 11.3% of those 150 are nurses."*

The investigator developed coping mechanism inventory captured similar results, displayed in full in Table 2.8. The most common coping strategies were social interaction with friends and family (n=292, 72.1%), exercise (n=232, 57.3%), feeling that work is meaningful (n=186, 45.9%), and prayer, meditation, and mindfulness practices (n=183, 45.2%). More respondents who were seeing patients reported finding support from coworkers (31.2% vs. 15.1%, $p<0.001$), a supervisor (15.1% vs. 5.7%, $p=0.002$), feeling that work is meaningful (65.1% vs. 31.8%, $p<0.001$), having a positive impact on patients (69.8% vs. 14.1%, $p<0.001$), and getting positive feedback from patients' families (26.6% vs. 8.8%, $p<0.001$).

Table 2.8: Coping strategies endorsed by those seeing patients versus those not seeing patients

Which of the following have you found helpful in the past week? Check all that apply: (COPE)	**Seeing Patients** N (%)	**Not Seeing Patients** N (%)	**Total** N (%)	**X^2**	**p-value**
Regular social interaction/check-ins with friends and family (1)	147 (76.5)	145 (75.5)	292 (76.0)	0.06	0.45
Regular social interaction/check-ins with work colleagues (2)	76 (39.6)	78 (40.6)	154 (40.1)	0.04	0.46
One-on-one counseling (3)	19 (9.9	24 (12.5)	43 (11.2)	0.65	0.26
Support groups/group counseling (4)	6 (3.1)	13 (6.8)	19 (5.0)	2.72	0.08
Fully disconnecting from work (5)	79 (41.1)	64 (33.3)	143 (37.2)	2.51	0.07
Prayer/religion, meditation, practicing gratitude, etc. (6)	87 (45.3)	96 (50.0)	183 (45.2)	0.84	0.21
Maintaining a daily routine (7)	75 (39.1)	87 (45.3)	162 (42.2)	1.54	0.13
Exercising (8)	108 (56.2)	124 (64.6)	232 (60.4)	2.79	0.06
Alcohol use (9)	32	41	73	1.37	0.15

	(16.7)	(21.4)	(19.0)		
Sleeping pill use (10)	14 (7.3)	8 (4.2)	22 (5.7)	1.74	0.14
Prescription medications (11)	20 (10.4)	19 (9.9)	39 (10.2)	0.03	0.50
Illicit substance use (12)	14 (7.3)	15 (7.8)	29 (7.6)	0.04	0.50
Tobacco use (13)	9 (4.7)	5 (2.6)	14 (3.6)	1.19	0.21
Support from coworkers (14)	60 (31.2)	29 (15.1)	89 (23.2)	14.06	*<0.001
Support from my supervisor (15)	29 (15.1)	11 (5.7)	40 (10.4)	9.04	*0.002
Feeling that my work is meaningful (16)	125 (65.1)	61 (31.8)	186 (48.4)	42.71	*<0.001
Knowing I am helping to address the COVID-19 pandemic (17)	46 (24.0)	59 (30.7)	105 (25.9)	2.22	0.08
Having a positive impact on patients (18)	134 (69.8)	27 (14.1)	161 (41.9)	122.45	*<0.001
Getting positive feedback from the family members of patients (19)	51 (26.6)	17 (8.8)	65 (17.7)	20.66	*<0.001
Receiving assistance/resources to help manage non-work needs (20)	22 (11.5)	22 (11.5)	44 (11.5)	0.00	0.56
Maladaptive Coping Strategies (composite of alcohol, tobacco, illicit substances, sleeping pills)	52 (27.1)	59 (30.7)	111 (28.9)	0.62	0.25
Total Responses	**192**	**192**	**384**		

*Indicates significant result.

A significant proportion of respondents (n=111, 27.4%) endorsed at least one maladaptive behavior. These included using alcohol (n=73, 18%), sleeping pills (n=22, 5.4%), illicit substances (n=29, 7.2%), or tobacco (n=14, 3.5%). We did not find significant differences between those who had and had not stopped seeing patients.

Moral Distress and Burnout

Three hundred ninety-three participants completed the Well-Being Index (WBI) in the first weekly survey, with 344 (87.5%) reporting at least one sign of burnout. Forty-nine (12.1%) reported no signs of burnout, 86 (21.9%) reported four or more. The mean composite score for the WBI was 2.40 (SD=1.45). Table 2.9 displays all results from this item.

Table 2.9: Results of the Well-Being Index

During the past week:	**No (%)**	**Yes (%)**
Have you worried that your work is hardening you emotionally? (1)	271 (69.1)	121 (30.9)
Have you often been bothered by feeling down, depressed, or hopeless? (2)	165 (42.1)	227 (57.9)
Have you fallen asleep while stopped in traffic or driving? (3)	379 (96.7)	13 (3.3)
Have you felt that all things you had to do were piling up so high that you could not overcome them? (4)	228 (58.0)	165 (42.0)
Have you been bothered by emotional problems (such as feeling anxious or irritable)? (5)	68 (17.3)	325 (82.7)
Has your physical health interfered with your ability to do your daily work at home and/or away from home? (6)	302 (76.8)	91 (23.2)
Total Responses	**393**	

The Physician Work Life Study burnout item (PWLS) captured 381 responses in the first weekly survey (Table 2.10). The majority of respondents (n=248, 65.1%) scored a 2 (“I am under stress, and don't always have as much energy as I did, but I don't feel burned out”) or lower, and 346 (90.8%) scored at a level 3 (“I am definitely burning out and have one or more symptoms of burnout”) or lower. Only 4 (1.0%) respondents reported level 5 (“I feel completely burned out.”).

Table 2.10: Results of the Physician Work–Life Study burnout item

Using your own definition of "burnout," please select one of the answers below:	**N (%)**	**Cumulative (%)**

I enjoy my work. I have no symptoms of burnout. (1)	56 (15.5)	59 (15.5)
I am under stress, and don't always have as much energy as I did, but I don't feel burned out. (2)	189 (49.6)	248 (65.1)
I am definitely burning out and have one or more symptoms of burnout (e.g., emotional exhaustion). (3)	98 (25.7)	346 (90.8)
The symptoms of burnout that I am experiencing won't go away. I think about work frustrations a lot. (4)	31 (8.1)	377 (99.0)
I feel completely burned out. I am at the point where I may need to seek help. (5)	4 (1.0)	381 (100.0)

Moral distress was captured in both the baseline and first weekly survey. In both surveys, the majority of respondents reported experiencing moral distress less than once a day, if at all (63.4% and 72.0%, respectively). See Table 2.11 for full results.

Table 2.11: Results of the Moral Distress measure

In the last week, how often have you felt moral distress in relation to your job/profession?	**Baseline (%)**	**First Weekly (%)**
Never (1)	243 (18.7)	85 (22.8)
Once a week or less (2)	292 (22.5)	106 (28.5)
2-3 times per week (3)	289 (22.2)	77 (20.7)
Once per day (4)	135 (10.4)	36 (9.7%)
2-3 times a day (5)	195 (15.0)	43 (11.6)
4 or more times a day (6)	145 (11.2)	25 (6.7)
Total Responses	**1,299**	**372**

In the baseline survey, those who stopped seeing patients were less likely to report higher levels of moral distress than those who stopped seeing patients (OR 0.72; 95% CI 0.52, 0.98) as were non-women compared with women (OR 0.44; 95% CI 0.32, 0.59) after controlling for years of practice, level of education, and race (dichotomized as non-white versus white). Having stopped seeing patients was also significantly associated with lower odds of reporting higher moral distress in medicine professions (OR 0.31; 95% CI 0.10, 0.96). Non-women were less likely to report higher levels of moral distress than women in massage therapy (OR 0.49; 95% CI 0.31, 0.77), medicine (OR 0.19; 95% CI 0.08, 0.44), and mental health (OR 0.19; 95% CI 0.08, 0.44). Massage therapists

reporting doctoral-level education were less likely to report higher levels of moral distress than those with a bachelor's degree (OR 0.36; 95% CI 0.14, 0.94), and non-whites in "other" professions reported less moral distress than whites (OR 0.43; 95% CI 0.19, 0.95). Full results are displayed in Table 2.12.

When using the binary moral distress measure, non-women were again significantly less likely to report higher levels of moral distress compared with women (OR 0.54; 95% CI 0.36, 0.79). This was also true of massage therapists (OR 0.52; 0.29, 0.93) and those in medicine professions (OR 0.33; 0.12, 0.89). Years of practice, level of education, race, ethnicity, and whether respondents stopped seeing patients were not significantly correlated with moral distress (p=0.04). See Table 2.13.

Table 2.12: Odds Ratios and Confidence Intervals of increased baseline moral distress

Professional Category	Years of Practice	Less than Bachelor's	Bachelor's	Master's	Doctorate	Stopped Seeing Patients	Other Races vs. White	Other Genders vs. Women	N	p-value
Allied Health	0.98 (0.91, 1.06)	0.23 (0.02, 2.26)	Ref	0.09 (0.01, 1.65)	-	0.26 (0.03, 2.63)	1.16 (0.12, 10.98)	1.36 9 (0.07, 26.49)	20	*<0.001
Massage Therapy	1.00 (0.99, 1.02)	1.10 (0.80, 1.51)	Ref	0.66 (0.40, 1.08)	*0.36 (0.14, 0.94)	1.51 (0.78, 2.93)	1.22 (0.81, 1.82)	*0.49 (0.31, 0.77)	561	0.54
Medicine	1.00 (0.96, 1.04)	1.15 (0.24, 5.43)	Ref	0.55 (0.10, 2.92)	0.66 (0.17, 2.65)	*0.31 (0.10, 0.96)	1.53 (0.66, 3.56)	*0.19 (0.08, 0.44)	115	*<0.001
Mental Health	0.95 (0.87, 1.03)	-	Ref	0.18 (0.01, 2.19)	0.18 (0.014, 2.19)	1.76 (0.26, 11.81)	-	*0.08 (0.01, 0.82)	24	0.52
Nursing	0.98 (0.96, 1.01)	1.06 (0.52, 2.15)	Ref	1.38 (0.71, 2.70)	1.12 (0.31, 3.97)	1.31 (0.64, 2.71)	1.29 (0.63, 2.65)	0.38 (0.13, 1.13)	253	*<0.001
Dual Profession	0.96 (0.93, 1.00)	0.67 (0.22, 2.02)	Ref	1.36 (0.46, 3.99)	2.90 (0.76, 11.07)	1.03 (0.44, 2.40)	0.82 (0.30, 2.24)	0.38 (0.08, 1.87)	74	*<0.001
Other	1.00 (0.96, 1.04)	1.48 (0.44, 4.91)	Ref	1.36 (0.59, 3.13)	1.36 (0.59, 3.13)	0.78 (0.41, 1.49)	*0.43 (0.19, 0.95)	1.12 (0.49, 2.56)	126	*0.01
All Professions	1.00 (0.99, 1.01)	1.03 (0.80, 1.33)	Ref	0.85 (0.64, 1.13)	0.72 (0.51, 1.01)	*0.72 (0.52, 0.98)	1.00 (0.76, 1.32)	*0.44 (0.32, 0.59)	1,173	0.37

*Indicates significant results.
-Indicates null results.

Table 2.13: Odds Ratios and Confidence Intervals of High Baseline Moral Distress as a binary measure

Professional Category	Years of Practice	Less than Bachelor's	Bachelor's	Master's	Doctorate	Stopped Seeing Patients	Other Races versus White	Other Genders versus Women	N	p-value
Allied Health	1.00 (0.92, 1.10)	0.41 (0.03, 6.50)	Ref	0.55 (0.02, 12.62)	-	0.64 (0.03, 12.89)	0.46 (0.03, 8.25)	-	20	0.98
Massage Therapy	1.01 (0.99, 1.03)	1.06 (0.73, 1.53)	Ref	0.63 (0.34, 1.17)	0.84 (0.28, 2.54)	1.04 (0.47, 2.32)	1.28 (0.80, 2.06)	*0.52 (0.29, 0.93)	561	0.22
Medicine	1.01 (0.96, 1.06)	4.41 (0.40, 49.35)	Ref	2.09 (0.17, 25.42)	2.04 (0.21, 19.48)	0.14 (0.02	1.99 (0.72, 5.44)	*0.33 (0.12, 0.89)	115	0.23
Mental Health	0.92 (0.79, 1.08)	-	Ref	0.60 (0.03, 12.5)	-	0.74 (0.07, 7.42)	-	-	24	0.98
Nursing	0.99 (0.96, 1.02)	0.84 (0.36, 1.95)	Ref	1.68 (0.78, 3.62)	0.89 (0.20, 4.04)	1.17 (0.51, 2.71)	1.71 (0.75, 3.91)	0.30 (0.06, 1.42)	253	0.39
Dual Profession	0.96 (0.91, 1.01)	0.86 (0.22, 3.35)	Ref	1.28 (0.36, 4.58)	1.80 (0.38, 8.60)	0.91 (0.33, 2.50)	0.44 (0.12, 1.64)	0.19 (0.02, 2.04)	74	0.59
Other	10.1 (0.95, 1.07)	3.23 (0.62, 16.93)	Ref	2.63 (0.67, 10.28)	1.18 (0.24, 5.77)	0.81 (0.31, 2.09)	0.62 (0.19, 2.06)	2.90 (0.93, 9.03)	90	0.50
All Professions	1.00 (0.99, 1.02)	1.06 (0.78, 1.42)	Ref	0.95 (0.68, 1.32)	0.76 (0.50, 1.12)	0.81 (0.63, 1.05)	1.10 (0.79, 1.53)	*0.54 (0.36, 0.79)	1,173	*0.04

*Indicates significant results.
-Indicates null results.

In the first weekly survey, those who reported they had stopped seeing patients were significantly less likely to report higher levels of moral distress (OR 0.55; 95% CI 0.38, 0.81). Each additional year of experience was associated with a slight decrease in likelihood to score higher on the WBI. Those who stopped seeing patients were at an increased risk for higher levels of burnout as measured by the PWLS (OR 1.57; 95% CI 1.06, 2.33). Non-whites (OR 0.54; 95% CI 0.30, 0.97) and non-women (OR 0.32; 95% CI 0.18, 0.59) were less likely to report higher levels of burnout. Interestingly, relationships were reversed when measuring burnout with the investigator developed burnout sliding scale. Additional years of experience were associated with higher burnout (OR 1.03; 95% CI 1.01, 1.05) and non-women were more likely than women to report higher levels of burnout (OR 1.92; 95% CI 1.11, 3.29). These results are displayed in Table 2.14

Table 2.14: Odds Ratios and Confidence Intervals of Worse Outcomes from First Weekly Survey

Measure	Years of Practice	Stopped Seeing Patients	Other Races vs. White	Other Genders vs. Women	N	p-value
Moral Distress	0.99 (0.97, 1.01)	*0.55 (0.38, 0.81)	0.81 (0.48, 1.40)	0.64 (0.37, 1.13)	355	0.30
WBI	*0.96 (0.94, 0.98)	1.19 (0.82, 1.72)	0.84 (0.49, 1.43)	0.59 (0.34, 1.02)	365	0.22
PWLS	0.98 (0.96, 1.00)	*1.57 (1.06, 2.33)	*0.54 (0.30, 0.97)	*0.32 (0.18, 0.59)	362	0.20
Burnout Slider	*1.03 (1.01, 1.05)	0.86 (0.60, 1.23)	1.64 (0.96, 2.78)	*1.92 (1.11, 3.29)	364	*<0.01

*Indicates significant results.

Among respondents who stopped seeing patients, increased years of practice were associated with decreased burnout as measured by the WBI. Using the same measure, those who reported the decision to stop seeing patients was a personal choice were just over half as likely to report high levels of burnout compared to those who reported other reasons (OR 0.53; 95% CI 0.30, 0.92). These results are displayed in Table 2.15.

Table 2.15: Odds Ratios and Confidence Intervals of Worse Outcomes from First Weekly Survey among Those Who Stopped Seeing Patients

Measure	Years of Practice	Stopped Seeing Patients by Choice	Other Races vs. White	Other Genders vs. Women	N	p-value
Moral Distress	1.00 (0.97, 1.03)	0.90 (0.52, 1.56)	0.85 (0.38, 1.89)	0.71 (0.32, 1.58)	168	0.17
WBI	*0.97 (0.94, 1.00)	*0.53 (0.30, 0.92)	0.50 (0.22, 1.12)	0.86 (0.39, 1.90)	171	0.52
PWLS	0.98 (0.95, 1.01)	0.82 (0.46, 1.49)	0.58 (0.24, 1.42)	0.43 (0.18, 1.02)	168	0.20
Burnout Slider	1.00 (0.97, 1.03)	1.14 (0.67, 1.96)	1.95 (0.87, 4.40)	1.01 (0.47, 2.19)	170	*<0.001

*Indicates significant results.

Table 2.16: Odds Ratios and Confidence Intervals of "High" Binary Outcomes from First Weekly Survey

Measure	Years of Practice	Stopped Seeing Patients	Other Races vs. White	Other Genders vs. Women	N	p-value
Moral Distress	0.99 (0.97, 1.02)	*0.46 (0.28, 0.73)	0.66 (0.32, 1.37)	0.76 (0.37, 1.59)	355	*0.02
WBI	0.98 (0.95, 1.00)	1.34 (0.81, 2.22)	0.97 (0.47, 2.01)	0.62 (0.26, 1.49)	365	0.19
PWLS	*0.95 (0.91, 0.99)	1.38 (0.65, 2.92)	0.37 (0.08, 1.61)	-	362	0.16
Burnout Slider	*1.03 (1.00, 1.05)	0.85 (0.56, 1.31)	*1.90 (1.03, 3.53)	1.67 (0.89, 3.13)	364	*0.01

*Indicates significant results.
-Indicates null results.

Similar trends were observed when outcome measures were treated as binary variables. Those who stopped seeing patients were less likely to report moral distress (OR 0.46; 95% CI 0.28, 0.73). Years of experience were associated with a decreased risk of burnout as measured by the PWLS (OR 0.95; 95% CI 0.91, 0.99), and the relationship was similar in the reverse coded burnout slider (OR 1.03; 95% CI 1.00, 1.05). Non-whites were also at an increased risk of burnout (OR 1.90; 95% CI 1.03, 3.53). See Table 2.16 for full results.

As shown in Table 2.17, no significant relationships were apparent in binary measures among those who had stopped seeing patients.

Table 2.17: Odds Ratios and Confidence Intervals of "High" Binary Outcomes from First Weekly Survey among Those Who Stopped Seeing Patients

Measure	Years of Practice	Stopped Seeing Patients by Choice	Other Races vs. White	Other Genders vs. Women	N	p-value
Moral Distress	0.99 (0.95, 1.02)	0.83 (0.44, 1.59)	0.56 (0.21, 1.54)	0.98 (0.38, 2.52)	168	0.75
WBI	0.97 (0.92, 1.01)	0.61 (0.27, 1.39)	0.59 (0.16, 2.16)	1.00 (0.31, 3.24)	171	0.45
PWLS	0.92 (0.85, 1.00)	1.18 (0.34, 4.20)	0.59 (0.07, 4.98)	-	168	0.44
Burnout Slider	0.99 (0.56, 3.35)	1.02 (0.55, 1.92)	2.60 (0.98, 6.86)	1.36 (0.56, 3.35)	170	0.34

-Indicates null results.

Discussion

In this mixed-methods study, we explored the experiences and perspectives of a diverse pool of health-care providers. Three key findings can be drawn from this study: 1) there are some differences in the experiences of "locked-in" and "locked-out" healthcare providers; 2) this did not always lead to differing reports of moral distress and burnout; 3) both groups struggled to cope with the realities of living and working through a pandemic.

As depicted in Figure 2.2, respondents' professional identities shaped their experience of both intrinsic stressors and extrinsic factors. While we hypothesize that these stressors and factors have a direct relationship with experienced burnout and moral distress, we would further suggest coping strategies may mediate these experiences.

The exact mechanisms and differences between "locked-in" and "locked-out" HCW are unclear in the present study, but there is sufficient evidence to suggest a

difference may exist. Study design and sampling bias limited our ability to fully explore mechanisms of action in our theoretical model of findings. Future research is warranted to explore the experiences of those HCW who were forced to stop seeing patients. These differences may explain some of the disparities seen in these groups in personal concerns, work stressors, and coping strategies.

The present study is limited by several factors. Oversampling of some professions (i.e., massage therapy) and under sampling of others limited our ability to compare professions directly in quantitative analysis. While the predominance of white women may reflect some professions, this may limit generalizability of findings. This study also collected data from a broad geographic area over an extended period of time, and we did not account for fluctuations in the pandemic over time. This study's mixed-methods approach allows for a deep understanding of the experiences of study participants.

RQ1) How do "locked-in" compared with "locked-out" health-care workers feel prepared for and supported during the COVID-19 pandemic?

"Locked-out" health-care workers reported more financial and personal resource concerns. Financial concerns were a persistent theme throughout video blogs from participants who were not seeing patients, as well as a statistically significant finding in our quantitative analysis (p=0.001). "Locked-in" professionals were not immune to these concerns. At least one nurse described concerns about the financial impact impending furloughs, and 43.2% of those seeing patients reported personal resources as a concern. The survey item, however, did not differentiate between home financial concerns, having a will or advanced directives, and having adequate supplies.

Differences in work related stressors (e.g., bureaucratic tasks, electronic health records) may be due to differences in practice settings, to whit a massage therapist has different documentation burdens and practices than an emergency room nurse. The different rates of endorsing "lack of support from the hospital/organization" may be due to the phrasing of the item. Alternatively, our oversampling of massage therapists may have skewed findings since a significant portion of massage therapists own their own practices.[30]

RQ2) To what extent do "locked-in" compared with "locked-out" health-care workers report feelings of well-being, burnout, moral distress and/or moral injury?

Those who stopped seeing patients were almost half as likely to report higher levels of moral distress (OR 0.55; 95% CI 0.38, 0.81), but one and a half times more likely to report higher levels of burnout on the PWLS (1.57; 1.06, 2.33) compared with those who were seeing patients, controlling for years of practice, race, and gender. Respondents who indicated they made a personal choice to stop seeing patients were half as likely to report higher levels of burnout on the WBI (0.53; 0.30, 0.92) compared with those who stopped for other reasons, after controlling for years of practice, race, and gender.

Those who made a choice to stop seeing patients may have seen the decision as a way to contribute to the public health effort to combat the pandemic, and though they may have perceived themselves to be worn down and ranked higher on the PWLS, they didn't experience the symptoms captured in the WBI. This study is also the first investigation of burnout in some of the professions represented.[14,31]

RQ3) How do "locked-in" compared with "locked-out" health-care workers describe their experiences of COVID-19?

Those who continued to see patients reported feeling lonely and isolated as well as concerns about dependent care at higher rates than those who had stopped seeing patients (p=0.002 and p=0.04, respectively). Based on qualitative findings, it may be that those continuing to see patients are more likely to self-isolate out of fear of spreading COVID-19, but this needs to be investigated further.

Both groups endorsed a sense of uncertainty about how long the pandemic would last, fears of society instability, and frustrations about misinformation spread about the pandemic. Among "locked-out" professionals, this was expressed as general anxiety and concern for public health. *ProjectCOPE* participants who continued to see patients expressed frustrations, fear for their personal well-being and family health.

Conclusion

ProjectCOPE: Chronicling health-care prOviders' Pandemic Experiences adds valuable evidence to the extant burnout and moral distress literature, both in well-studied groups (e.g., nurses, physicians, respiratory therapists) as well as previously unstudied professions (i.e., massage therapists). We also add to the growing body of literature, capturing stories and experiences of a crisis in near-real time.

REFERENCES

1. Maunder R, Hunter J, Vincent L, et al. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *Can Med Assoc J*. 2003;168(10):1245-1251.
2. Ammad Ud Din M, Boppana LKT. An update on the 2019-nCoV outbreak. *Am J Infect Control*. 2020;48(6):713. doi:10.1016/j.ajic.2020.01.023
3. SARS | Frequently Asked Questions | CDC. Accessed January 9, 2021. https://www.cdc.gov/sars/about/faq.html#global
4. WHO. WHO Coronavirus (COVID-19) Dashboard. Accessed September 17, 2021. https://covid19.who.int
5. CDC. Coronavirus Disease 2019 (COVID-19). Centers for Disease Control and Prevention. Published February 11, 2020. Accessed September 17, 2021. https://www.cdc.gov/coronavirus/2019-ncov/index.html
6. Lancee WJ, Maunder RG, Goldbloom DS. Prevalence of psychiatric disorders among Toronto hospital workers one to two years after the SARS outbreak. *Psychiatr Serv*. 2008;59(1):91-95. doi:10.1176/ps.2008.59.1.91
7. Singer PA, Benatar SR, Bernstein M, et al. Ethics and SARS: Lessons from Toronto. *Br Med J*. 2003;327(7427):1342-1344. doi:10.1136/bmj.327.7427.1342
8. Bernheim RG, Crawley LM, Daniels N, et al. *Ethical Considerations for Decision Making Regarding Allocation of Mechanical Ventilators during a Severe Influenza Pandemic or Other Public Health Emergency*.; 2011.

9. Chew QH, Wei KC, Vasoo S, Chua HC, Sim K. Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: Practical considerations for the COVID-19 pandemic. *Singapore Med J*. 2020;61(7):350-356. doi:10.11622/SMEDJ.2020046

10. Bodenheimer T, Sinsky C. From triple to Quadruple Aim: Care of the patient requires care of the provider. *Ann Fam Med*. 2014;12(6):573-576. doi:10.1370/afm.1713

11. Rathert C, May DR, Chung HS. Nurse moral distress: A survey identifying predictors and potential interventions. *Int J Nurs Stud*. 2016;53:39-49. doi:10.1016/j.ijnurstu.2015.10.007

12. Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Utility of a Brief Screening Tool to Identify Physicians in Distress. *J Gen Intern Med*. 2013;28(3):421-427. doi:10.1007/s11606-012-2252-9

13. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med*. 2018;283(6):516-529. doi:10.1111/joim.12752

14. Dolan ED, Mohr D, Lempa M, et al. Using a Single Item to Measure Burnout in Primary Care Staff: A Psychometric Evaluation. *J Gen Intern Med*. 2015;30(5):582-587. doi:10.1007/s11606-014-3112-6

15. Poghosyan L, Aiken LH, Sloane DM. Factor structure of the Maslach Burnout Inventory. *Int J Nurs Stud*. 2009;46(7):894-902. doi:10.1016/j.ijnurstu.2009.03.004.Factor

16. Rafferty JP, Lemkau JP, Purdy RR, Rudisill JR. Validity of the Maslach burnout inventory for family practice physicians. *J Clin Psychol*. 1986;42(3):488-492. doi:10.1002/1097-4679(198605)42:3<488::AID-JCLP2270420315>3.0.CO;2-S

17. Garcia LC, Shanafelt TD, West CP, et al. Burnout, Depression, Career Satisfaction, and Work-Life Integration by Physician Race/Ethnicity. *JAMA Netw Open*. 2020;3(8):e2012762. doi:10.1001/jamanetworkopen.2020.12762

18. Maslach C, Leiter MP. Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry*. 2016;15(2):103-111. doi:10.1002/wps.20311

19. Li Y, Wang H, Jin XR, et al. Experiences and challenges in the health protection of medical teams in the Chinese Ebola treatment center, Liberia: a qualitative study. *Infect Dis Poverty*. 2018;7(1):92. doi:10.1186/s40249-018-0468-6

20. Tam CWC, Pang EPF, Lam LCW, Chiu HFK. Severe acute respiratory syndrome (SARS) in Hongkong in 2003: Stress and psychological impact among frontline healthcare workers. *Psychol Med*. 2004;34(7):1197-1204. doi:10.1017/S0033291704002247

21. Ross A, Bevans M, Brooks AT, Gibbons S, Wallen GR. Nurses and Health-Promoting Behaviors: Knowledge May Not Translate Into Self-Care. *AORN J*. 2017;105(3):267-275. doi:10.1016/j.aorn.2016.12.018

22. Dort J, Romanelli J, Choudhury N, et al. SAGES primer for taking care of yourself during and after the COVID-19 crisis. *Surg Endosc*. 2020;34(7):2856-2862. doi:10.1007/s00464-020-07631-3

23. Trudel-Fitzgerald C, Chen Y, Singh A, Okereke OI, Kubzansky LD. Psychiatric, Psychological, and Social Determinants of Health in the Nurses' Health Study Cohorts. *Am J Public Health*. 2016;106(9):1644-1649. doi:10.2105/AJPH.2016.303318

24. Linzer M, Poplau S, Grossman E, et al. A Cluster Randomized Trial of Interventions to Improve Work Conditions and Clinician Burnout in Primary Care: Results from the Healthy Work Place (HWP) Study. *J Gen Intern Med*. 2015;30(8):1105-1111. doi:10.1007/s11606-015-3235-4

25. Creswell J, Plano Clark V. Choosing a mixed method design. In: *Designing and Conducting Mixed Methods Research*. ; 2007:58-89.

26. Shorten A, Smith J. Mixed methods research: expanding the evidence base. *Evid Based Nurs*. 2017;20(3):74-75. doi:10.1136/eb-2017-102699

27. O'Cathain A, Murphy E, Nicholl J. Three techniques for integrating data in mixed methods studies. *BMJ*. 2010;341:c4587. doi:10.1136/bmj.c4587

28. Creswell JW, Clark VLP. *Designing and Conducting Mixed Methods Research*. Third. SAGE Publications; 2018.

29. Neal JW, Neal ZP, VanDyke E, Kornbluh M. Expediting the Analysis of Qualitative Data in Evaluation: A Procedure for the Rapid Identification of Themes From Audio Recordings (RITA). *Am J Eval*. 2015;36(1):118-132. doi:10.1177/1098214014536601

30. Fortune, LMT, MA LD, Gillespie, MA E. The Influence of Practice Standards on Massage Therapists' Work Experience: A Phenomenological Pilot Study. *Int J Ther Massage Bodyw Res Educ Pract*. 2010;3(3):5-11. doi:10.3822/ijtmb.v3i3.73

31. Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Utility of a Brief Screening Tool to Identify Physicians in Distress. *J Gen Intern Med*. 2013;28(3):421-427. doi:10.1007/s11606-012-2252-9

CHAPTER THREE

"I JUST CAN'T MAINTAIN CONCERN ABOUT THIS STUPID VIRUS ANYMORE": A MIXED-METHODS COMPARISON OF BURNOUT IN NURSES AND MASSAGE THERAPISTS DURING THE COVID-19 PANDEMIC

Abstract

Background

Burnout syndrome is characterized by emotional exhaustion and cynicism, and it has been widely studied in nurses, physicians, and many other professions, but not in massage therapy. Nursing and massage therapy practice share common goals of holistic healing and similarly differentiate themselves from curative disciplines (e.g., medicine) as facilitators of healing and wellness as opposed to deliverers of a cure. This is a mixed-methods study of a subset of participants in *ProjectCOPE*: Chronicling health-care prOviders' Pandemic Experiences, a transdisciplinary study of moral distress, burnout, and compassion fatigue during the COVID-19 pandemic.

Methods

Respondents were categorized as massage therapists (MT), nurses, or dual role professionals (e.g., an MT also licensed as a medical assistant or registered nurse). Following a convergent parallel design, this study merges findings from inductive/deductive thematic analysis (qualitative) and Kruskal-Wallis analysis of variance among professions. Quantitative measures included validated measures from the Physician Work-Life Study (PWLS) and the Well-Being Index (WBI), as well as an investigator-developed inventory of coping strategies.

Results

Drawing on previous analysis, we identified four subthemes under coping strategies: 1) creation and meaning making, 2) mindfulness, 3) rest and isolation, and 4) maladaptation. While both nurses and MT reported maladaptive (e.g., smoking and overeating) and mindfulness (e.g., practicing acceptance) coping strategies, nurses more often reported rest and isolation (e.g., long baths), and MT more often reported creation and meaning making activities (e.g., gardening, volunteering).

Despite significant differences in experienced burnout as measured by the WBI (mean scores for nurses 3.13, SD 1.53; dual professionals 2.62, SD 1.36; MT 2.20, SD 1.32; overall mean of 2.40, SD 1.45; H-statistic=18.5, DF=2, $p<0.001$) and the PWLS (mean scores for nurses 2.86, SD 0.86; dual professionals 2.38, SD 0.96; MT 2.09, SD 0.79; overall mean 2.30, SD 0.86; H-statistic=34.5, DF=2, $p<0.001$) , both nurses and MT reported similar experiences of burnout (e.g., exhaustion, feeling overwhelmed).

Conclusion

To our knowledge this study is one of the first to examine burnout in MT, and the first to compare the phenomenon in nurses and MT. This study adds valuable evidence to an open field of research, laying the foundation for future study and theory development.

Significance

Burnout

Maslach and Jackson's seminal 1981 publication, "The measurement of experienced burnout," described construction of the Maslach Burnout Inventory, one of the first validated tools to measure the phenomenon. Maslach and Jackson define the phenomenon:

> *Burnout is a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of some kind. A key aspect of the burnout syndrome is increased feelings of emotional exhaustion. As their emotional resources are depleted, workers feel they are no longer able to give of themselves at a psychological level.*[1]

Maslach and colleagues developed the Maslach Burnout Inventory (MBI), a twenty-two item survey, which has been validated in nurses[2] and physicians[3] and used in studying a wide range of professions, including respiratory therapists, mental health workers, health care educators, and human resources.[4–6] We are not aware of any studies of burnout in massage therapists (MT). Emotional exhaustion is thought to be the core factor associated with burnout and results from a mismatch between job demands and resources.[7] Despite high validity, the MBI can be difficult to implement and utilize due to its length.[8]

A single-item burnout measure was originally validated against the MBI in a primary care setting.[9] This item, the Physician Work Life Study (PWLS) burnout item, is included in the American Medical Association's "Mini-Z" burnout survey along with

additional, physician-specific contextual factors.[10] The PWLS has been used widely in physicians and is specifically validated against the emotional exhaustion construct within MBI.[9] As an important note to the present study, PWLS has been used in emergency medical technicians, nurses, and research and non-clinical staff.[11,12] The PWLS asks respondents to consider their own definition of "burnout", and select a response on a scale from "I enjoy my work. I have no symptoms of burnout." to "I feel completely burned out. I am at the point where I may need to seek help."

Many factors are associated with burnout syndrome including perceived lack of support, high work load and increased patient acuity,[13] poor work–life balance,[14] sleep disruption,[15] and low emotional intelligence.[16] Burnout is more common in women, younger HCW, and those with higher educational debt.[17] Burnout is more commonly linked to work–home conflicts in women and predicted by workload in men.[17] Burnout syndrome is observed across multiple cultural[18] and clinical settings.[19] Burnout is associated with decreased quality of care including increased risk of medical and nursing errors.[20] In turn, errors may harm not only patients but also the providers themselves, as secondary emotional victims leading to increased risk of burnout.[21] HCW suffering from burnout are at increased risk for anxiety, depression, suicide, substance abuse, and motor vehicle crashes,[17] as well as being more likely to leave their profession.[22]

Evidence suggests that nurses prefer organizational approaches to address burnout such as work schedules designed to promote rest and adequate staffing, and to ensure adequate and appropriate equipment is available (e.g., personal protective equipment). However, a significant portion of interventions are aimed at individual coping strategies

and offering professional services, such as counseling or mindfulness training.[23] Similarly, physician burnout can be significantly reduced by optimizing workflows, reducing administrative burdens (e.g., using scribes to document patient encounters), and increasing time off.[24] Job satisfaction,[25] unit cohesion,[26] and interpersonal relationships may provide some protection against burnout.[27] Specifically, nurse-physician relationships can be protective[28] as can a sense of personal and professional alignment with the organization.[29]

Moral Distress

Moral distress is the experience of conflict when organizational, professional, or other restraints prevent a person from acting according to what they believe is the right thing to do.[30,31] This may occur in clinical settings when HCW perceive treatments as unnecessary or cruel.[32] The latter may occur when a frail, elderly patient undergoes cardiopulmonary resuscitation following cardiac arrest. Such heroic measures have low success rates, even in healthy patients, and can seem violent, as patients' ribs are often broken during chest compressions.[33] Clinical educators may experience moral suffering when students are uninterested in key content.[34] Unaddressed, moral distress can lead to emotional dysregulation, poor performance, turnover, and even suicide.[35,36]

Moral distress may be predicted by the frequency of ethical issues, perceived ability to voice ethical concerns, and organizational support.[37] HCW in an overwhelmed emergency room or intensive care unit might experience daily moral insults, knowing better care could be provided with additional resources and staff.[31] Conversely, a HCW deemed "non-essential" might feel there were ways for them to be useful in "essential"

care settings. HCW workers who perceive an ability to express ethical concerns (e.g., a clear pathway to report situations to leaders without fear of retribution) and perceive such concerns are taken seriously are less at risk from negative outcomes associated with moral distress.[38] Social support is exceedingly important. HCW experiencing moral distress may be hesitant to engage with professional support systems (e.g., mental health), and often rely on peers to process and cope with difficult decisions.[39] Experienced moral distress can be surprisingly easy to measure. Rathert et al. developed a single-item measure of experienced moral distress, which has been used in nurses.[37]

Compassion Fatigue

While the terms have been used interchangeably, compassion fatigue is conceptually distinct from burnout and moral distress. Identified in psychologists, it refers to an emotional exhaustion due to secondary trauma.[40] Compassion fatigue may result from a lack of self-care,[41] when HCW "take on" or internalize the pain and suffering of their patients and are unable to compartmentalize or recover.[42] Even when delivering optimum care, HCW can experience secondary trauma, developing maladaptive behaviors simply from providing care to patients experiencing difficult health issues.[40,43]

Traumatic events may be brief, such as an unexpected death,[44] but often, HCW struggle to cope with sustained trauma, when they are confronted with prolonged periods of increased suffering, death, or illness. These HCW may experience guilt over having survived when colleagues didn't or feeling like they could have done more to help.[45]

Well-being

Poor coping and mental health outcomes in response to prolonged stress and instability are also evident in health-care students,[46] police officers,[47] parents,[48,49] and academic professionals.[50] The interconnected nature of these outcomes (burnout, moral distress, and compassion fatigue), have prompted the development of broader measures of well-being. In the Well-Being Index, respondents are asked a series of yes/no questions. Respondents selecting "yes" on a higher number of items ranked as worse versus those selecting a lower number. Scores of four or greater (i.e., selecting "yes" to at least four items) are likely to have a quality of life score well below the population mean and are more likely to have had recent suicidal ideation.[17] This measure was originally developed to assess well-being and quality of life in medical students, but has been adapted to physicians.[51]

Nurses are well-versed in the importance of self-care to well-being, often recommending mindfulness practices to their own patients.[52] Despite this extensive knowledge, nurses often neglect their own self-care,[53] with many neglecting basic approaches, such as sleep hygiene, exercise, and balanced diet.[54] Nurses fail to apply their own practice to themselves, omitting consideration of the needs of the nurse from the nurse–patient relationship.[55] Not only does this omission lead to worsening clinical outcomes in patients, secondary trauma, burnout, and emotional strain are correlated with increased morbidity in nurses, including coronary artery disease and stroke[56] and significant psychiatric illnesses.[57] Self-care is essential to the well-being of nurses, and

while some adjustments can be made by individuals, it will likely require system-level intervention to ensure adequate support to implement such practices.[58]

Many sources specifically encourage massage therapy as part of coping strategies for burnout, compassion fatigue,[59] and moral distress,[42,53] yet we are not aware of any studies examining the role of MT in such intervention, let alone these professional's risk for similar outcomes. It is hypothesized that isolation resulting from the way massage therapy is practice (i.e., therapists working independently) may contribute to feelings of anxiety, depression, and intent to leave the profession.[60] MT have responded to large-scale disasters including offering services to first responders working during the September 11 terrorist attack in New York City,[61] tornado recovery efforts in Joplin, Missouri,[62] and victims of hurricane Katrina.[59] If MT do, indeed, perceive their work similarly to other HCW,[63] they may have similar experiences of secondary trauma, moral distress, and burnout.

Nursing Theory and Practice

The modern practice of nursing builds on nearly two centuries of transformative leadership and theory.[64] Early theorists were influenced by disasters and pandemics (such as the 1918 influenza outbreak) to craft a conceptual model of the profession distinct from other health-care work in that the work is centered on the relationship with the patient.[65–68] Theoretical models of nursing continued to develop, but many of these models we now view as reductionist, with patients viewed in the context of an illness or surgery, a problem to solve rather than a being in need of care. In the 1960s, we began to

see a second paradigm shift where "nursing care can meet the needs of the patient—not as defined by nurses, but as perceived by the patient."[64(p68)]

In one of the most influential contemporary nursing theories, Dorothea Orem describes patients as experiencing a self-care deficit—their care needs exceed their ability to provide care for themselves. The purpose, then, of nursing care is to address these deficits.[69] This may be achieved through education, physical assistance, or application of clinical treatment, but the aim remains to address the deficit, rather than curing any illness.[70]

Massage Therapy Theory and Practice

While there is a relative paucity of theoretical work in massage therapy, existing literature points to a similar philosophy of facilitating health and optimizing wellness based on client goals and needs. Some MT see themselves as health-care practitioners[71] and understand their work to be client centered and holistic.[72] Massage practices are incorporated into nursing competencies[73] as a valued alternative to pharmaceutical pain and anxiety intervention,[74] but the professionals specifically trained in this type of care are often omitted from empirical investigation of its application.

The profession remains divided in several domains. Debate continues over whether practice standardization or even tiered licensure will benefit the field.[63] For some MT who view their practice as clinical, practice standardization represents legitimacy; regulated practice ensures consistent quality of care.[75] For others, this seems intrusive. Many MT view their work through a less clinical lens and sometimes through a more spiritual one.[60] There is, however, growing support for continuing education, conscious

consideration of the MT-client relationship, and other means to increase the sense of professionalism in the field.[76]

In framing massage therapy practice, one leading theorist highlights the importance of safety for clients, drawing a corollary to nursing literature concepts of trust and comfort being cared for by a clinician.[77] Care is holistic and addresses mind, body, and social needs of the client. Massage therapy practice is further influenced by practice setting; the solo nature of practice may lead to feelings of isolation, anxiety, and intent to leave the profession.[78] Finally, massage therapy practice may be conceptualized as part of either the service or health industry. This system level factor may be the distinction between massage as a means of relaxation, as in a spa, versus massage as part of integrative and complementary medicine.[78–80]

ProjectCOPE

Many professions represented in *ProjectCOPE* are underrepresented or even absent from the compassion fatigue and moral distress literature. ***We have been struck by the dearth of studies of the experiences of MT particularly given the nearly ubiquitous recommendation of their services to other professions as a balm against burnout, as "self-care."***[77,80,81] This is particularly noticeable in the nursing literature, a profession which is the focus of a considerable portion of all inquiry on the subject. Despite significant evidence exploring massage as a complementary skill set to incorporate in nursing treatment including as pain management[74] and clear evidence that massage is helpful for stress management in acute care teams themselves,[81] we found no studies examining burnout and moral distress in the profession of massage therapy.

Our study includes considerable representation of both MT (N=448) and nurses (N=146), and includes a broad range of measures validated in the latter profession. This study offers a unique opportunity to explore similarities between the professions, which have been explored in the literature as complementary.[74]

Methods

ProjectCOPE is an IRB-approved (University of South Carolina) mixed-methods ethnography led by an interdisciplinary team measuring burnout, wellness, and moral suffering in "locked in" and "locked out" health-care workers. Recruitment materials posted on social media platforms directed interested individuals to a secured data collection site (Qualtrics™). Participants included in this study reside and practice throughout the United States. The survey is described in detail in previous studies of this dissertation.

Study Design

As described in previous manuscripts of this dissertation, survey and video blog responses were collected concurrently. Following a convergent parallel mixed-methods design, we analyzed responses from all participants. In a convergent parallel design, researchers concurrently implement the quantitative and qualitative portions of the study, but data are kept separate until each portion of the analysis is completed. This study gave equal priority to qualitative and quantitative data (i.e., QUAL-QUAN).[82–84] While merging qualitative and quantitative data, researchers carefully considered how each data stream contextualizes the other, and what meaning might be gleaned from observing

confirmation, disconfirmation, or expansion of one data source with–and from–the other.[82,85] This methodology is visualized in Figure 3.1.

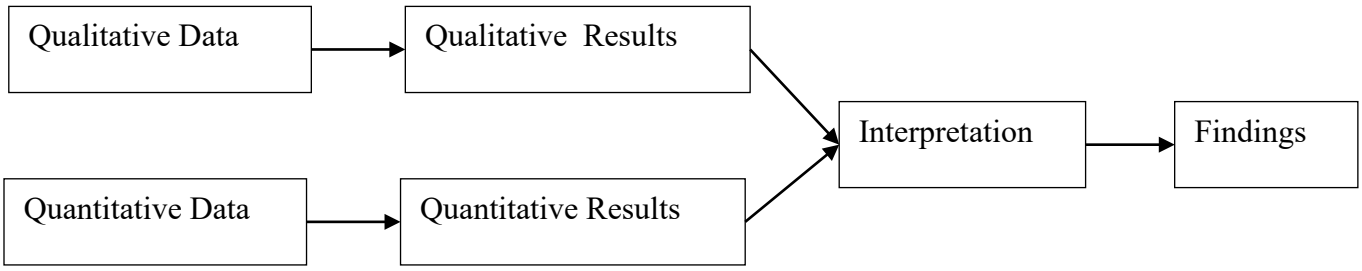

Figure 3.1: Convergent Parallel Design for Aim 2

In this manuscript, Aim 2 of the overall dissertation addresses two research questions:

- RQ4) How are nurses, compared to MT, coping with disruptions to routine patient care during the COVID-19 pandemic?
- RQ5) What are the differences between nurses' and MT' well-being and feelings of support?

Qualitative Analysis

Qualitative analysis of video blogs (vlogs) followed an inductive/deductive thematic approach. We transcribed verbatim and coded a sample of vlogs (n=50) from nurses and MT drawing sensitizing topics from nursing theory and extant literature on the practice of massage therapy.[86(p32)] Video blogs were reviewed as part of the analysis to draw additional meaning from body language, tone, and appearance of respondents when possible.

Video blogs were categorized by reported primary profession (massage therapy vs. nursing). The nursing professionals category included respondents working in

"nursing roles" regardless of whether they held a nursing license (e.g., an emergency medical technician working as a nursing assistant in the emergency department). Sampling was intentional, ensuring all themes from the qualitative analysis in Aim 1 were represented. If participants submitted multiple video blogs, we included all submissions in our analysis.

Three experienced qualitative researchers created a detailed codebook, including codes deduced from the literature presented and previous analysis in this dissertation, as well as induced from transcripts. Respondent videos were also reviewed for additional context and meaning. The team resolved disagreements in coding and themes following a consensus model, reviewing each instance of disagreement in weekly meetings.

Quantitative Analysis

Quantitative analysis was limited to the baseline and first weekly survey collected from each respondent due to significant over representation of massage therapy professionals in the longitudinal portion of *ProjectCOPE*, as reviewed in Chapter 2 of this dissertation. As in Aim 1, this study examined validated measures of moral distress and burnout, as well as investigator-developed measures of coping strategies, personal and work concerns. Rather than repeating the logistic regressions of Aim 1, measures were compared between nurses, MT, and those holding dual roles using the Kruskal-Wallis test for non-parametric, one-way analysis of variance. Kruskal-Wallis is a mean population rank test and tests the null hypothesis "all means are equal" (i.e., overall mean = MT = nurses = dual professional). A positive test indicates at least one group mean is different from the overall mean. Kruskal-Wallis is not as vulnerable to violations of the

normal distribution assumption compared with ANOVA, and is better able to accommodate skewed sampling as exists in this study.[87,88] Post hoc analysis included pairwise Fisher's exact tests between all combinations of professional categories (i.e., nurses vs. MT, MT vs. dual, nurses vs. dual) for validated measures, and between nurses and MT for coping strategy comparisons positive in the Kruskal-Wallis analysis.

Statistical analysis was performed using Microsoft Excel™ and SAS™ software version 9.4. Alpha was set at 0.05 for all analyses.

Results

This study included ten participants, five from each category, in qualitative analysis. Participants were all white and identified as women. MT submitted a total of 38 video blogs; nursing professionals submitted 12. One participant in each professional category indicated dual profession status in the baseline survey, an MT who cross-trained as a medical assistant and a registered nurse who was also a MT. Nursing professionals reported holding credentials as registered nurses (3), a nursing assistant (1), and an emergency medical technician working in the emergency department (1).

Table 3.1: Demographics of Respondents Included in Quantitative Analysis

	Massage Therapy N (% of Profession)	**Nursing N (% of Profession)**	**Dual N (% of Profession)**	**Total N (%)**
Race and Ethnicity				
Asian	3 (1.2)	2 (3.8)	1 (5.9)	6 (1.8)
Black or African American	4 (1.2)	-	-	4 (1.2)
Hispanic or Latino/a	7 (2.7)	4 (7.6)	-	11 (3.4)
Native or Indigenous	-	-	1 (5.9)	1 (0.3)
Multiracial	10 (3.9)	1 (1.9)	-	11 (3.4)
White	220 (85.6)	46 (86.8)	14 (82.4)	280 (85.6)

	Massage Therapy N (% of Profession)	Nursing N (% of Profession)	Dual N (% of Profession)	Total N (%)
Another not listed	5 (2.0)	-	1(5.9)	6 (1.8)
Chose not to answer	8 (3.1)	-	-	8 (2.4)
Gender Identity*				
Gender Expansive†	5 (2.0)	-	-	5 (1.5)
Man	34 (13.2)	2 (3.8)	-	36 (11.0)
Woman	218 (84.8)	51 (96.2)	17 (100.0)	286 (87.5)
Median Age (IQR)	48 (39.5, 56)	41 (35, 49)	48 (39, 60)	47 (38, 56)
Level of Education				
High school	5 (2.0)	-	-	5 (1.5)
Vocational Training	91 (35.4)	3 (5.7)	4 (23.5)	98 (30.0)
Bachelors	117 (45.5)	34 (64.2)	8 (47.1)	159 (48.6)
Masters	32 (12.4)	11 (20.8)	5 (29.4)	48 (14.7)
Doctoral or professional	9 (3.5)	5 (9.4)	-	14 (4.3)
Chose not to answer	3 (1.2)	-	-	3 (0.9)
Median Years of Practice (IQR)	15 (10, 20)	12.5 (5, 21.5)	12 (9, 26.5)	15 (9, 20)
Total N (%)	257 (78.6)	53 (16.2)	17 (5.2)	327

*Participants were asked to select their gender identity from a list of options (see Appendix A), as well as given the option of free text entries.

†Gender expansive refers to individuals identifying outside the binary of man or woman (e.g., non-binary, gender queer, trans-fem, trans-masc).

The majority of participants included in quantitative analysis identified as white (85.6%) and reported their gender identity as "woman" (87.5%). Table 3.2 includes all participant demographics broken down by profession. The sample included 257 MT, 53 nursing professionals, and 17 health-care workers who reported a dual professional identity (e.g., nursing technician and MT).

Table 3.2: Kruskal-Wallis comparison of WBI items between professions

During the past week:	**MT N (%)**	**Nurses N (%)**	**Dual Profession N (%)**	**Total N (%)**	**H-Statistic**	**DF**	**p-Value**
Have you worried that your work is hardening you emotionally? (1)	42 (17.0)	36 (69.2)	6 (37.5)	84 (26.7)	60.7	2	*<0.001
Have you often been bothered by feeling down, depressed, or hopeless? (2)	145 (58.7)	33 (63.5)	9 (56.2)	187 (59.4)	0.47	2	0.79
Have you fallen asleep while stopped in traffic or driving? (3)	5 (2.0)	3 (5.8)	0 (0.0)	8 (2.5)	2.88	2	0.24
Have you felt that all things you had to do were piling up so high that you could not overcome them? (4)	99 (39.9)	27 (51.9)	9 (56.2)	135 (42.7)	3.78	2	0.15
Have you been bothered by emotional problems (such as	205 (82.7)	45 (86.5)	14 (87.5)	264 (86.5)	0.66	2	0.72

	feeling anxious or irritable)? (5)						
Has your physical health interfered with your ability to do your daily work at home and/or away from home? (6)	49 (19.8)	19 (36.5)	4 (25.0)	72 (22.8)	6.90	2	*0.03
Total Responses	248 (78.5)	52 (16.5)	16 (5.1)	316			

*Indicates a significant result.

Findings largely aligned with analysis from Aim 1 (Figure 3.2), including four themes and six subthemes: 1) professional identity (subthemes include a desire to help and a feeling of being stuck or trapped), 2) intrinsic stressors (fear of COVID-19, allostatic load), 3) extrinsic factors (policy and financial impact), and 4) coping strategies.

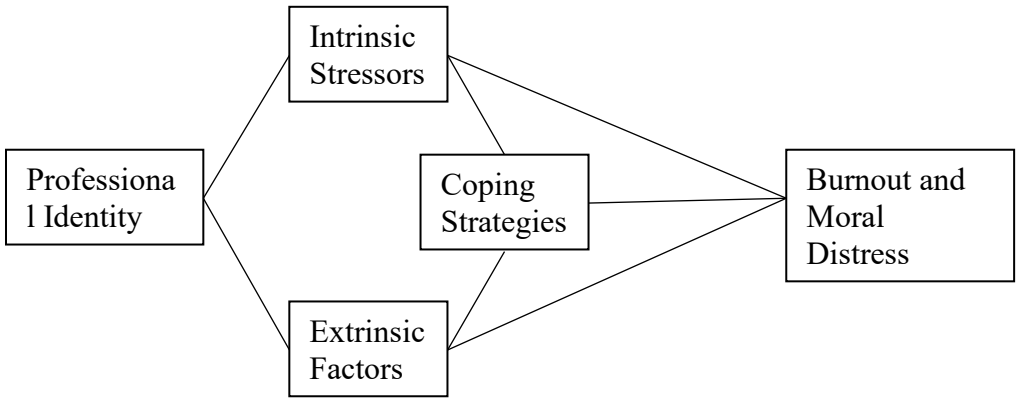

Figure 3.2: Theoretical model of themes

We will list results by research question, demonstrating our merging of data in order to explore differences and similarities between nurses and MT. When additional

meaning was derived from visual cues in video blogs, we include descriptions of respondent behavior and setting with quotes.

RQ4) How are nurses, compared to MT, coping with disruptions to routine patient care during the COVID-19 pandemic?

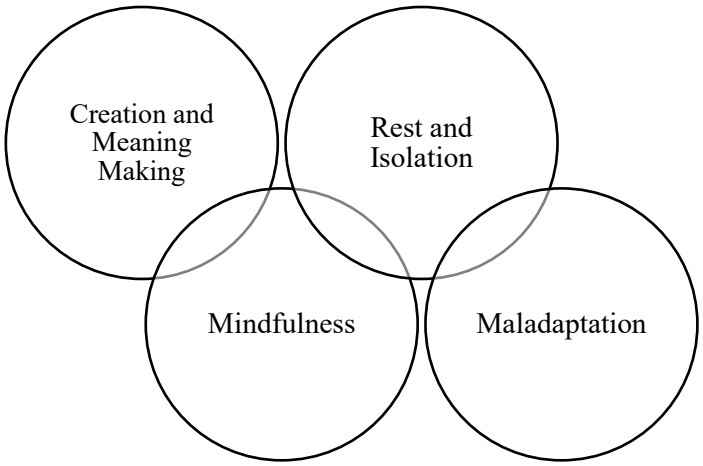

Figure 3.3: Coping Strategies subthemes

Subthemes under Coping Strategies emerged including 1) creation and meaning making, 2) mindfulness, 3), rest and isolation and 4) maladaptation. As displayed in Figure 3.3, these subthemes were interconnected, with mindfulness activities venturing into either creation and meaning making (e.g., gardening) or restful (e.g., long baths and reading) coping strategies. Similarly, coping strategies under the subtheme of rest and isolation could be more associated with mindfulness (e.g., practicing acceptance) or become more maladaptive (e.g., extreme social withdrawal and reclusive behaviors). We will review this in detail in the discussion section.

MT more often described engaging in creation and meaning making, whereas nursing professionals described more restful coping, despite both frequently engaging in

mindfulness work. A MT, in an audio-only submission, described playing with her pets: "I have started a-- in addition to exercise and walking my dog usually two to three times a day and playing ball with her outside and I've got my cute cats, like this one. Say hi. [laughter] And I've got my cute cats at home too. So, they are all stress relievers."

Nurses more often reported seeking solitude and rest, sometimes to the point of self-isolation. "I spent all day by myself today," a nurse told us. She sits on the floor and occasionally glances at the camera but quickly looks away. "I went on a really long walk. I spend most of my days when I'm at home, um, really trying to not be around [my family] in case I am asymptomatic, and I picked it up at the hospital."

In some cases, we coded respondents' described activities as "hypervigilance." This included obsessive news and media consumption, attempts to calculate their own exposure risk, and robust decontamination procedures.

Quantitative results showed a significant difference in MT (12.8%), nurses (3.8%), and dual profession respondents (0.0%) finding one-on-one counseling helpful (p=0.05). There were also significant differences in coping through exercise (dual professionals 76.5%, MT 61.1%, and nurses 43.4%, p=0.02), using sleeping pills (nurses 11.3%, dual professionals 5.9%, MT 2.7%, p=0.02), support from coworkers (nurses 45.3%, dual professionals 17.6%, MT 12.8%, p<0.001), support from supervisor (nurses 15.1%, dual professionals 5.9%, MT 5.1%, p=0.03), having a positive impact on patients (nurses 50.9%, dual professionals 47.1%, MT 32.7%, p=0.03), and getting positive feedback from patient's family members (nurses 30.2%, dual professionals 11.8%, MT 10.5%, p=0.03). Overall, there were not significant differences in "maladaptive" coping

strategies (MT 27.6%, nurses 24.5%, MT 23.5%, p=0.85). Full results of Kruskal-Wallis comparison of coping strategies are included in Table 3.3.

Table 3.3: Kruskal-Wallis comparison of coping strategies between professional categories

Which of the following have you found helpful in the past week? Check all that apply: (COPE)	MT N (%)	Nurses N (%)	Dual Profession N (%)	Total N (%)	H-Statistic	DF	p-value
Regular social interaction/check-ins with friends and family (1)	184 (71.6)	34 (64.2)	13 (76.5)	231 (70.6)	1.46	2	0.48
Regular social interaction/check-ins with work colleagues (2)	93 (36.2)	18 (34.0)	5 (29.4)	116 (35.5)	0.38	2	0.83
One-on-one counseling (3)	33 (12.8)	2 (3.8)	0 (0.0)	35 (10.7)	5.91	2	*0.05
Support groups/group counseling (4)	14 (5.4)	2 (3.8)	0 (0.0)	16 (4.9)	1.18	2	0.55
Fully disconnecting from work (5)	78 (30.4)	22 (21.5)	6 (35.3)	106 (32.4)	2.56	2	0.28
Prayer/religion, meditation, practicing gratitude, etc. (6)	(125 (48.6)	17 (32.1)	9 (52.9)	151 (46.2)	5.16	2	0.08
Maintaining a daily routine (7)	108 (42.0)	16 (30.2)	8 (47.1)	132 (40.4)	2.88	2	0.24
Exercising (8)	157 (61.1)	23 (43.4)	13 (76.5)	193 (59.0)	7.92	2	*0.02
Alcohol use (9)	47 (18.3)	8 (15.1)	3 (17.6)	58 (17.7)	0.31	2	0.86
Sleeping pill use (10)	7 (2.7)	6 (11.3)	1 (5.9)	14 (4.3)	8.01	2	*0.02
Prescription medications (11)	21 (8.2)	8 (15.1)	2 (11.8)	31 (9.5)	2.56	2	0.28
Illicit substance use (12)	23 (9.0)	1 (1.9)	2 (11.8)	26 (8.0)	3.34	2	0.19
Tobacco use (13)	9 (3.5)	4 (7.6)	0 (0.0)	13 (4.0)	2.62	2	0.27
Support from coworkers (14)	33 (12.8)	24 (45.3)	3 (17.6)	60 (18.4)	30.78	2	*<0.001
Support from my supervisor (15)	13 (5.1)	8 (15.1)	1 (5.9)	22 (6.7)	7.05	2	*0.03
Feeling that my work is meaningful (16)	104 (40.5)	24 (45.3)	11 (64.7)	139 (42.5)	4.02	2	0.13
Knowing I am helping to address the	68 (26.5)	14 (26.4)	4 (23.5)	86 (26.3)	0.07	2	0.96

Which of the following have you found helpful in the past week? Check all that apply: (COPE)	MT N (%)	Nurses N (%)	Dual Profession N (%)	Total N (%)	H-Statistic	DF	p-value
COVID-19 pandemic (17)							
Having a positive impact on patients (18)	84 (32.7)	27 (50.9)	8 (47.1)	119 (36.4)	7.19	2	*0.03
Getting positive feedback from the family members of patients (19)	27 (10.5)	16 (30.2)	2 (11.8)	45 (13.8)	14.36	2	*<0.001
Receiving assistance/resources to help manage non-work needs (20)	31 (12.1)	5 (9.4)	1 (5.9)	37 (11.3)	0.83	2	0.66
Maladaptive Coping Strategies (composite of alcohol, tobacco, illicit substances, sleeping pills)	71 (27.6)	13 (24.5)	4 (23.5)	88 (26.9)	0.32	2	0.85
Total Responses	**257 (78.6)**	**53 (16.2)**	**17 (5.2)**	**327**			

*Indicates a significant result.

Post-hoc analysis found significant differences between nurses and MT in all seven coping strategies captured in quantitative measures. MT reported higher rates of seeking one-on-one counseling (p=0.04) and exercising (p=0.01) compared to nurses. Nurses endorsed all other coping strategies examined at higher rates than MT. See Table 3.4 for results.

Table 3.4: Post-hoc comparison of coping strategies between nurses and massage therapists (Fisher's exact)

Which of the following have you found helpful in the past week? Check all that apply: (COPE)	**MT N (%)**	**Nurses N (%)**	**Chi-Squared**	**Single-Sided P-Value**
One-on-one counseling (3)	33 (12.8)	2 (3.8)	3.61	*0.04
Exercising (8)	157 (61.1)	23 (43.4)	5.65	*0.01
Sleeping pill use (10)	7 (2.7)	6 (11.3)	8.08	*0.01
Support from coworkers (14)	33 (12.8)	24 (45.3)	30.82	*<0.001
Support from my supervisor (15)	13 (5.1)	8 (15.1)	7.01	*0.01
Having a positive impact on patients (18)	84 (32.7)	27 (50.9)	6.37	*0.01
Getting positive feedback from the family members of patients (19)	27 (10.5)	16 (30.2)	14.25	*<0.001
Total Responses	**257 (78.6)**	**53 (16.2)**		

*Indicates positive result.

RQ5) What are the differences between nurses' and MT' well-being and feelings of support?

One MT described her emotional state, "I've suddenly been feeling quite down frequently and feeling anxious as well and [pause] yeah I'm finding I'm struggling to [pause] sort of forcing myself to do things throughout the day, so that at the end of the day I'll feel like I accomplished something."

One nurse described her deliberation about re-entering the workforce. The video is low resolution. She wears a mustard sweater, speaks softly and slowly, and her hair is uncombed. She hunches forward, frequently resting her face in her hand. “I have been dealing with memories of things that I saw and experienced and went through as a nurse all over again, and I feel like I was not prepared for this”

Both professions reported feelings consistent with burnout and compassion fatigue. An MT shared, “I am very tired, I am tired of this pandemic, and, um, I kind of don’t care anymore.” Her video is poor quality, and her face is obscured, “I think that’s also a bad sign, because I refuse to normalize this, I hate the expression this is our new normal, but I am tired, and I just can’t maintain concern about this stupid virus anymore.” Similarly, a nurse describes her experience trying to balance her needs with those of her patients:

> *If I go into work and I don’t have the things I need, I don't have the PPE, it makes it really, really tough to be compassionate and care for patients or even want to be there to the point that I’ve even thought about calling in sick for shifts because I just don’t want to go in and have to deal with all of this stuff.*

Table 3.5: Kruskal-Wallis comparison of outcome measures between professions

Measure	MT Mean (SD)	Nurses Mean (SD)	Dual Profession Mean (SD)	Total Mean (SD)	H-Statistic	DF	p-value
MoralDistress	3.35 (1.63)	3.66 (1.56)	3.78 (1.81)	3.39 (1.63)	1.86	2	0.39
WBI	2.20 (1.32)	3.13 (1.53)	2.62 (1.36)	2.40 (1.45)	18.50	2	*<0.001
PWLS	2.09 (0.79)	2.86 (0.86)	2.38 (0.96)	2.30 (0.86)	34.5	2	*<0.001
BurnoutSlider	5.67 (2.48)	4.77 (2.44)	6.44 (2.28)	5.51 (2.53)	7.3	2	*0.03

*Indicates a significant result.

Between professional categories, there were significant differences in the proportion of respondents answering "yes" to two items on the WBI. A majority of nurses (63.5%) endorsed worrying that their work was hardening them emotionally versus 17.0% of MT and 37.5% of dual professionals (p<0.001). There were also significant differences in the proportions of each profession reporting that physical health interfered with ability to do daily work at home (MT 19.8%, nurses 36.5%, dual 25.0%, H-statistic=6.9, DF=2, p=0.03). There were also significant differences in the mean scores of the overall WBI scale (nurses 3.13, dual 2.62, MT 2.20, overall 2.40, H-statistic=18.5, DF=2, p<0.001), the PWLS (nurses 2.86, dual 2.38, MT 2.09, overall 2.30, H-statistic=34.5, DF=2, p<0.001), and the burnout slider (dual 6.44, MT 5.67, nurses 4.77, overall 5.51, H-statistic=7.3, DF=2, p=0.03). Post hoc power analysis revealed the moral distress measure was not powered to detect differences (n=405, power=0.39). A sample of 1,200 respondents would have been required to detect differences between groups. Full results for the WBI index items and the overall scores for outcome measures are included in Tables 3.3 and 3.5, respectively.

Post hoc analysis of the WBI and PWLS found significant differences between nurses and MT. Nurses scored higher (mean 3.13, SD 1.53) than MT (mean 2.20, SD 1.32) on the WBI (Chi-squared 38.43, $p<0.001$). Results of the PWLS were similar (Chi-squared 44.83, $p<0.001$) with nurses scoring higher (mean 2.86, SD 0.86) than MT (mean 2.09, SD 0.79). Other pairwise analyses of the WBI and PWLS were not significant for nurses versus dual professionals (Chi-squared 8.42, $p=0.15$ and Chi-squared 5.03, $p=0.32$, respectively) nor for MT versus dual professionals (Chi-squared 6.16, $p=0.40$ and Chi-squared 6.51, $p=0.17$, respectively).

Kruskal-Wallis comparison of personal and workplace concerns between nurses and massage therapists are included in Appendix D.

Discussion

This study captures one of the largest samples of MT to date. Given this study's demonstration of similarities between nurses' and MT' experiences, future studies can explore the application of existing frameworks of burnout and coping developed and validated in nurses to the profession.[4,7,13] Further analysis of the available data may provide a deeper understanding of burnout and coping strategies among MT. As the profession of massage therapy continues to develop, leaders can benefit from the frameworks for resiliency and burnout prevention already demonstrated to be efficacious in nursing as they have been expanded to other professions.[58,89,90] While this study adds to the existing literature on burnout and coping in nurses, its more important contribution is to capture the stories and experiences of nursing and massage therapy professionals during the COVID-19 pandemic.

We identified significant differences between professional categories in experienced burnout as measured by the WBI and PWLS (which have been validated in nurses and not MT), with nurses scoring highest, followed by dual professionals then MT in both items. Interestingly the investigator-developed measure, the Burnout Slider, had different results with dual professionals ranking their well-being highest, followed by MT then nurses. It is possible this difference in findings is due to measure validation issues, or that the burnout slider simply measures the individual's perception of their well-being and burnout rather than more objective measures of experienced burnout. Further investigation is needed to validate these measures in all groups and further explore the psychometrics of the slider.

We were struck by the differences in visual ques from MT and nurses in video blogs— nurses often appeared worn down and visibly exhausted, whereas MT seemed well rested but anxiously searching for a way to contribute to public health efforts, as well as concerned about the future and their own livelihoods. As coping strategy subthemes emerged, these visual cues aligned with, and enriched, findings, with nurses gravitating more towards restful activities and MT seeking to fill their time with productive activities. In previous disasters, MT had a role to fill whether that was providing therapeutic massage to HCW[91] or victims,[92] and evidence demonstrates the efficacy of massage in management of occupational stress.[81] Despite knowledge and willingness to help, MT were barred or "locked-out" of the health-care system due to guidelines limiting physical exposure during a viral pandemic where disease is easily transmissible.

Coping strategies identified in qualitative analysis largely aligned with the quantitative measures but provided more granularity (e.g., hiking, walking the dog, and going to the gym identified in qualitative data versus the quantitative measure of "exercising"). However, qualitative data provided the important context, allowing us to identify the pattern of MT seeking out meaning making and creation, to whit gardening and volunteering were not included in quantitative measures. Differences in coping strategies related to support systems (e.g., from coworkers, from supervisors, from positive patient feedback) may also be the result of MT being more likely to have stopped seeing patients versus nurses, especially in acute care environments where nurses struggled under dramatically increased workloads.[12,13] This would also explain differences in reported rates of finding positive feedback from patients helpful in coping. Similarly, MT often own their own practices, making it unlikely they will rely on peers or supervisors for support.[76,79]

Interestingly, there were no significant differences in the proportions of each profession category feeling their work was meaningful (p=0.13) or sensing they were helping to address the COVID-19 pandemic (p=0.96). While this may be, in part, due to skewed sampling, MT may have seen their mitigation efforts, including suspending practice, as significant contributions to the overall public health effort, especially among MT who view their work through a more clinical lens.[71] Future research should examine this further.

Some differences may result from varied work conditions. For example, nurses reported higher rates of sleeping pill use (p=0.02), but this may be due to the fact that MT

rarely hold positions requiring shift work, a known factor in burnout.[7] There were not, however, significant differences in other pharmaceutical and chemical coping mechanisms including use of prescription medications (p=0.28), alcohol (p=0.86), tobacco (p=0.27), and illicit substances (p=0.19). Future research, beyond the COVID-19 pandemic, should examine differences in prescription and substance use between the professions under "normal" or non-pandemic circumstances.

The present study was limited by small sample size and over-sampling of MT. This limited the ability to perform additional analyses (e.g., logistic regression). It is also unclear whether samples are representative of the larger populations of nurses and MT, so findings may not be generalizable. Further, the included burnout measures have not been previously studied in MT. Future research should include validating existing measures in this profession. Because this is the first comparison of burnout between nurses and MT, it is unclear whether factors other than profession might account for the observed differences in moral distress and burnout. However, our mixed-methods approach adds significant evidence to the existing literature.

Conclusion

MT and nurses shared many common experiences in this study, and significant differences existed in experienced burnout, but not in moral distress. MT reported classic signs of burnout as described in literature on other professions, including apathy.[2,3] While this study found significant evidence that there were differences between nurses' and MT' levels of experienced burnout (mean PWLS score in nurses was 2.86 vs. 2.09 in MT, p<0.001), this study does not conclude that MT didn't experience burnout. As

mentioned, measures of burnout have not been validated in MT. Future studies should focus on validating such instruments in the massage therapy profession. There is also a need for a theoretical model of burnout syndrome in MT as exists for other professions.[1,2,26,35]

To our knowledge, no previously published studies examine burnout in MT. This study is also the first to directly compare any experiences between nurses and MT. The COVID-19 pandemic provided the unique opportunity to open this largely unexplored topic with shared experiences between so many health-care professions.

REFERENCES

1. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organ Behav*. 1981;2(2):99-113. doi:10.1002/job.4030020205
2. Poghosyan L, Aiken LH, Sloane DM. Factor structure of the Maslach Burnout Inventory. *Int J Nurs Stud*. 2009;46(7):894-902. doi:10.1016/j.ijnurstu.2009.03.004.Factor
3. Rafferty JP, Lemkau JP, Purdy RR, Rudisill JR. Validity of the Maslach burnout inventory for family practice physicians. *J Clin Psychol*. 1986;42(3):488-492. doi:10.1002/1097-4679(198605)42:3<488::AID-JCLP2270420315>3.0.CO;2-S
4. Garcia LC, Shanafelt TD, West CP, et al. Burnout, Depression, Career Satisfaction, and Work-Life Integration by Physician Race/Ethnicity. *JAMA Netw Open*. 2020;3(8):e2012762. doi:10.1001/jamanetworkopen.2020.12762
5. Maslach C, Leiter MP. Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry*. 2016;15(2):103-111. doi:10.1002/wps.20311
6. Beckstead JW. Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. *Int J Nurs Stud*. 2002;39(8):785-792. doi:10.1016/S0020-7489(02)00012-3
7. Demerouti E, Nachreiner F, Bakker AB, Schaufeli WB. The job demands-resources model of burnout. *J Appl Psychol*. 2001;86(3):499-512. doi:10.1037/0021-9010.86.3.499

8. Li-Sauerwine S, Rebillot K, Melamed M, Addo N, Lin M. A 2-question summative score correlates with the Maslach Burnout inventory. *West J Emerg Med*. 2020;21(3):610-617. doi:10.5811/westjem.2020.2.45139

9. Dolan ED, Mohr D, Lempa M, et al. Using a Single Item to Measure Burnout in Primary Care Staff: A Psychometric Evaluation. *J Gen Intern Med*. 2015;30(5):582-587. doi:10.1007/s11606-014-3112-6

10. Locke AB, Fortenberry KT, Sullivan E, et al. Use of a Feedback Survey as a Part of a Wellness Champions Program to Improve Academic Faculty Satisfaction and Burnout: Implications for Burnout in Academic Health Centers. *Glob Adv Health Med*. 2020;9:216495612097363. doi:10.1177/2164956120973635

11. Firew T, Sano ED, Lee JW, et al. Protecting the front line: A cross-sectional survey analysis of the occupational factors contributing to healthcare workers' infection and psychological distress during the COVID-19 pandemic in the USA. *BMJ Open*. 2020;10(10). doi:10.1136/bmjopen-2020-042752

12. Cavanaugh KJ, Lee HY, Daum D, et al. An Examination of Burnout Predictors: Understanding the Influence of Job Attitudes and Environment. *Healthcare*. 2020;8(4):502. doi:10.3390/healthcare8040502

13. Pastores SM, Kvetan V, Coopersmith CM, et al. Workforce, Workload, and Burnout among Intensivists and Advanced Practice Providers: A Narrative Review. *Crit Care Med*. 2019;47(4):550-557. doi:10.1097/CCM.0000000000003637

14. Boamah SA, Read EA, Spence Laschinger HK. Factors influencing new graduate nurse burnout development, job satisfaction and patient care quality: a time-lagged study. *J Adv Nurs*. 2017;73(5):1182-1195. doi:10.1111/jan.13215

15. Stehman CR, Testo Z, Gershaw RS, Kellogg AR. Burnout, drop out, suicide: Physician loss in emergency medicine, part I. *West J Emerg Med*. 2019;20(3):485-494. doi:10.5811/westjem.2019.4.40970

16. Vlachou, Efstathia M.; Damigos, Dimitrios; Lyrakos, George; Chanopoulos, Konstantinos; Kosmidis, George; Karavis M. The Relationship between Burnout Syndrome and Intelligence in Healthcare Providers. *Health Sci J*. 2016;10(5):1-9. doi:http://dx.doi.org/10.4172/1791-809X.1000100502

17. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med*. 2018;283(6):516-529. doi:10.1111/joim.12752

18. Elbarazi I, Loney T, Yousef S, Elias A. Prevalence of and factors associated with burnout among health care professionals in Arab countries: A systematic review. *BMC Health Serv Res*. 2017;17(1). doi:10.1186/s12913-017-2319-8

19. Parola V, Coelho A, Cardoso D, Sandgren A, Apóstolo J. Prevalence of burnout in health professionals working in palliative care: a systematic review. *JBI Database Syst Rev Implement Rep*. 2017;15(7):1905-1933. doi:10.11124/JBISRIR-2016-003309

20. Tawfik DS, Scheid A, Profit J, et al. Evidence relating health care provider burnout and quality of care a systematic review and meta-analysis. *Ann Intern Med*. 2019;171(8):555-567. doi:10.7326/M19-1152

21. Cabilan CJ, Kynoch K. Experiences of and support for nurses as second victims of adverse nursing errors: a qualitative systematic review. *JBI Database Syst Rev Implement Rep*. 2017;15(9):2333-2364. doi:10.11124/JBISRIR-2016-003254

22. Khan A, Teoh KRH, Islam S, Hassard J. Psychosocial work characteristics, burnout, psychological morbidity symptoms and early retirement intentions: A cross-sectional study of NHS consultants in the UK. *BMJ Open*. 2018;8(7). doi:10.1136/bmjopen-2017-018720

23. Muller AE, Hafstad EV, Himmels JPW, et al. The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. *Psychiatry Res*. 2020;293:113441. doi:10.1016/j.psychres.2020.113441

24. Linzer M, Poplau S, Grossman E, et al. A Cluster Randomized Trial of Interventions to Improve Work Conditions and Clinician Burnout in Primary Care: Results from the Healthy Work Place (HWP) Study. *J Gen Intern Med*. 2015;30(8):1105-1111. doi:10.1007/s11606-015-3235-4

25. Sellgren SF, Ekvall G, Tomson G. Leadership behaviour of nurse managers in relation to job satisfaction and work climate. *J Nurs Manag*. 2008;16(5):578-587. doi:10.1111/j.1365-2934.2007.00837.x

26. Li A, Early SF, Mahrer NE, Klaristenfeld JL, Gold JI. Group Cohesion and Organizational Commitment: Protective Factors for Nurse Residents' Job Satisfaction, Compassion Fatigue, Compassion Satisfaction, and Burnout. *J Prof Nurs*. 2014;30(1):89-99. doi:10.1016/j.profnurs.2013.04.004

27. Van Bogaert P, Timmermans O, Weeks SM, van Heusden D, Wouters K, Franck E. Nursing unit teams matter: Impact of unit-level nurse practice environment, nurse work characteristics, and burnout on nurse reported job outcomes, and quality of care, and patient adverse events-A cross-sectional survey. *Int J Nurs Stud*. 2014;51(8):1123-1134. doi:10.1016/j.ijnurstu.2013.12.009

28. Galletta M, Portoghese I, Carta MG, D'Aloja E, Campagna M. The Effect of Nurse-Physician Collaboration on Job Satisfaction, Team Commitment, and Turnover Intention in Nurses. *Res Nurs Health*. 2016;39(5):375-385. doi:10.1002/nur.21733

29. Risman KL, Erickson RJ, Diefendorff JM. The Impact of Person-Organization Fit on Nurse Job Satisfaction and Patient Care Quality. *Appl Nurs Res*. 2016;31:121-125. doi:10.1016/j.apnr.2016.01.007

30. Corley MC. Nurse moral distress: A proposed theory and research agenda. *Nurs Ethics*. 2002;9(6):636-650. doi:10.1191/0969733002ne557oa

31. Corley MC, Minick P, Elswick RK, Jacobs M. Nurse moral distress and ethical work environment. *Nurs Ethics*. 2005;12(4):381-390. doi:10.1191/0969733005ne809oa

32. Corley MC, Elswick RK, Gorman M, Clor T. Development and evaluation of a moral distress scale. *J Adv Nurs*. 2001;33(2):250-256. doi:10.1046/j.1365-2648.2001.01658.x

33. Asayesh H, Mosavi M, Abdi M, Masoud MP, Jodaki K. The relationship between futile care perception and moral distress among intensive care unit nurses. *J Med Ethics Hist Med*. 2018;11.

34. Duarte CG, Lunardi VL, Silveira RS da, Barlem ELD, Dalmolin G de L. Moral suffering among nurse educators of technical courses in nursing. *Rev Bras Enferm*. 2017;70(2):301-307. doi:10.1590/0034-7167-2016-0185

35. Embriaco N, Papazian L, Kentish-Barnes N, Pochard F, Azoulay E. Burnout syndrome among critical care healthcare workers. *Curr Opin Crit Care*. 2007;13(5):482-488. doi:10.1097/MCC.0b013e3282efd28a

36. Cavaliere TA, Daly B, Dowling D, Montgomery K. Moral distress in neonatal intensive care unit RNs. *Adv Neonatal Care*. 2010;10(3):145-156. doi:10.1097/ANC.0b013e3181dd6c48

37. Rathert C, May DR, Chung HS. Nurse moral distress: A survey identifying predictors and potential interventions. *Int J Nurs Stud*. 2016;53:39-49. doi:10.1016/j.ijnurstu.2015.10.007

38. Rushton CH. Defining and addressing moral distress: Tools for critical care nursing leaders. *AACN Adv Crit Care*. 2006;17(2):161-168. doi:10.1097/01256961-200604000-00011

39. Wei E, Segall J, Villanueva Y, et al. Coping With Trauma, Celebrating Life: Reinventing Patient And Staff Support During The COVID-19 Pandemic. *Health Aff Proj Hope*. 2020;39(9):1597-1600. doi:10.1377/hlthaff.2020.00929

40. Figley CR. Compassion Fatigue: Psychotherapists Chronic Lack of Self Care. *J Clin Psychol*. 2002;58(11):1433-1441. doi:10.1002/jclp.10090

41. Boscarino J, Adams R, Figley C. Secondary Trauma Issues for Psychiatrists. *Psychiatr Times*. 2010;27(11):24-26. doi:10.1021/nl061786n.Core-Shell

42. Nolte AGW, Downing C, Temane A, Hastings-Tolsma M. Compassion fatigue in nurses: A metasynthesis. *J Clin Nurs*. 2017;26(23-24):4364-4378. doi:10.1111/jocn.13766

43. Shannonhouse L, Barden S, Jones E, Gonzalez L, Murphy A. Secondary Traumatic Stress for Trauma Researchers: A Mixed Methods Research Design. *J Ment Health Couns*. 2016;38(3):201-216. doi:10.17744/mehc.38.3.02

44. Cantu LA, Thomas L. Baseline Well-being, Perceptions of Critical Incidents, and Openness to Debriefing in Community Hospital Emergency Department Clinical Staff Before COVID-19, A Cross-Sectional Study. *BMC Emerg Med*. 2020;20(1):82. doi:10.21203/rs.3.rs-34196/v1

45. Hobfoll SE, Tracy M, Galea S. The impact of resource loss and traumatic growth on probable PTSD and depression following terrorist attacks. In: *Journal of Traumatic Stress*. Vol 19. John Wiley & Sons, Ltd; 2006:867-878. doi:10.1002/jts.20166

46. Rotenstein LS, Ramos MA, Torre M, et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students a systematic review and meta-analysis. *JAMA - J Am Med Assoc*. 2016;316(21):2214-2236. doi:10.1001/jama.2016.17324

47. Papazoglou K, Chopko B. The role of moral suffering (Moral Distress and Moral Injury) in police compassion fatigue and PTSD: An unexplored topic. *Front Psychol*. 2017;8(NOV):1-5. doi:10.3389/fpsyg.2017.01999

48. Chamberlain C, Gee G, Harfield S, et al. Parenting after a history of childhood maltreatment: A scoping review and map of evidence in the perinatal period. *PLoS ONE*. 2019;14(3). doi:10.1371/journal.pone.0213460

49. Brown SM, Doom JR, Lechuga-Peña S, Watamura SE, Koppels T. Stress and parenting during the global COVID-19 pandemic. *Child Abuse Negl*. Published online 2020. doi:10.1016/j.chiabu.2020.104699

50. Ivankova N V, Stick SL. Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. *Res High Educ*. 2007;48(1):93-135. doi:10.1007/s11162-006-9025-4

51. Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Utility of a Brief Screening Tool to Identify Physicians in Distress. *J Gen Intern Med*. 2013;28(3):421-427. doi:10.1007/s11606-012-2252-9

52. Myers RE. Cultivating Mindfulness to Promote Self-Care and Well-Being in Perioperative Nurses. *AORN J*. 2017;105(3):259-266. doi:10.1016/j.aorn.2017.01.005

53. Ross A, Bevans M, Brooks AT, Gibbons S, Wallen GR. Nurses and Health-Promoting Behaviors: Knowledge May Not Translate Into Self-Care. *AORN J*. 2017;105(3):267-275. doi:10.1016/j.aorn.2016.12.018

54. Dort J, Romanelli J, Choudhury N, et al. SAGES primer for taking care of yourself during and after the COVID-19 crisis. *Surg Endosc*. 2020;34(7):2856-2862. doi:10.1007/s00464-020-07631-3

55. Callis AM. Application of the Roy Adaptation Theory to a care program for nurses. *Appl Nurs Res*. Published online 2020. doi:10.1016/j.apnr.2020.151340

56. Trudel-Fitzgerald C, Chen Y, Singh A, Okereke OI, Kubzansky LD. Psychiatric, Psychological, and Social Determinants of Health in the Nurses' Health Study Cohorts. *Am J Public Health*. 2016;106(9):1644-1649. doi:10.2105/AJPH.2016.303318

57. Kashani P, Mirbaha S, Forouzanfar MM, Meschi F, Baratloo A. The prevalence of personality disorders among emergency nurses based on MMPI-2 questionnaire; a crosssectional study. *Emergency*. 2017;5(1):1-5. doi:10.22037/emergency.v5i1.13403

58. Crowe L. Tips on building resilience and improving well-being. *Emerg Nurse J RCN Accid Emerg Nurs Assoc*. 2017;24(10):14. doi:10.7748/en.24.10.14.s16

59. *Tapping Your Resilience After Hurricane Katrina: Pointers for Practitioners*.; 2005.

60. Fortune, LMT, MA LD, Gillespie, MA E. The Influence of Practice Standards on Massage Therapists' Work Experience: A Phenomenological Pilot Study. *Int J Ther Massage Bodyw Res Educ Pract*. 2010;3(3):5-11. doi:10.3822/ijtmb.v3i3.73

61. Sommers E, Porter K, DeGurski S. Providers of complementary and alternative health services in Boston respond to September 11. *Am J Public Health*. 2002;92(10):1597-1598. doi:10.2105/AJPH.92.10.1597

62. Kennedy AB. *Massage Therapy Foundation Community Service Grant Program: Stakeholder Report for The Board of Trustees, Community Service Grant Award Committee, and Staff*.; 2013.

63. Shroff FM, Sahota IS. How Can Massage Therapy Move Forward? Registered Massage Therapists Touch on Key Points Shaping Their Profession in British Columbia, Canada. *Home Health Care Manag Pract*. 2012;24(4):182-192. doi:10.1177/1084822311429563

64. Meleis AI. *Theoretical Nursing: Development and Progress*. 6th ed. Wolters Kluwer; 2018.

65. Calloway BJ. *Hildegard Peplau: Psychiatric Nurse of the Century*. Springer Publishing; 2002.

66. Peplau HE. Interpersonal Relations: A Theoretical Framework for Application in Nursing Practice. *Nurs Sci Q*. 1992;5(1):13-18. doi:10.1177/089431849200500106

67. Peplau HE. Peplau's theory of interpersonal relations. *Nurs Sci Q*. 1997;10(4):162-167. doi:10.1177/089431849701000407

68. Hart VA. Communication and Nursing : Historical Roots and Related Theory. Published online 2006:1-42.

69. Orem DE, Taylor SG, Renpenning KM. *Nursing Concepts of Practice*. Mosby Inc.; 2001.

70. Denyes MJ, Orem DE, Bekel G. Self-Care: A Foundational Science. *Nurs Sci Q*. 2001;14(1):48-54. doi:10.1177/089431840101400113

71. Baskwill A, Vanstone M, Harnish D, Dore K. I am a healthcare practitioner: A qualitative exploration of massage therapists' professional identity. *J Complement Integr Med*. 2020;17(2):1-13. doi:10.1515/jcim-2019-0067

72. Fortune LD, Hymel GM. Creating integrative work: A qualitative study of how massage therapists work with existing clients. *J Bodyw Mov Ther*. 2015;19(1):25-34. doi:10.1016/j.jbmt.2014.01.005

73. Ruffin PT. A History of Massage in Nurse Training School Curricula (1860-1945). *J Holist Nurs*. 2011;29(1):61-67. doi:10.1177/0898010110377355

74. Horner P, Abshari S, Grove C. Massage: An alternative approach to pain management. *Nursing (Lond)*. 2020;50(4):17-19. doi:10.1097/01.NURSE.0000657036.52377.00

75. Baskwill A. A guiding framework to understand relationships within the profession of massage therapy. *J Bodyw Mov Ther*. 2016;20(3):542-548. doi:10.1016/j.jbmt.2015.12.003

76. Kemp J. *Improving Professionalism in Massage Therapy through Continuing Education in the Development of Successful Therapeutic Relationships*.; 2016.

77. Grant KE, Balletto J, Gowan-Moody D, et al. Steps toward massage therapy guidelines: A first report to the profession. *Int J Ther Massage Bodyw Res Educ Pract*. 2008;1(1):19-36. doi:10.3822/ijtmb.v1i1.5

78. Kennedy AB, Cambron JA, Sharpe PA, Travillian RS, Saunders RP. Clarifying Definitions for the Massage Therapy Profession: the Results of the Best Practices Symposium†. *Int J Ther Massage Bodyw*. 2008;9(3):15-26.

79. Kennedy AB, Cambron JA, Sharpe PA, Travillian RS, Saunders RP. Process for massage therapy practice and essential assessment. *J Bodyw Mov Ther*. 2016;20(3):484-496. doi:10.1016/j.jbmt.2016.01.007

80. Kennedy AB, Munk N. Experienced practitioners' beliefs utilized to create a successful massage therapist conceptual model: A qualitative investigation. *Int J Ther Massage Bodyw Res Educ Pract*. 2017;10(2):9-19. doi:10.3822/ijtmb.v10i2.367

81. Mahdizadeh M, Jaberi AA, Bonabi TN. Massage Therapy in Management of Occupational Stress in Emergency Medical Services Staffs: a Randomized Controlled Trial. *Int J Ther Massage Bodyw*. 2019;12(1):16-22.

82. Creswell J, Plano Clark V. Choosing a mixed method design. In: *Designing and Conducting Mixed Methods Research*. ; 2007:58-89.

83. Shorten A, Smith J. Mixed methods research: expanding the evidence base. *Evid Based Nurs*. 2017;20(3):74-75. doi:10.1136/eb-2017-102699

84. O'Cathain A, Murphy E, Nicholl J. Three techniques for integrating data in mixed methods studies. *BMJ*. 2010;341:c4587. doi:10.1136/bmj.c4587

85. Creswell JW, Clark VLP. *Designing and Conducting Mixed Methods Research*. Third. SAGE Publications; 2018.

86. Padgett DK. *Qualitative and Mixed Methods in Public Health*. SAGE Publications; 2012.

87. McKight PE, Najab J. Kruskal-Wallis Test. In: *The Corsini Encyclopedia of Psychology*. American Cancer Society; 2010:1-1. doi:10.1002/9780470479216.corpsy0491

88. BRESLOW N. A generalized Kruskal-Wallis test for comparing K samples subject to unequal patterns of censorship. *Biometrika*. 1970;57(3):579-594. doi:10.1093/biomet/57.3.579

89. Albott CS, Wozniak JR, McGlinch BP, Wall MH, Gold BS, Vinogradov S. Battle Buddies: Rapid Deployment of a Psychological Resilience Intervention for Health Care Workers during the COVID-19 Pandemic. *Anesth Analg*. 2020;131(1):43-54. doi:10.1213/ANE.0000000000004912

90. Delgado C, Upton D, Ranse K, Furness T, Foster K. Nurses' resilience and the emotional labour of nursing work: An integrative review of empirical literature. *Int J Nurs Stud*. 2017;70(November):71-88. doi:10.1016/j.ijnurstu.2017.02.008

91. Smith EC, Burkle FM. Paramedic and emergency medical technician reflections on the ongoing impact of the 9/11 terrorist attacks. *Prehospital Disaster Med*. 2019;34(1):56-61. doi:10.1017/S1049023X18001255

92. Eisenman DP, Cordasco KM, Asch S, Golden JF, Glik D. Disaster planning and risk communication with vulnerable communities: lessons from Hurricane Katrina.

Am J Public Health. 2007;97 Suppl 1(Suppl 1):S109.

doi:10.2105/AJPH.2005.084335

CHAPTER FOUR

#MAKINGSCIENCESIMPLE: INCLUDING MEDICAL STUDENTS IN QUALITATIVE RESEARCH THROUGH A NOVEL RAPID EVALUATION METHODOLOGY

Abstract

Background

Medical schools in the United States are required to teach qualitative methodology, and multiple approaches exist. These methods, however, do not promote active, meaningful involvement of medical students in research projects. There remains a need for a more experiential approach, developing in medical students the valuable skills to conduct and interpret qualitative analysis.

#Evaluation (pronounced "hashtag evaluation") was developed to expand the capacity of the research team for *ProjectCOPE* to process and organize large volumes of qualitative data, and to build on younger medical students' intuitive knowledge of social media and hashtags. Medical students viewed incoming video blogs and considered the question: "What hashtags would be included if this video were posted to social media?" Medical students considered the video blogs in their entirety rather than subdividing them into segments as is done with other rapid evaluation methodologies, including Rapid Identification of Themes from Audio Recordings (RITA) analysis.

Methods

Senior researchers guided medical students through an iterative process of definition development and collapsing hashtags into codes. Three experienced evaluators not previously involved in *ProjectCOPE* then applied these hashtags to an intentional

selection of twenty-five video blogs, with 20% of video blogs coded by more than one evaluator. We calculated interrater reliability between the evaluators and percent agreement with medical students.

Senior researchers further compared the number of hashtags applied, and compared constructs identified with #Evaluation with codes and themes identified in qualitative analyses in previous studies of this dissertation.

Findings

Medical students developed 261 hashtags which collapsed into 17 codes. Evaluators matched student application of hashtags in 82.6% of instances, but applied more hashtags overall (μ=4.7 hashtags per video vs. 3.2), lowering percent agreement to 55.3%.

Medical students identified many of the concepts common to other analyses (i.e., RITA in Aim 1 and inductive/deductive thematic analysis in Aim 2 of this dissertation), but did not clearly differentiate between advanced constructs of burnout, moral distress, and compassion fatigue. #Evaluation did not produce the level of depth or facilitate axial coding as methodologies in previous chapters of this dissertation did.

Conclusion

#Evaluation is a valuable tool for educators, evaluators, and qualitative researchers. This methodology promotes the active, meaningful involvement of medical student team members with little-to-no experience in qualitative analysis, provides rapid and low-effort sorting of data, and can help guide additional analysis.

Background

In the United States, medical schools are required to teach qualitative analysis,[1] but licensing examinations do not clearly assess the uptake of this knowledge.[2] This results in physicians being unskilled both in conducting and interpreting qualitative research[3] despite growing interest across multiple professions, including medicine.[4] There has been measured success implementing research-oriented modules where medical students gain firsthand experience with qualitative methodology,[5] but a significant gap remains in identifying and developing meaningful ways to include medical students in qualitative research.[6]

Outside of this project, medical students at the university where this study was hosted received one hour of didactic training during the spring of their second year of medical school. In compliance with guidelines and best practice, objectives for this brief lecture include: to identify when qualitative research can be useful, to distinguish between qualitative and quantitative methodology, to understand qualitative data collection methodology and analysis, and to summarize key principles for establishing rigor in qualitative research.[1,3–5]

This study presents and examines a novel approach for including medical students in qualitative research, translating concepts from social media to a rapid evaluation and assessment.

Social Media

On platforms such as Twitter, hashtags are used to provide both additional meaning and to couch posts in the context of larger conversations.[7] Hashtags have been

explored as meaningful in the analysis of images posted on social media[8,9] and are understood to mark topics and organize text.[10] Moreover, social media users seem to be aware of the complex functions of hashtags, intuitively implementing their various functions.[11] For example, in a theoretical Tweet from a nurse reading, "What a shift! I didn't even have time to eat my lunch #patientratios", the hashtag "patient ratios" gives context to the reason the nurse was unable to take a lunch break (i.e., they had too many patients) and adds the Tweet to a larger, ongoing conversation about staffing issues in healthcare. Hashtags can also help to summarize the content of a social media post. For example, a massage therapist could post a photo of a room staged and prepped for a massage appointment with a caption, "Preparing for my first client in three months!" and the hashtags "back at it" and "re-opening."

To our knowledge, this is the first time innate understanding of hashtags has been leveraged to teach qualitative research or to conduct summary analysis.

#Evaluation

We developed #Evaluation (pronounced: "Hashtag Evaluation") to promote including medical students and others who would not possess advanced skills in qualitative analysis. It was essential to maximize the efficiency of data processing as large volumes of data were submitted to *ProjectCOPE*: Chronicling health-care prOviders' Pandemic Experiences.[12]

Burnout, Moral Distress, and Compassion Fatigue

Burnout is a phenomenon most concisely described as emotional exhaustion[13] potentially resulting in decreased work quality and safety,[14] as well as increased risk of

poor mental and physical health outcomes.[15] Burnout is well described in a diverse range of health-care workers including nurses,[16] physicians,[17] and advanced practice providers.[18]

Individuals may experience moral distress when they believe they know the correct course of action but are prevented from acting by some outside source, specifically an authority.[19] Cumulative insults may result in a related phenomenon of compassion fatigue, a state in which individuals are overwhelmed by the emotional needs of their patients or clients and feel unable to meet those needs.[20] Like burnout, these conditions have been studied in a wide range of professions and settings.[19–23]

Project COPE

ProjectCOPE is a mixed-methods ethnography studying burnout in a broad sample of health-care workers, approved by the institutional review board of the University of South Carolina.

This manuscript addresses Aim 3 of this dissertation, to "Evaluate novel methodology developed for *ProjectCOPE*," and the final research question, "What is the value of #Evaluation in understanding a project like *ProjectCOPE*?"

Methods

We instructed medical students involved in *ProjectCOPE* to view video blogs as they were received and consider, "What hashtags would be included if the video were posted to social media?" Medical students were asked to limit the number of hashtags applied but were not given a strict maximum. Subsequently, most video blogs have no more than three hashtags, but some have more than five. ***We found these hashtags to be***

exceedingly helpful in sorting and preliminary analysis of our qualitative data, allowing us to identify subsets of responses around themes of financial stress, concern for safety, burnout, and even hope.

We assessed the value of this novel methodology in evaluation and judged its merit as a tool for qualitative data analysis by comparing the hashtags to qualitative findings from previous studies, including inductive coding of a random sample of video blog entries. Here, we compared this novel methodology involving medical students to findings from an expert panel of qualitative researchers for the evaluation of *ProjectCOPE*.[24]

Medical students viewed incoming video blogs in near real-time, with a goal of reviewing all videos within 72 hours of submission. In addition to applying hashtags, medical students were prompted to screen videos for signs of danger or risk of self-harm. Videos identified as concerning were then routed to three senior researchers for review–a registered nurse, a psychologist, and a physician. This team reached consensus on whether the flagged videos warranted additional action (e.g., an attempt to contact the participant).

We guided medical students in development of a formal codebook from their hashtags, including collapsing the list of hashtags. This followed an iterative process which is illustrated in Figure 4.1. While medical students were allowed to develop hashtags inductively and apply them to video blog submissions, one senior researcher reviewed the hashtags and maintained an open dialogue, encouraging medical students to reuse hashtags when appropriate and to look for "trending" hashtags.[10] Medical students were further guided to develop definitions for hashtags[5] and, based on these definitions, the research team collapsed similar hashtags into codes. The senior researcher's leadership of this process was intentionally kept separate from another's leadership of other analysis of the data, minimizing the potential for cross-contamination.

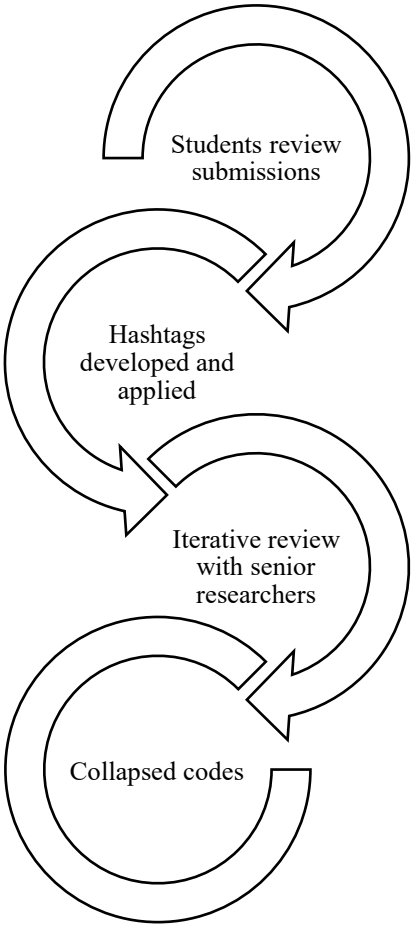

Figure 4.1: Process of hashtag development and refinement

We instructed three evaluators to apply the collapsed codes deductively to a representative sample of video blog entries (n=25). One of these evaluators had more than 15 years of experience, and the other two

were evaluation students having completed one year of training each. Five of the total twenty-five video blogs (20%) were assigned to two evaluators each, ensuring each possible combination of evaluators was represented, and each of the less experienced evaluators were paired with the more experienced evaluator twice. Other rapid evaluation methodologies have utilized similar sample sizes for preliminary validation studies.[24–26] Evaluators were instructed to limit their codes to five codes per video.

We calculated interrater reliability for video blogs assigned to more than one evaluator. We defined agreement between the evaluator coding and medical student hashtags as the application of a code which correlated with at least one of the hashtags applied by medical students (i.e., at least one of the hashtags applied by medical students collapsed into the code applied by the evaluator). Recognizing that medical students may not capture as much depth as experienced evaluators, we calculated percent agreement between all evaluators and the medical students' original hashtags in two ways: first, as a percentage of student-assigned hashtags represented by the evaluator-applied codes, then as an overall agreement. In this second calculation, we mapped all medical student-applied hashtags to the representative evaluator codes and counted the number of agreements and disagreements. These calculations followed standards for percent agreement (i.e., number of agreements divided by number of agreements plus number of disagreements).[27]

This constitutes an initial assessment of #Evaluation to lay the foundation for further investigation. Similar to evaluations of other rapid evaluation and assessment

methodologies, this analysis considered level of detail produced, ability to capture nuance, and time required.[25,26]

Findings

Findings fall under four domains: hashtags; meaning, quality, and depth; reliability and agreement; and data sorting and screening.

Hashtags

We collapsed the exhaustive list of 261 hashtags into a more manageable list of seventeen codes. For many hashtags, this was a straightforward process. For example recreational activities (e.g., camping, gardening, walking), self-care (e.g., long baths), and mindfulness activities (e.g., assessing values, practicing acceptance) were collapsed into "coping strategies." We also collapsed hashtags such as fear, anxiety, scared, rage, anger, stress, and shame into "emotional impact – negative." Conversely hashtags like hope, happy, and grateful became "emotional impact – positive." Due to inconsistent application of the terms as discussed below, the hashtags of "burnout," "moral distress," and "compassion fatigue" were collapsed into the codes of "burnout."

In some cases, an individual hashtag related to more than one theme. For example, medical students produced a hashtag called "barriers to touch" which they defined as "Massage therapist feeling like COVID guidelines have so many ways to prevent physical touch and noting patients needing that contact." This fell under a primary theme of "connectedness" along with other hashtags related to the importance of emotional intimacy with patients and colleagues, as well as "guidelines," because the definition specified the barriers resulted from the rules put in place by other entities.

Table 4.1: Hashtag themes and definitions

Code	Definition
burnout	Signs or discussion of burnout, moral distress, or compassion fatigue
career change	Adaptation or shifts in profession or participating in training for a secondary profession (e.g., a massage therapist cross-training as a nurse or medical assistant) not necessarily as a result of the COVID-19 pandemic
clients	Discussion of patients, clients, or other service recipients.
connectedness	A sense of intimacy with clients or patients or a feeling of comradery with peers and colleagues
context	Events or factors not directly related to COVID-19 (e.g., wildfires, the 2020 election, social unrest).
coping mechanism	Reports or evidence of participant's methods of self-care and coping. When possible or by self-report, please valence code as positive (e.g., exercise, yoga) or negative (e.g., smoking, overeating).
emotional impact	Other feelings described by participants not captured by "burnout," "family concerns," or "spread." When possible, valence code as positive (e.g., hopeful, happy, content) or negative (e.g., scared, angry).
essential	Mention or discussion of being an "essential worker"
family concerns	Discussion of home life including childcare, relationships
financial concerns	Discussion of monetary impact of the pandemic (e.g., furloughs, closing businesses)
guidelines	Mention or discussion of COVID-19 related recommendations or rules imposed by employers, businesses, professional organizations, and other private entities including those within the respondent's control (e.g., participant reporting decision to require masks in their private practice)
nonessential	Mention or discussion of being a "non-essential worker"
policy	Mention or discussion of COVID-19 related recommendations or rules imposed by government organizations (e.g., state mask mandates)
PPE	Availability and/or use of personal protective equipment (e.g., masks), cleaning supplies or regimens
profession	Discussion of respondent's profession or professional identity
quarantine	Report or discussion of being quarantined due to testing positive, COVID exposure, or potential exposure
spread	Concerns about transmission of COVID-19 in the workplace (e.g., contracting from positive patients) or bringing COVID home to their family

A complete list of codes is displayed in Table 4.1, and a list of medical student-developed hashtags is included in Appendix E.

Meaning, Quality, and Depth

Medical students applied between one and five hashtags to each video blog with an average of 3.2 (SD=1.2) hashtags per video. Evaluators also applied one to five codes, but this more experienced group applied an average of 4.7 (SD=0.8) codes per video. This equated to evaluators applying an average of 1.6 (SD=1.1) additional codes per video blog.

Hashtags covered many of the same concepts identified in qualitative analyses conducted in Aims 1 and 2 of this dissertation. Medical students similarly highlighted concepts around professional identity, connectedness with clients and colleagues, family and financial concerns, and concerns about the spread of COVID-19.

Medical students were not consistent in the application of hashtags of "moral distress," "compassion fatigue," and "burnout." Instead of applying these hashtags when the concept was present, medical students coded based on a participant's mention of the word. Most often, signs of emotional exhaustion were coded as "burnout."

Reliability and Agreement

Interrater reliability between evaluators ranged from 60% to 80%, with an overall interrater reliability of 76%.

Evaluators applied the same hashtags as medical students in 82.6% of instances. However, given the larger number of hashtags applied by evaluators versus medical students, there was an appreciable decrease in overall agreement (κ=55.3%).

Concepts tied to core research questions which were provided as a priori hashtags (i.e., “burnout,” “coping mechanisms,” “essential,” and “non-essential”) were coded with near 100% agreement between medical students and evaluators with only one instance of disagreement. In this instance, the medical student applied the hashtag “essential” whereas the evaluator applied “profession.”

Data Sorting and Screening

As mentioned, medical student applied hashtags allowed rapid sorting and prioritizing of data for review by senior researchers. The research team was able to quickly identify clusters of videos to study for abstract and poster submissions.

On multiple occasions, medical students alerted senior researchers of concerning videos. In all cases, respondents were displaying signs of severe burnout and warranted no direct intervention from the study team. We did, however, elect to add additional language to intake forms and consent pages, encouraging participants to seek help from trained professionals if they felt overwhelmed, along with a list of publicly available resources and contact information (e.g., The Anxiety and Depression Association of America).

Medical Student Experience

Medical students appeared to grasp core concepts of qualitative research more quickly while participating in #Evaluation compared with purely didactic methods. Medical students encouraged peers to sign up to participate in the ongoing work of *ProjectCOPE*.

One medical student said of her experience with #Evaluation:

Using hashtags to qualify ProjectCOPE responses was a simple and accessible way for me to be introduced into the world of qualitative research. I was initially skeptical that qualitative research could be "scientific", but after hearing responses to how COVID had affected health-care workers' lives, I knew it would be important for us to capture their reactions somehow. Qualitative research allowed us to take nebulous things (like emotions) and categorize them such that we could find commonalities between our respondents.

Discussion

#Evaluation is a valuable tool both for meaningfully including medical students in research and as an approach for rapid evaluation and assessment. In this application, medical students made valuable contributions to data sorting and prioritizing, making meaning, and participant safety. Future development of this methodology should focus on process refinement and assessment of the skills developed in medical students participating in #Evaluation.

As with any novel methodology, significant lessons can be learned from this initial application. First, allowing medical students to develop their own hashtags did promote a deeper understanding of the data than would have been expected with only a priori coding. For example, financial concerns and fear of spread of COVID-19 were not concepts related to our core research questions, but these concepts emerged from the data in all analyses. This was especially important as it was not clear what would be revealed in analysis. Future study and development of this methodology should explore whether a

priori hashtags would increase agreement between medical student researchers and senior evaluators.

Second, while many similar concepts were identified, #Evaluation was not conducive to the level of network-analysis possible in full inductive/deductive analysis[28] as in Aim 2, or even the depth of theme development in Rapid Identification of Themes from Audio recordings[25] analysis in Aim 1. Still, #Evaluation provides a clearly beneficial approach for rapid, high-level sorting and processing of qualitative data. This methodology would be exceptionally useful in continuous quality improvement work, or in formative evaluations where evaluators want to understand perceptions and experiences around key questions but leave analysis open and receptive to the emergence of unforeseen constructs.[25]

Third, medical students were unable to differentiate between phenomenon of burnout, moral distress, and compassion fatigue. Often, medical students applied hashtags based on whether respondents mentioned the words “burnout” or “moral distress.” In previous qualitative analyses, we coded these constructs separately, allowing the data to show differences in experience of these phenomena. These complex concepts are, however, interconnected, and there is even some disagreement in the literature as to how to differentiate clearly the constructs.[19–23] This may be a limitation of involving medical students who lack content expertise rather than a limitation of #Evaluation, or it is possible that additional and specific training is needed to orient medical students to definitions of key constructs..[4,5] Future research should determine whether providing clear, a priori codes with definitions can address this limitation.

Most importantly, #Evaluation allowed medical students with little-to-no prior training in qualitative research to participate meaningfully in a rapidly evolving and highly relevant project on COVID-19.[12] Medical students became central members of the research team, actively contributing to abstracts, analysis decisions, and safety monitoring.

While as much attention was paid to control bias as possible, this methodology was implemented to address a specific and urgent need to process the large volumes of data rapidly submitted to *ProjectCOPE*. Assessment of the methodology's value is limited in that it is possible there was significant cross-contamination from other ongoing analyses despite the efforts of the research team to avoid this. Future research and development of #Evaluation should include studies designed to measure the precision and depth of analysis, the effort required relative to other rapid evaluation methodologies, and the medical students' perceptions of their roles in projects implementing #Evaluation.

Conclusion

In addition to being valuable for teaching qualitative research, #Evaluation is an excellent approach for summary-level analysis as might be required in continuous quality improvement or evaluation work. This methodology promotes the active, meaningful involvement of medical student team members with little-to-no experience in qualitative analysis, provides rapid and low-effort sorting of data, and helps guide additional analysis. #Evaluation is a valuable tool for educators, evaluators, and qualitative researchers.

REFERENCES

1. Federation of State Medical Boards of the United States. *USMLE Physician Tasks/Competencies*.; 2020:12. Accessed September 30, 2021. https://www.usmle.org/pdfs/tcom.pdf
2. Federation of State Medical Boards of the United States. *USMLE Content Outline*.; 2020:34. Accessed September 30, 2021. https://www.usmle.org/pdfs/usmlecontentoutline.pdf
3. Sawatsky AP, Ratelle JT, Beckman TJ. Qualitative Research Methods in Medical Education. *Anesthesiology*. 2019;131(1):14-22. doi:10.1097/ALN.0000000000002728
4. Ghirotto L, De Panfilis L, Di Leo S. Health professionals learning qualitative research in their workplace: a focused ethnography. *BMC Med Educ*. 2020;20(1):269. doi:10.1186/s12909-020-02191-5
5. Pfadenhauer L, Coenen M, Kühlmeyer K, Odukoya D, Schunk M, Unger H. Teaching Qualitative Research Methods in Public Health and Medicine: a research oriented module. Published online 2018. doi:10.3205/ZMA001191
6. Wagner C, Kawulich B, Garner M. A Mixed Research Synthesis of Literature on Teaching Qualitative Research Methods. *SAGE Open*. 2019;9(3):2158244019861488. doi:10.1177/2158244019861488
7. Wikström P. #srynotfunny : Communicative functions of hashtags on Twitter. *SKY J Linguist*. 2014;27:127-152.

8. Geboers MA, Van De Wiele CT. Machine Vision and Social Media Images: Why Hashtags Matter. *Soc Media Soc*. 2020;6(2):2056305120928485. doi:10.1177/2056305120928485

9. Highfield T, Leaver T. A methodology for mapping Instagram hashtags. *First Monday*. 2015;20(1):1-11.

10. Zappavigna M. Searchable talk: the linguistic functions of hashtags. *Soc Semiot*. 2015;25(3):274-291. doi:10.1080/10350330.2014.996948

11. Zappavigna M. *Searchable Talk: Hashtags and Social Media Metadiscourse*. Bloomsbury Publishing; 2018.

12. Magill EB, Siegel ZB, Pike KM. The Mental Health of Frontline Healthcare Providers During Pandemics: A Rapid Review of the Literature. *Psychiatr Serv*. 2020;(in press):1-30. doi:10.1176/appi.ps.202000274

13. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organ Behav*. 1981;2(2):99-113. doi:10.1002/job.4030020205

14. Demerouti E, Nachreiner F, Bakker AB, Schaufeli WB. The job demands-resources model of burnout. *J Appl Psychol*. 2001;86(3):499-512. doi:10.1037/0021-9010.86.3.499

15. Stehman CR, Testo Z, Gershaw RS, Kellogg AR. Burnout, drop out, suicide: Physician loss in emergency medicine, part I. *West J Emerg Med*. 2019;20(3):485-494. doi:10.5811/westjem.2019.4.40970

16. Lee HF, Kuo CC, Chien TW, Wang YR. A Meta-Analysis of the Effects of Coping Strategies on Reducing Nurse Burnout. *Appl Nurs Res*. 2016;31:100-110. doi:10.1016/j.apnr.2016.01.001

17. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med*. 2018;283(6):516-529. doi:10.1111/joim.12752

18. Pastores SM, Kvetan V, Coopersmith CM, et al. Workforce, Workload, and Burnout among Intensivists and Advanced Practice Providers: A Narrative Review. *Crit Care Med*. 2019;47(4):550-557. doi:10.1097/CCM.0000000000003637

19. Rathert C, May DR, Chung HS. Nurse moral distress: A survey identifying predictors and potential interventions. *Int J Nurs Stud*. 2016;53:39-49. doi:10.1016/j.ijnurstu.2015.10.007

20. Papazoglou K, Chopko B. The role of moral suffering (Moral Distress and Moral Injury) in police compassion fatigue and PTSD: An unexplored topic. *Front Psychol*. 2017;8(NOV):1-5. doi:10.3389/fpsyg.2017.01999

21. Li A, Early SF, Mahrer NE, Klaristenfeld JL, Gold JI. Group Cohesion and Organizational Commitment: Protective Factors for Nurse Residents' Job Satisfaction, Compassion Fatigue, Compassion Satisfaction, and Burnout. *J Prof Nurs*. 2014;30(1):89-99. doi:10.1016/j.profnurs.2013.04.004

22. Corley MC, Elswick RK, Gorman M, Clor T. Development and evaluation of a moral distress scale. *J Adv Nurs*. 2001;33(2):250-256. doi:10.1046/j.1365-2648.2001.01658.x

23. Algunmeeyn A, El-Dahiyat F, Altakhineh MM, Azab M, Babar Z-U-D. Understanding the factors influencing healthcare providers' burnout during the outbreak of COVID-19 in Jordanian hospitals. *J Pharm Policy Pract*. 2020;13(1). doi:10.1186/s40545-020-00262-y

24. Gale RC, Wu J, Erhardt T, et al. Comparison of rapid vs in-depth qualitative analytic methods from a process evaluation of academic detailing in the Veterans Health Administration. *Implement Sci*. 2019;14(1):11. doi:10.1186/s13012-019-0853-y

25. Neal JW, Neal ZP, VanDyke E, Kornbluh M. Expediting the Analysis of Qualitative Data in Evaluation: A Procedure for the Rapid Identification of Themes From Audio Recordings (RITA). *Am J Eval*. 2015;36(1):118-132. doi:10.1177/1098214014536601

26. Mcnall M, Foster-Fishman PG. Methods of rapid evaluation, assessment, and appraisal. *Am J Eval*. 2007;28(2):151-168. doi:10.1177/1098214007300895

27. McHugh ML. Interrater reliability: the kappa statistic. *Biochem Medica*. 2012;22(3):276-282.

28. Padgett DK. *Qualitative and Mixed Methods in Public Health*. SAGE Publications; 2012.

CHAPTER 5

THE FUTURE OF PROJECT COPE

ProjectCOPE: Chronicling health-care prOviders' Pandemic Experiences is a mixed-methods ethnography capturing rich data from a diverse cohort of health-care workers (HCW). This dissertation included three aims: 1) describe the sample and experiences of *ProjectCOPE* participants, 2) compare and contrast experiences of nurses and massage therapists during the COVID-19 pandemic, and 3) evaluate novel methodology developed for *ProjectCOPE*. The overarching study and aims of this dissertation were approved by the University of South Carolina Institutional Review Board.

ProjectCOPE collected a series of validated measures related to burnout,[1] moral distress,[2] well-being,[3] along with investigator-developed measures capturing demographics, professional information, work and personal concerns, and coping strategies through an online survey. Participants also had the opportunity to submit a video blog in response to selected prompts with each survey submission.

Summary of Findings

Project COPE Participants

In Chapter 2 of this dissertation, "'I Don't Want to Go to Work': a Mixed-Methods Analysis of Health-care Worker Experiences from the Front- and Side-Lines of COVID-19," we examined baseline data for all 1,299 *ProjectCOPE* participants from April 15, 2020, to March 16, 2021, in a convergent parallel mixed-methods study in which qualitative and quantitative data were given equal priority.[4] Quantitative analysis

included logistic regression examining differences in measures of burnout, moral distress, and well-being between professions, controlling for key demographic factors including years of practice, level of education, and whether participants continued to see patients throughout the pandemic. Qualitative analysis followed a rapid evaluation approach, Rapid Identification of Themes from Audio recordings (RITA) analysis.[5]

This study sought to explore differences between the experiences of HCW who were deemed "essential" and those who were deemed "non-essential" at the beginning of the pandemic. We constructed four themes: 1) professional identity, 2) intrinsic stressors, 3) extrinsic factors, and 4) coping strategies. We found evidence that those in professions labeled "non-essential" (e.g., massage therapists), HCW experienced a sense of being "locked-out" of the health-care system and unable to provide help. Those in "essential" roles (e.g., acute care nurses and physicians) felt "locked-in" or trapped in a health-care system with little control over their experience and preparation.

Appendices F and G contain the qualitative codebook and SAS quantitative coding for this aim, respectively.

Nurses and Massage Therapists

In Chapter 3, "'I Just Can't Maintain Concern about This Stupid Virus Anymore': A Mixed-Methods Comparison of Burnout in Nurses and Massage Therapists During the COVID-19 Pandemic," we delved deeper into a mixed-methods comparison of experienced burnout and coping strategies in two specific professions, nursing and massage therapy. This study also followed a convergent parallel design but gave equal priority to qualitative and quantitative data.[4] As described in Chapter 3, these professions

are linked by a similar philosophical stance, to whit both professions describe themselves as facilitators of wellness and healing as opposed to deliverers of cures.[6–10]

Findings from Chapter 3 built on those from Chapter 2, expanding subthemes under coping strategies to include a constellation of adaptive patterns: 1) creation and meaning making, 2) mindfulness, 3), rest and isolation and 4) maladaptation. Both professions employed mindfulness techniques, but nurses were more likely to seek rest and solitude, sometimes to the point of maladaptive isolation, whereas massage therapists more often sought out ways to create and make meaning. Both professions turned to overeating, but there were no significant differences in smoking, illicit substance use, or alcohol consumption. We found significant differences in experienced burnout and well-being, with nurses reporting worse outcomes in both domains ($p<0.001$).

We included the qualitative codebook and SAS quantitative coding for this aim in appendices H and I, respectively.

#Evaluation

Chapter 4, "#MakingScienceSimple: Including Medical Students in Qualitative Research through a Novel Rapid Evaluation Methodology," explored the novel methodology of #Evaluation (pronounced "hashtag evaluation"). We developed #Evaluation to involve medical students in summary qualitative analysis. Moreover, this approach addresses gaps in medical education,[11–13] building on social media platforms familiar to most students.[14–16]

This study found that #Evaluation is a valuable tool for summary analysis and should be explored for additional uses. We also found the approach was able to facilitate

meaningful student involvement in a fast-paced research project on a highly relevant topic (i.e., an emerging pandemic). While this chapter reviews that many of the same concepts were identified by #Evaluation as in analyses in other chapters, we discussed that students may be limited in their capacity to parse intertwined concepts; students were not able to differentiate "burnout" from "moral distress" from "compassion fatigue".

Limitations

This dissertation was limited by several factors. Overall, *ProjectCOPE* was designed and launched rapidly with an intentional focus on capturing HCW perspectives in real-time throughout the pandemic. We did not design the survey with the specific analyses included in this dissertation in mind.

While our core three measures (Moral Distress, Physician Work-Life Study burnout measure, and the Well-Being Index) are validated in some populations (e.g., nurses, physicians, first responders), none of these measures have been validated in complementary and integrative professionals including massage therapists. Further, investigator developed items (e.g., coping strategies, workplace and personal concerns) are not validated in any populations, and interpretations of the results of these measures should be approached carefully.

We also oversampled massage therapists and other "non-essential" HCW. While this may be understandable give that "essential" HCW may have simply been less inclined to respond or even see recruitment materials due to clinical responsibilities, it is possible this biased our results and findings. Finally, our sample skewed significantly

towards white women. The responses captured by *ProjectCOPE* may not be representative of the whole of the professions.

Contributions to Science

This dissertation adds to the extant literature on burnout and moral distress in well-studied professions, including nursing and medicine. This work contains the first exploration of how being barred from helping in a crisis might impact experiences of burnout and well-being. This dissertation also contributes one of the first studies of burnout in massage therapists, and the first to directly compare nurses' and massage therapists' experiences.

Our findings add valuable documentation to the growing body of literature capturing the near-real time experiences of HCW during a crisis, compared to the debriefs captured in previous disasters and pandemics. These stories are necessary to facilitate understanding of the full impact of the COVID-19 pandemic.

The methodology of #Evaluation joins the myriad of rapid evaluation and assessment methods, but holds the distinct advantage of not only facilitating summary analysis but also introducing learners to qualitative methodology in a digestible and familiar format.

Directions for Future Research

This dissertation is a strong foundation for additional inquiry. A significant portion of the data collected by *ProjectCOPE* remains unexplored. *ProjectCOPE* itself may serve as a database of HCW experiences during the COVID-19 pandemic, and further research will add to our findings.

Additional research is warranted to explore the experiences of "non-essential" or "locked-out" HCW during the COVID-19 pandemic. Specifically, a series of focus groups could help provide further context and specificity to develop measures to understand this phenomenon. Following an exploratory sequential design, researchers could then disseminate these measures through online surveys on social media or through professional organizations, taking the pulse of HCW more generally. These perspectives may help plan for future crises by identifying ways to involve these skilled HCW and how best to provide support for them.

Future research should help develop a theoretical model of burnout in massage therapists, as well as validate existing measures of burnout, moral distress, and well-being in this profession. This work will be led by the two massage therapists who are part of the co-investigator team of *ProjectCOPE* and may include a grounded theory analysis of massage therapist responses.

ProjectCOPE continues to collect data internationally, including targeted efforts to capture HCW experiences in Uganda in collaboration with research partners from Mbarara University of Science and Technology and Kigezi Health Care Foundation. The work contained in these pages provides a framework for exploring the experiences of complementary and integrative HCW (e.g., traditional healers).

Further assessment of #Evaluation should directly compare learning outcomes between traditional didactic teaching of qualitative research and this novel approach, as well as student perceptions of the experience. We have demonstrated the methodology's effectiveness as a tool for summary analysis, but additional applications can demonstrate

depth and meaning making versus other rapid evaluation techniques and qualitative analysis approaches.

References

1. Dolan ED, Mohr D, Lempa M, et al. Using a Single Item to Measure Burnout in Primary Care Staff: A Psychometric Evaluation. *J Gen Intern Med*. 2015;30(5):582-587. doi:10.1007/s11606-014-3112-6
2. Rathert C, May DR, Chung HS. Nurse moral distress: A survey identifying predictors and potential interventions. *Int J Nurs Stud*. 2016;53:39-49. doi:10.1016/j.ijnurstu.2015.10.007
3. Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Utility of a Brief Screening Tool to Identify Physicians in Distress. *J Gen Intern Med*. 2013;28(3):421-427. doi:10.1007/s11606-012-2252-9
4. Creswell JW, Clark VLP. *Designing and Conducting Mixed Methods Research*. Third. SAGE Publications; 2018.
5. Neal JW, Neal ZP, VanDyke E, Kornbluh M. Expediting the Analysis of Qualitative Data in Evaluation: A Procedure for the Rapid Identification of Themes From Audio Recordings (RITA). *Am J Eval*. 2015;36(1):118-132. doi:10.1177/1098214014536601
6. Kennedy AB, Cambron JA, Dexheimer JM, Trilk JL, Saunders RP. Advancing health promotion through massage therapy practice: A cross-sectional survey study. *Prev Med Rep*. 2018;11(February):49-55. doi:10.1016/j.pmedr.2018.05.001
7. Kennedy AB, Cambron JA, Sharpe PA, Travillian RS, Saunders RP. Clarifying Definitions for the Massage Therapy Profession: the Results of the Best Practices Symposium†. *Int J Ther Massage Bodyw*. 2008;9(3):15-26.

8. Baskwill A, Vanstone M, Harnish D, Dore K. I am a healthcare practitioner: A qualitative exploration of massage therapists' professional identity. *J Complement Integr Med*. 2020;17(2):1-13. doi:10.1515/jcim-2019-0067

9. Meleis A. *Transitions Theory*. Springer; 2010.

10. Orem DE, Taylor SG, Renpenning KM. *Nursing Concepts of Practice*. Mosby Inc.; 2001. https://philpapers.org/rec/ORENCO

11. Pfadenhauer L, Coenen M, Kühlmeyer K, Odukoya D, Schunk M, Unger H. Teaching Qualitative Research Methods in Public Health and Medicine: a research oriented module. Published online 2018. doi:10.3205/ZMA001191

12. Ghirotto L, De Panfilis L, Di Leo S. Health professionals learning qualitative research in their workplace: a focused ethnography. *BMC Med Educ*. 2020;20(1):269. doi:10.1186/s12909-020-02191-5

13. Wagner C, Kawulich B, Garner M. A Mixed Research Synthesis of Literature on Teaching Qualitative Research Methods. *SAGE Open*. 2019;9(3):2158244019861488. doi:10.1177/2158244019861488

14. Zappavigna M. Searchable talk: the linguistic functions of hashtags. *Soc Semiot*. 2015;25(3):274-291. doi:10.1080/10350330.2014.996948

15. Wikström P. #srynotfunny : Communicative functions of hashtags on Twitter. *SKY J Linguist*. 2014;27:127-152.

16. Geboers MA, Van De Wiele CT. Machine Vision and Social Media Images: Why Hashtags Matter. *Soc Media Soc*. 2020;6(2):2056305120928485. doi:10.1177/2056305120928485

ALPHABETICAL LIST OF SOURCES CITED

Albott CS, Wozniak JR, McGlinch BP, Wall MH, Gold BS, Vinogradov S. Battle Buddies: Rapid Deployment of a Psychological Resilience Intervention for Health Care Workers during the COVID-19 Pandemic. Anesth Analg. 2020;131(1):43-54. doi:10.1213/ANE.0000000000004912

Algunmeeyn A, El-Dahiyat F, Altakhineh MM, Azab M, Babar Z-U-D. Understanding the factors influencing healthcare providers' burnout during the outbreak of COVID-19 in Jordanian hospitals. J Pharm Policy Pract. 2020;13(1). doi:10.1186/s40545-020-00262-y

Altena E, Baglioni C, Espie CA, et al. Dealing with sleep problems during home confinement due to the COVID-19 outbreak: Practical recommendations from a task force of the European CBT-I Academy. J Sleep Res. 2020;29(4). doi:10.1111/jsr.13052

American College of Cardiology. COVID-19: Disruption and the Innovation it Demands From Early Career Cardiologists - American College of Cardiology. Published April 22, 2020. Accessed September 13, 2020. https://www.acc.org/membership/sections-and-councils/early-career-section/section-updates/2020/04/21/12/42/covid-19-coronavirus-disease-2019-disruption-and-the-innovation-it-demands-from-early-career-cardiologists

Ammad Ud Din M, Boppana LKT. An update on the 2019-nCoV outbreak. Am J Infect Control. 2020;48(6):713. doi:10.1016/j.ajic.2020.01.023

Asayesh H, Mosavi M, Abdi M, Masoud MP, Jodaki K. The relationship between futile care perception and moral distress among intensive care unit nurses. J Med Ethics Hist Med. 2018;11.

Association of American Medical Colleges. COVID-19 disrupted health care for other serious conditions. Now, physicians worry about the long-term consequences | AAMC. Published August 20, 2020. Accessed September 13, 2020. https://www.aamc.org/news-insights/covid-19-disrupted-health-care-other-serious-conditions-now-physicians-worry-about-long-term

Bai YM, Lin CC, Lin CY, Chen JY, Chue CM, Chou P. Survey of stress reactions among health care workers involved with the SARS outbreak. Psychiatr Serv. 2004;55(9):1055-1057. doi:10.1176/appi.ps.55.9.1055

Balasubramanian A, Paleri V, Bennett R, Paleri V. Impact of COVID-19 on the mental health of surgeons and coping strategies. In: Head and Neck. Vol 42. John Wiley and Sons Inc.; 2020:1638-1644. doi:10.1002/hed.26291

Barach P, Fisher SD, Adams MJ, et al. Disruption of healthcare: Will the COVID pandemic worsen non-COVID outcomes and disease outbreaks? Prog Pediatr Cardiol. Published online 2020. doi:10.1016/j.ppedcard.2020.101254

Barello S, Falcó-Pegueroles A, Rosa D, Tolotti A, Graffigna G, Bonetti L. The psychosocial impact of flu influenza pandemics on healthcare workers and lessons learnt for the COVID-19 emergency: a rapid review. Int J Public Health. 2020;65(7):1205-1216. doi:10.1007/s00038-020-01463-7

Baskwill A, Vanstone M, Harnish D, Dore K. I am a healthcare practitioner: A qualitative exploration of massage therapists' professional identity. J Complement Integr Med. 2020;17(2):1-13. doi:10.1515/jcim-2019-0067

Baskwill A. A guiding framework to understand relationships within the profession of massage therapy. J Bodyw Mov Ther. 2016;20(3):542-548. doi:10.1016/j.jbmt.2015.12.003

Bazyar J, Farrokhi M, Khankeh H. Triage systems in mass casualty incidents and disasters: A review study with a worldwide approach. Open Access Maced J Med Sci. 2019;7(3):482-494. doi:10.3889/oamjms.2019.119

Beckstead JW. Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. Int J Nurs Stud. 2002;39(8):785-792. doi:10.1016/S0020-7489(02)00012-3

Bernheim RG, Crawley LM, Daniels N, et al. Ethical Considerations for Decision Making Regarding Allocation of Mechanical Ventilators during a Severe Influenza Pandemic or Other Public Health Emergency.; 2011.

Blackman JS. A psychoanalytic view of reactions to the coronavirus pandemic in China*. Am J Psychoanal. 2020;80(2):119-132. doi:10.1057/s11231-020-09248-w

Boamah SA, Read EA, Spence Laschinger HK. Factors influencing new graduate nurse burnout development, job satisfaction and patient care quality: a time-lagged study. J Adv Nurs. 2017;73(5):1182-1195. doi:10.1111/jan.13215

Bodenheimer T, Sinsky C. From triple to Quadruple Aim: Care of the patient requires care of the provider. Ann Fam Med. 2014;12(6):573-576. doi:10.1370/afm.1713

Bohlken J, Schömig F, Lemke MR, Pumberger M, Riedel-Heller SG. COVID-19Pandemie: Belastungen des medizinischen Personals Ein kurzer aktueller Review. Psychiatr Prax. 2020;47(4):190-197. doi:10.1055/a-1159-5551

Boscarino J, Adams R, Figley C. Secondary Trauma Issues for Psychiatrists. Psychiatr Times. 2010;27(11):24-26. doi:10.1021/nl061786n.Core-Shell

Botha E, Gwin T, Purpora C. The effectiveness of mindfulness based programs in reducing stress experienced by nurses in adult hospital settings: a systematic review of quantitative evidence protocol. JBI Database Syst Rev Implement Rep. 2015;13(10):21-29. doi:10.11124/jbisrir-2015-2380

BRESLOW N. A generalized Kruskal-Wallis test for comparing K samples subject to unequal patterns of censorship. Biometrika. 1970;57(3):579-594. doi:10.1093/biomet/57.3.579

Brown SM, Doom JR, Lechuga-Peña S, Watamura SE, Koppels T. Stress and parenting during the global COVID-19 pandemic. Child Abuse Negl. Published online 2020. doi:10.1016/j.chiabu.2020.104699

Cabilan CJ, Kynoch K. Experiences of and support for nurses as second victims of adverse nursing errors: a qualitative systematic review. JBI Database Syst Rev Implement Rep. 2017;15(9):2333-2364. doi:10.11124/JBISRIR-2016-003254

Callis AM. Application of the Roy Adaptation Theory to a care program for nurses. Appl Nurs Res. Published online 2020. doi:10.1016/j.apnr.2020.151340

Calloway BJ. Hildegard Peplau: Psychiatric Nurse of the Century. Springer Publishing; 2002.

Calo WA, Murray A, Francis E, Bermudez M, Kraschnewski J. Reaching the Hispanic Community About COVID-19 Through Existing Chronic Disease Prevention Programs. Prev Chronic Dis. 2020;17:E49. doi:10.5888/pcd17.200165

Cantu LA, Thomas L. Baseline Well-being, Perceptions of Critical Incidents, and Openness to Debriefing in Community Hospital Emergency Department Clinical Staff Before COVID-19, A Cross-Sectional Study. BMC Emerg Med. 2020;20(1):82. doi:10.21203/rs.3.rs-34196/v1

Cavaliere TA, Daly B, Dowling D, Montgomery K. Moral distress in neonatal intensive care unit RNs. Adv Neonatal Care. 2010;10(3):145-156. doi:10.1097/ANC.0b013e3181dd6c48

Cavanaugh KJ, Lee HY, Daum D, et al. An Examination of Burnout Predictors: Understanding the Influence of Job Attitudes and Environment. Healthcare. 2020;8(4):502. doi:10.3390/healthcare8040502

CDC. Coronavirus Disease 2019 (COVID-19). Centers for Disease Control and Prevention. Published February 11, 2020. Accessed September 17, 2021. https://www.cdc.gov/coronavirus/2019-ncov/index.html

Chamberlain C, Gee G, Harfield S, et al. Parenting after a history of childhood maltreatment: A scoping review and map of evidence in the perinatal period. PLoS ONE. 2019;14(3). doi:10.1371/journal.pone.0213460

Chen CS, Wu HY, Yang P, Yen CF. Psychological distress of nurses in Taiwan who worked during the outbreak of SARS. Psychiatr Serv. 2005;56(1):76-79. doi:10.1176/appi.ps.56.1.76

Chew QH, Wei KC, Vasoo S, Chua HC, Sim K. Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: Practical considerations for the COVID-19 pandemic. Singapore Med J. 2020;61(7):350-356. doi:10.11622/SMEDJ.2020046

Christian MD, Sprung CL, King MA, et al. Triage: Care of the critically ill and injured during pandemics and disasters: CHEST consensus statement. Chest. 2014;146:e61S-e74S. doi:10.1378/chest.14-0736

Corley MC, Elswick RK, Gorman M, Clor T. Development and evaluation of a moral distress scale. J Adv Nurs. 2001;33(2):250-256. doi:10.1046/j.1365-2648.2001.01658.x

Corley MC, Minick P, Elswick RK, Jacobs M. Nurse moral distress and ethical work environment. Nurs Ethics. 2005;12(4):381-390. doi:10.1191/0969733005ne809oa

Corley MC. Nurse moral distress: A proposed theory and research agenda. Nurs Ethics. 2002;9(6):636-650. doi:10.1191/0969733002ne557oa

Creswell J, Plano Clark V. Choosing a mixed method design. In: Designing and Conducting Mixed Methods Research. ; 2007:58-89.

Crowe L. Tips on building resilience and improving well-being. Emerg Nurse J RCN Accid Emerg Nurs Assoc. 2017;24(10):14. doi:10.7748/en.24.10.14.s16

Daugherty Biddison EL, Faden R, Gwon HS, et al. Too Many Patients…A Framework to Guide Statewide Allocation of Scarce Mechanical Ventilation During Disasters. Chest. 2019;155(4):848-854. doi:10.1016/j.chest.2018.09.025

Delgado C, Upton D, Ranse K, Furness T, Foster K. Nurses' resilience and the emotional labour of nursing work: An integrative review of empirical literature. Int J Nurs Stud. 2017;70(November):71-88. doi:10.1016/j.ijnurstu.2017.02.008

Demerouti E, Nachreiner F, Bakker AB, Schaufeli WB. The job demands-resources model of burnout. J Appl Psychol. 2001;86(3):499-512. doi:10.1037/0021-9010.86.3.499

Denyes MJ, Orem DE, Bekel G. Self-Care: A Foundational Science. Nurs Sci Q. 2001;14(1):48-54. doi:10.1177/089431840101400113

Dodds C, Fakoya I. Covid-19: Ensuring equality of access to testing for ethnic minorities. The BMJ. 2020;369. doi:10.1136/bmj.m2122

Dolan ED, Mohr D, Lempa M, et al. Using a Single Item to Measure Burnout in Primary Care Staff: A Psychometric Evaluation. J Gen Intern Med. 2015;30(5):582-587. doi:10.1007/s11606-014-3112-6

Dort J, Romanelli J, Choudhury N, et al. SAGES primer for taking care of yourself during and after the COVID-19 crisis. Surg Endosc. 2020;34(7):2856-2862. doi:10.1007/s00464-020-07631-3

Draper H, Jenkins S. Ethical challenges experienced by UK military medical personnel deployed to Sierra Leone (operation GRITROCK) during the 2014-2015 Ebola outbreak: A qualitative study. BMC Med Ethics. 2017;18(1). doi:10.1186/s12910-017-0234-5

Duarte CG, Lunardi VL, Silveira RS da, Barlem ELD, Dalmolin G de L. Moral suffering among nurse educators of technical courses in nursing. Rev Bras Enferm. 2017;70(2):301-307. doi:10.1590/0034-7167-2016-0185

Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Utility of a Brief Screening Tool to Identify Physicians in Distress. J Gen Intern Med. 2013;28(3):421-427. doi:10.1007/s11606-012-2252-9

Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Utility of a Brief Screening Tool to Identify Physicians in Distress. J Gen Intern Med. 2013;28(3):421-427. doi:10.1007/s11606-012-2252-9

Eisenman DP, Cordasco KM, Asch S, Golden JF, Glik D. Disaster planning and risk communication with vulnerable communities: lessons from Hurricane Katrina. Am J Public Health. 2007;97 Suppl 1(Suppl 1):S109. doi:10.2105/AJPH.2005.084335

Elbarazi I, Loney T, Yousef S, Elias A. Prevalence of and factors associated with burnout among health care professionals in Arab countries: A systematic review. BMC Health Serv Res. 2017;17(1). doi:10.1186/s12913-017-2319-8

Embriaco N, Papazian L, Kentish-Barnes N, Pochard F, Azoulay E. Burnout syndrome among critical care healthcare workers. Curr Opin Crit Care. 2007;13(5):482-488. doi:10.1097/MCC.0b013e3282efd28a

Epstein EG, Delgado S. Understanding and addressing moral distress. Online J Issues Nurs. 2010;15(3):1-13. doi:10.3912/OJIN.Vol15No03Man01

Federation of State Medical Boards of the United States. USMLE Content Outline.; 2020:34. Accessed September 30, 2021. https://www.usmle.org/pdfs/usmlecontentoutline.pdf

Federation of State Medical Boards of the United States. USMLE Physician Tasks/Competencies.; 2020:12. Accessed September 30, 2021. https://www.usmle.org/pdfs/tcom.pdf

Fernandez R, Lord H, Halcomb E, et al. Implications for COVID-19: A systematic review of nurses' experiences of working in acute care hospital settings during a respiratory pandemic. Int J Nurs Stud. 2020;111:103637. doi:10.1016/j.ijnurstu.2020.103637

Figley CR. Compassion Fatigue: Psychotherapists Chronic Lack of Self Care. J Clin Psychol. 2002;58(11):1433-1441. doi:10.1002/jclp.10090

Firew T, Sano ED, Lee JW, et al. Protecting the front line: A cross-sectional survey analysis of the occupational factors contributing to healthcare workers' infection and psychological distress during the COVID-19 pandemic in the USA. BMJ Open. 2020;10(10). doi:10.1136/bmjopen-2020-042752

Fortune LD, Hymel GM. Creating integrative work: A qualitative study of how massage therapists work with existing clients. J Bodyw Mov Ther. 2015;19(1):25-34. doi:10.1016/j.jbmt.2014.01.005

Fortune, LMT, MA LD, Gillespie, MA E. The Influence of Practice Standards on Massage Therapists' Work Experience: A Phenomenological Pilot Study. Int J Ther Massage Bodyw Res Educ Pract. 2010;3(3):5-11. doi:10.3822/ijtmb.v3i3.73

Frank IC. Emergency response to the gulf coast devastation by hurricanes Katrina and Rita: Experiences and impressions. J Emerg Nurs. 2005;31(6):526-547. doi:10.1016/j.jen.2005.10.008

Gale RC, Wu J, Erhardt T, et al. Comparison of rapid vs in-depth qualitative analytic methods from a process evaluation of academic detailing in the Veterans Health Administration. Implement Sci. 2019;14(1):11. doi:10.1186/s13012-019-0853-y

Galletta M, Portoghese I, Carta MG, D'Aloja E, Campagna M. The Effect of Nurse-Physician Collaboration on Job Satisfaction, Team Commitment, and Turnover Intention in Nurses. Res Nurs Health. 2016;39(5):375-385. doi:10.1002/nur.21733

Garcia LC, Shanafelt TD, West CP, et al. Burnout, Depression, Career Satisfaction, and Work-Life Integration by Physician Race/Ethnicity. JAMA Netw Open. 2020;3(8):e2012762. doi:10.1001/jamanetworkopen.2020.12762

Geboers MA, Van De Wiele CT. Machine Vision and Social Media Images: Why Hashtags Matter. Soc Media Soc. 2020;6(2):2056305120928485. doi:10.1177/2056305120928485

Ghirotto L, De Panfilis L, Di Leo S. Health professionals learning qualitative research in their workplace: a focused ethnography. BMC Med Educ. 2020;20(1):269. doi:10.1186/s12909-020-02191-5

Gonzales AR, Schofield RB, Schmitt GR. Lessons Learned From 9/11: DNA Identification in Mass Fatality Incidents.

Grant KE, Balletto J, Gowan-Moody D, et al. Steps toward massage therapy guidelines: A first report to the profession. Int J Ther Massage Bodyw Res Educ Pract. 2008;1(1):19-36. doi:10.3822/ijtmb.v1i1.5

Griffith AK. Parental Burnout and Child Maltreatment During the COVID-19 Pandemic. J Fam Violence. Published online 2020. doi:10.1007/s10896-020-00172-2

Hart VA. Communication and Nursing : Historical Roots and Related Theory. Published online 2006:1-42.

Highfield T, Leaver T. A methodology for mapping Instagram hashtags. First Monday. 2015;20(1):1-11.

Hobfoll SE, Tracy M, Galea S. The impact of resource loss and traumatic growth on probable PTSD and depression following terrorist attacks. In: Journal of Traumatic Stress. Vol 19. John Wiley & Sons, Ltd; 2006:867-878. doi:10.1002/jts.20166

Horner P, Abshari S, Grove C. Massage: An alternative approach to pain management. Nursing (Lond). 2020;50(4):17-19. doi:10.1097/01.NURSE.0000657036.52377.00

Ivankova N V, Stick SL. Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. Res High Educ. 2007;48(1):93-135. doi:10.1007/s11162-006-9025-4

Kashani P, Mirbaha S, Forouzanfar MM, Meschi F, Baratloo A. The prevalence of personality disorders among emergency nurses based on MMPI-2 questionnaire; a

crosssectional study. Emergency. 2017;5(1):1-5. doi:10.22037/emergency.v5i1.13403

Kemp J. Improving Professionalism in Massage Therapy through Continuing Education in the Development of Successful Therapeutic Relationships.; 2016.

Kennedy AB, Cambron JA, Sharpe PA, Travillian RS, Saunders RP. Clarifying Definitions for the Massage Therapy Profession: the Results of the Best Practices Symposium†. Int J Ther Massage Bodyw. 2008;9(3):15-26.

Kennedy AB, Cambron JA, Sharpe PA, Travillian RS, Saunders RP. Process for massage therapy practice and essential assessment. J Bodyw Mov Ther. 2016;20(3):484-496. doi:10.1016/j.jbmt.2016.01.007

Kennedy AB, Munk N. Experienced practitioners' beliefs utilized to create a successful massage therapist conceptual model: A qualitative investigation. Int J Ther Massage Bodyw Res Educ Pract. 2017;10(2):9-19. doi:10.3822/ijtmb.v10i2.367

Kennedy AB. Massage Therapy Foundation Community Service Grant Program: Stakeholder Report for The Board of Trustees, Community Service Grant Award Committee, and Staff.; 2013.

Khan A, Teoh KRH, Islam S, Hassard J. Psychosocial work characteristics, burnout, psychological morbidity symptoms and early retirement intentions: A cross-sectional study of NHS consultants in the UK. BMJ Open. 2018;8(7). doi:10.1136/bmjopen-2017-018720

Lambert SF, Lawson G. Resilience of professional counselors following hurricanes Katrina and Rita. J Couns Dev. 2013;91(3):261-268. doi:10.1002/j.1556-6676.2013.00094.x

Lancee WJ, Maunder RG, Goldbloom DS. Prevalence of psychiatric disorders among Toronto hospital workers one to two years after the SARS outbreak. Psychiatr Serv. 2008;59(1):91-95. doi:10.1176/ps.2008.59.1.91

Lee HF, Kuo CC, Chien TW, Wang YR. A Meta-Analysis of the Effects of Coping Strategies on Reducing Nurse Burnout. Appl Nurs Res. 2016;31:100-110. doi:10.1016/j.apnr.2016.01.001

Li A, Early SF, Mahrer NE, Klaristenfeld JL, Gold JI. Group Cohesion and Organizational Commitment: Protective Factors for Nurse Residents' Job Satisfaction, Compassion Fatigue, Compassion Satisfaction, and Burnout. J Prof Nurs. 2014;30(1):89-99. doi:10.1016/j.profnurs.2013.04.004

Li Y, Wang H, Jin XR, et al. Experiences and challenges in the health protection of medical teams in the Chinese Ebola treatment center, Liberia: a qualitative study. Infect Dis Poverty. 2018;7(1):92. doi:10.1186/s40249-018-0468-6

Linzer M, Poplau S, Grossman E, et al. A Cluster Randomized Trial of Interventions to Improve Work Conditions and Clinician Burnout in Primary Care: Results from the Healthy Work Place (HWP) Study. J Gen Intern Med. 2015;30(8):1105-1111. doi:10.1007/s11606-015-3235-4

Li-Sauerwine S, Rebillot K, Melamed M, Addo N, Lin M. A 2-question summative score correlates with the Maslach Burnout inventory. West J Emerg Med. 2020;21(3):610-617. doi:10.5811/westjem.2020.2.45139

Liu Q, Luo D, Haase JE, et al. The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. Lancet Glob Health. 2020;8(6):e790-e798. doi:10.1016/S2214-109X(20)30204-7

Locke AB, Fortenberry KT, Sullivan E, et al. Use of a Feedback Survey as a Part of a Wellness Champions Program to Improve Academic Faculty Satisfaction and Burnout: Implications for Burnout in Academic Health Centers. Glob Adv Health Med. 2020;9:216495612097363. doi:10.1177/2164956120973635

Magill EB, Siegel ZB, Pike KM. The Mental Health of Frontline Healthcare Providers During Pandemics: A Rapid Review of the Literature. Psychiatr Serv. 2020;(in press):1-30. doi:10.1176/appi.ps.202000274

Mahdizadeh M, Jaberi AA, Bonabi TN. Massage Therapy in Management of Occupational Stress in Emergency Medical Services Staffs: a Randomized Controlled Trial. Int J Ther Massage Bodyw. 2019;12(1):16-22.

Maslach C, Jackson SE. The measurement of experienced burnout. J Organ Behav. 1981;2(2):99-113. doi:10.1002/job.4030020205

Maslach C, Leiter MP. Understanding the burnout experience: Recent research and its implications for psychiatry. World Psychiatry. 2016;15(2):103-111. doi:10.1002/wps.20311

Maunder R, Hunter J, Vincent L, et al. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. Can Med Assoc J. 2003;168(10):1245-1251.

McHugh ML. Interrater reliability: the kappa statistic. Biochem Medica. 2012;22(3):276-282.

McKight PE, Najab J. Kruskal-Wallis Test. In: The Corsini Encyclopedia of Psychology. American Cancer Society; 2010:1-1. doi:10.1002/9780470479216.corpsy0491

Mcnall M, Foster-Fishman PG. Methods of rapid evaluation, assessment, and appraisal. Am J Eval. 2007;28(2):151-168. doi:10.1177/1098214007300895

Meleis A. Transitions Theory. Springer; 2010.

Meleis AI. Theoretical Nursing: Development and Progress. 6th ed. Wolters Kluwer; 2018.

Milgrom Y, Tal Y, Finestone AS. Comparison of hospital worker anxiety in COVID-19 treating and non-treating hospitals in the same city during the COVID-19 pandemic. Isr J Health Policy Res. 2020;9(1):55. doi:10.1186/s13584-020-00413-1

Miller RL. On Messes, Systems Thinking, and Evaluation: A Response to Patton. Am J Eval. 2016;37(2):266-269. doi:10.1177/1098214015626294

Muller AE, Hafstad EV, Himmels JPW, et al. The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. Psychiatry Res. 2020;293:113441. doi:10.1016/j.psychres.2020.113441

Myers RE. Cultivating Mindfulness to Promote Self-Care and Well-Being in Perioperative Nurses. AORN J. 2017;105(3):259-266. doi:10.1016/j.aorn.2017.01.005

Neal JW, Neal ZP, VanDyke E, Kornbluh M. Expediting the Analysis of Qualitative Data in Evaluation: A Procedure for the Rapid Identification of Themes From Audio Recordings (RITA). Am J Eval. 2015;36(1):118-132. doi:10.1177/1098214014536601

Nochaiwong S, Ruengorn C, Awiphan R, et al. Mental health circumstances among health care workers and general public under the pandemic situation of COVID-19 (HOME-COVID-19). Medicine (Baltimore). 2020;99(26):e20751. doi:10.1097/MD.0000000000020751

Nolte AGW, Downing C, Temane A, Hastings-Tolsma M. Compassion fatigue in nurses: A metasynthesis. J Clin Nurs. 2017;26(23-24):4364-4378. doi:10.1111/jocn.13766

O'Cathain A, Murphy E, Nicholl J. Three techniques for integrating data in mixed methods studies. BMJ. 2010;341:c4587. doi:10.1136/bmj.c4587

Orem DE, Taylor SG, Renpenning KM. Nursing Concepts of Practice. Mosby Inc.; 2001.

Osofsky HJ, Osofsky JD, Arey J, Kronenberg ME, Hansel T, Many M. Hurricane Katrina's first responders: The struggle to protect and serve in the aftermath of the disaster. Disaster Med Public Health Prep. 2011;5(SUPPL. 2). doi:10.1001/dmp.2011.53

Padgett DK. Qualitative and Mixed Methods in Public Health. SAGE Publications; 2012.

Papazoglou K, Chopko B. The role of moral suffering (Moral Distress and Moral Injury) in police compassion fatigue and PTSD: An unexplored topic. Front Psychol. 2017;8(NOV):1-5. doi:10.3389/fpsyg.2017.01999

Parola V, Coelho A, Cardoso D, Sandgren A, Apóstolo J. Prevalence of burnout in health professionals working in palliative care: a systematic review. JBI Database Syst Rev Implement Rep. 2017;15(7):1905-1933. doi:10.11124/JBISRIR-2016-003309

Pastores SM, Kvetan V, Coopersmith CM, et al. Workforce, Workload, and Burnout among Intensivists and Advanced Practice Providers: A Narrative Review. Crit Care Med. 2019;47(4):550-557. doi:10.1097/CCM.0000000000003637

Patton MQ. Developmental Evaluation. Am J Eval. 1994;15(3):311-319. doi:10.1177/109821409401500312

Patton MQ. Evaluation Science. Am J Eval. 2018;39(2):183-200. doi:10.1177/1098214018763121

Peplau HE. Interpersonal Relations: A Theoretical Framework for Application in Nursing Practice. Nurs Sci Q. 1992;5(1):13-18. doi:10.1177/089431849200500106

Peplau HE. Peplau's theory of interpersonal relations. Nurs Sci Q. 1997;10(4):162-167. doi:10.1177/089431849701000407

Pettman E. A history of manipulative therapy. J Man Manip Ther. 2007;15(3):165-174. doi:10.1179/106698107790819873

Pfadenhauer L, Coenen M, Kühlmeyer K, Odukoya D, Schunk M, Unger H. Teaching Qualitative Research Methods in Public Health and Medicine: a research oriented module. Published online 2018. doi:10.3205/ZMA001191

Poghosyan L, Aiken LH, Sloane DM. Factor structure of the Maslach Burnout Inventory. Int J Nurs Stud. 2009;46(7):894-902. doi:10.1016/j.ijnurstu.2009.03.004.Factor

Rafferty JP, Lemkau JP, Purdy RR, Rudisill JR. Validity of the Maslach burnout inventory for family practice physicians. J Clin Psychol. 1986;42(3):488-492. doi:10.1002/1097-4679(198605)42:3<488::AID-JCLP2270420315>3.0.CO;2-S

Rathert C, May DR, Chung HS. Nurse moral distress: A survey identifying predictors and potential interventions. Int J Nurs Stud. 2016;53:39-49. doi:10.1016/j.ijnurstu.2015.10.007

Riccioni L, Bertolini G, Giannini A, et al. Clinical ethics recommendations for the allocation of intensive care treatments, in exceptional, resource-limited circumstances. Recenti Prog Med. 2020;111(4):207-211. doi:10.1701/3347.33183

Risman KL, Erickson RJ, Diefendorff JM. The Impact of Person-Organization Fit on Nurse Job Satisfaction and Patient Care Quality. Appl Nurs Res. 2016;31:121-125. doi:10.1016/j.apnr.2016.01.007

Ross A, Bevans M, Brooks AT, Gibbons S, Wallen GR. Nurses and Health-Promoting Behaviors: Knowledge May Not Translate Into Self-Care. AORN J. 2017;105(3):267-275. doi:10.1016/j.aorn.2016.12.018

Rotenstein LS, Ramos MA, Torre M, et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students a systematic review and meta-analysis. JAMA - J Am Med Assoc. 2016;316(21):2214-2236. doi:10.1001/jama.2016.17324

Ruffin PT. A History of Massage in Nurse Training School Curricula (1860-1945). J Holist Nurs. 2011;29(1):61-67. doi:10.1177/0898010110377355

Rushton CH. Defining and addressing moral distress: Tools for critical care nursing leaders. AACN Adv Crit Care. 2006;17(2):161-168. doi:10.1097/01256961-200604000-00011

Salari N, Khazaie H, Hosseinian-Far A, et al. The prevalence of sleep disturbances among physicians and nurses facing the COVID-19 patients: a systematic review and meta-analysis. Glob Health. 2020;16(1). doi:10.1186/s12992-020-00620-0

Salazar de Pablo G, Vaquerizo-Serrano J, Catalan A, et al. Impact of coronavirus syndromes on physical and mental health of health care workers: Systematic review and meta-analysis. J Affect Disord. 2020;275:48-57. doi:10.1016/j.jad.2020.06.022

SARS | Frequently Asked Questions | CDC. Accessed January 9, 2021. https://www.cdc.gov/sars/about/faq.html#global

Sawatsky AP, Ratelle JT, Beckman TJ. Qualitative Research Methods in Medical Education. Anesthesiology. 2019;131(1):14-22. doi:10.1097/ALN.0000000000002728

Schwartz R, Sinskey JL, Anand U, Margolis RD. Addressing Postpandemic Clinician Mental Health. Ann Intern Med. Published online August 21, 2020. doi:10.7326/m20-4199

Scriven M. Hard-Won Lessons in Program Evaluation. New Dir Program Eval. 1993;58:1-107.

Scriven M. The concept of a transdiscipline: And of evaluation as a transdiscipline. J Multidiscip Eval. 2008;5(10):65-66.

Scriven M. The logic of evaluation. In: Hansen H, ed. Dissensus and the Search for Common Ground. Department of Philosophy, University of Windsor; 2007.

Sellgren SF, Ekvall G, Tomson G. Leadership behaviour of nurse managers in relation to job satisfaction and work climate. J Nurs Manag. 2008;16(5):578-587. doi:10.1111/j.1365-2934.2007.00837.x

Sergeant A, Van Reekum EA, Sanger N, et al. Impact of COVID-19 and other pandemics and epidemics on people with pre-existing mental disorders: A systematic review protocol and suggestions for clinical care. BMJ Open. 2020;10(9). doi:10.1136/bmjopen-2020-040229

Shannonhouse L, Barden S, Jones E, Gonzalez L, Murphy A. Secondary Traumatic Stress for Trauma Researchers: A Mixed Methods Research Design. J Ment Health Couns. 2016;38(3):201-216. doi:10.17744/mehc.38.3.02

Shellner P. Relationship-Based Care: A Model for Transforming Practice. Vol 27. Creative Health Care Management; 2007.

Shorten A, Smith J. Mixed methods research: expanding the evidence base. Evid Based Nurs. 2017;20(3):74-75. doi:10.1136/eb-2017-102699

Shroff FM, Sahota IS. How Can Massage Therapy Move Forward? Registered Massage Therapists Touch on Key Points Shaping Their Profession in British Columbia, Canada. Home Health Care Manag Pract. 2012;24(4):182-192. doi:10.1177/1084822311429563

Singer PA, Benatar SR, Bernstein M, et al. Ethics and SARS: Lessons from Toronto. Br Med J. 2003;327(7427):1342-1344. doi:10.1136/bmj.327.7427.1342

Smith E, Walker T, Burkle FM. Lessons in post-disaster self-care from 9/11 paramedics and emergency medical technicians. Prehospital Disaster Med. 2019;34(3):335-339. doi:10.1017/S1049023X19004382

Smith EC, Burkle FM. Paramedic and emergency medical technician reflections on the ongoing impact of the 9/11 terrorist attacks. Prehospital Disaster Med. 2019;34(1):56-61. doi:10.1017/S1049023X18001255

Sommers BD, Baicker K, Epstein AM. Mortality and Access to Care among Adults after State Medicaid Expansions. N Engl J Med. 2012;367(11):1025-1034. doi:10.1056/NEJMsa1202099

Sommers E, Porter K, DeGurski S. Providers of complementary and alternative health services in Boston respond to September 11. Am J Public Health. 2002;92(10):1597-1598. doi:10.2105/AJPH.92.10.1597

Steffen SL, Fothergill A. 9/11 Volunteerism: A pathway to personal healing and community engagement. Soc Sci J. 2009;46(1):29-46. doi:10.1016/j.soscij.2008.12.005

Stehman CR, Testo Z, Gershaw RS, Kellogg AR. Burnout, drop out, suicide: Physician loss in emergency medicine, part I. West J Emerg Med. 2019;20(3):485-494. doi:10.5811/westjem.2019.4.40970

Tam CWC, Pang EPF, Lam LCW, Chiu HFK. Severe acute respiratory syndrome (SARS) in Hongkong in 2003: Stress and psychological impact among frontline

healthcare workers. Psychol Med. 2004;34(7):1197-1204. doi:10.1017/S0033291704002247

Tapping Your Resilience After Hurricane Katrina: Pointers for Practitioners.; 2005.

Tawfik DS, Scheid A, Profit J, et al. Evidence relating health care provider burnout and quality of care a systematic review and meta-analysis. Ann Intern Med. 2019;171(8):555-567. doi:10.7326/M19-1152

The Lancet. COVID-19: protecting health-care workers. The Lancet. 2020;395(10228):922. doi:10.1016/S0140-6736(20)30644-9

Trudel-Fitzgerald C, Chen Y, Singh A, Okereke OI, Kubzansky LD. Psychiatric, Psychological, and Social Determinants of Health in the Nurses' Health Study Cohorts. Am J Public Health. 2016;106(9):1644-1649. doi:10.2105/AJPH.2016.303318

Turale S, Meechamnan C, Kunaviktikul W. Challenging times: ethics, nursing and the COVID-19 pandemic. Int Nurs Rev. 2020;67(2):164-167. doi:10.1111/inr.12598

Vagni M, Maiorano T, Giostra V, Pajardi D. Coping With COVID-19: Emergency Stress, Secondary Trauma and Self-Efficacy in Healthcare and Emergency Workers in Italy. Front Psychol. 2020;11:566912. doi:10.3389/fpsyg.2020.566912

Van Bogaert P, Timmermans O, Weeks SM, van Heusden D, Wouters K, Franck E. Nursing unit teams matter: Impact of unit-level nurse practice environment, nurse work characteristics, and burnout on nurse reported job outcomes, and quality of care, and patient adverse events-A cross-sectional survey. Int J Nurs Stud. 2014;51(8):1123-1134. doi:10.1016/j.ijnurstu.2013.12.009

van der Riet P, Levett-Jones T, Aquino-Russell C. The effectiveness of mindfulness meditation for nurses and nursing students: An integrated literature review. Nurse Educ Today. 2018;65:201-211. doi:10.1016/j.nedt.2018.03.018

Vlachou, Efstathia M.; Damigos, Dimitrios; Lyrakos, George; Chanopoulos, Konstantinos; Kosmidis, George; Karavis M. The Relationship between Burnout Syndrome and Intelligence in Healthcare Providers. Health Sci J. 2016;10(5):1-9. doi:http://dx.doi.org/10.4172/1791-809X.1000100502

Wagner C, Kawulich B, Garner M. A Mixed Research Synthesis of Literature on Teaching Qualitative Research Methods. SAGE Open. 2019;9(3):2158244019861488. doi:10.1177/2158244019861488

Watson J. The theory of human caring: retrospective and prospective. Nurs Sci Q. 1997;10(1):49-52. doi:10.1177/089431849701000114

Watson J. THEORY OF HUMAN CARING Content of the Theory. Watson Caring Sci Inst. Published online 2016:1-14.

Wei E, Segall J, Villanueva Y, et al. Coping With Trauma, Celebrating Life: Reinventing Patient And Staff Support During The COVID-19 Pandemic. Health Aff Proj Hope. 2020;39(9):1597-1600. doi:10.1377/hlthaff.2020.00929

West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. J Intern Med. 2018;283(6):516-529. doi:10.1111/joim.12752

WHO. WHO Coronavirus (COVID-19) Dashboard. Accessed September 17, 2021. https://covid19.who.int

Wikström P. #srynotfunny : Communicative functions of hashtags on Twitter. SKY J Linguist. 2014;27:127-152.

Williamson V, Murphy D, Greenberg N. COVID-19 and experiences of moral injury in front-line key workers. Occup Med Oxf Engl. 2020;70(5):317-319. doi:10.1093/occmed/kqaa052

World Health Organization. In WHO global pulse survey, 90% of countries report disruptions to essential health services since COVID-19 pandemic. Published 2020. Accessed September 13, 2020. https://www.who.int/news-room/detail/31-08-2020-in-who-global-pulse-survey-90-of-countries-report-disruptions-to-essential-health-services-since-covid-19-pandemic

Yu X, Zhao Y, Li Y, et al. Factors Associated With Job Satisfaction of Frontline Medical Staff Fighting Against COVID-19: A Cross-Sectional Study in China. Front Public Health. 2020;8(August):1-9. doi:10.3389/fpubh.2020.00426

Zappavigna M. Searchable Talk: Hashtags and Social Media Metadiscourse. Bloomsbury Publishing; 2018.

Zappavigna M. Searchable talk: the linguistic functions of hashtags. Soc Semiot. 2015;25(3):274-291. doi:10.1080/10350330.2014.996948

APPENDICES

Appendix A

Index of Items in Initial and Weekly Surveys

***ProjectCOPE*: First Survey**

Start of Block: Default Question Block

Intro *ProjectCOPE*: Chronicling health-care prOviders' Pandemic Experiences. Your participation in this survey is completely voluntary. If you wish to exit this survey prior to completion you may exit it at any time. At the end of the survey, you will be asked if you would be willing to participate in more surveys from ProjectCOPE. You will be asked to provide your email address if you are interested in further participation. Then you will be asked if you would be interested in completing a video journal and instructions will be provided for sharing this video if you chose to participate. This survey is designed to gather information to help researchers from the University of South Carolina School of Medicine Greenville, Prisma Health, Clemson University, and Indiana University (IUPUI) understand the experiences of all health-care providers/professionals (including physicians, nurses, allied health, complementary and integrative medicine practitioners, those in dentistry, mental health, and any students in these fields) during and after the Covid-19 pandemic. This survey should take approximately 5-10 minutes to complete. Please answer each of the following questions to the best of your ability. If you are not sure of an answer to a question, please provide your best estimate. Your responses will be kept confidential. If you have any questions or concerns, please contact the Principal Investigator, Ann Blair Kennedy at kenneda5@greenvillemed.sc.edu, or the University of South Carolina's Office of Research Compliance (803) 777-6670. Generally, completing questionnaires and documenting experiences is unlikely to significantly increase mental distress from levels you are current experiencing, but could be triggering for some with history of trauma. We care about you and understand how hard this time can be. If we have reason to believe that you are considering harming yourself or someone else, we will report to the appropriate authorities and do our best to provide appropriate referrals for professional services as needed. If you notice an increase in distress or would like to get more information about trauma and/or Post Traumatic Stress Disorder (PTSD) or to find treatment resources, here are three very good, well-vetted websites from leading professional organizations:

- The International Society for Traumatic Stress Studies (www.istss.org)
- The Anxiety and Depression Association of America (www.adaa.org)
- The National Center for PTSD (www.ptsd.va.gov)

Willing Are you willing to take this survey?

Yes (1)

No (2)

Skip To: End of Survey If Are you willing to take this survey? = No

AgeReq Are you 18 or older?

Yes (1)

No (2)

Skip To: End of Survey If Are you 18 or older? = No

HCReq Are you a health-care provider/worker (physician, nurse, dentist, PT, OT, PTA, Complementary/Integrative medicine practitioner, PA, massage therapist, etc.) or a student studying to become a health-care provider/worker?

Yes (1)

No (2)

Skip To: End of Survey If Are you a health-care provider/worker (physician, nurse, dentist, PT, OT, PTA, Complementary/Integ... = No

EngReq Can you read and understand English?

Yes (1)

No (2)

Skip To: End of Survey If Can you read and understand English? = No

Page Break

Txt Please take a moment to tell us about yourself.

Age Your age in years

_____

Gender Which best describes your gender identity?

Woman (1)

Man (2)

Non-binary (3)

Transgender woman (4)

Transgender man (5)

Another not listed (6) _____

Choose not to answer (7)

Ethn Ethnicity

Hispanic or Latino/a/x (1)

Not Hispanic or Latino/a/x (2)

Choose not to answer (3)

Race Race (check all that apply)

Native American or Alaska Native or Indigenous person (1)

Asian (2)

Black or African American (3)

Hispanic or Latino/a (4)

Native Hawaiian or Pacific Islander (5)

White (6)

Another not listed (7) _____

Choose not to answer (8)

Edu What is your highest level of education?

Less than high school (1)

High school diploma or equivalent (2)

Vocational training (3)

Bachelor's degree (4)

Master's degree (5)

Doctoral or Professional degree (PhD, MD, PsyD, DrPH, DO, JD etc.) (6)

Choose not to answer (7)

ProfStud Are you a health-care provider/allied health professional or a health/health-care student?

Provider/professional (including Residents and Fellows) (1)

Student (2)

Display This Question:

If Are you a health-care provider/allied health professional or a health/health-care student? = Provider/professional (including Residents and Fellows)

YrsPrac How many years have you been in practice?

_____

Display This Question:

If Are you a health-care provider/allied health professional or a health/health-care student? = Student

YrsSch Describe where you are in your program (ex: What year in school or semester for shorter programs)?

_____

_____

_____

_____

_____

Loc Location type of School or Current Practice

Urban (1)

Rural (2)

Suburban (3)

Tribal (4)

Prof What type of health-care professional/provider/student are you? Check all that apply.

Athletic Training (18)

Acupuncture (1)

Allied health (2)

Chiropractic (3)

Dental (4)

Massage therapy (5)

Medicine (6)

Mental Health (7)

Midwifery (8)

Naturopathic (9)

Nursing (10)

Occupational Therapy (11)

Optometry (20)

Pharmacy (12)

Physical Therapy (13)

Pre-hospital (first responder) (19)

Psychologist (14)

Registered Dietitian (15)

Respiratory Therapist (16)

Social Work (17)

Other (21) _____

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Allied health

AHP Allied health profession

Radiology technician (1)

Surgical technician (2)

Other: (3) _____

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Dental

Den Dentistry

Dentist (1)

Dental assistant (2)

Dental hygienist (3)

Orthodontist (4)

Other: (5) _____

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Medicine

Med Medicine

Allopathy (MD) (1)

Osteopathy (DO) (2)

Physician Assistant (PA) (3)

Other: (4) _____

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Mental Health

MH Mental Health

Counselor/LPC (1)

Marriage and Family Therapist/LMFT (2)

Clinical Psychologist (3)

Other (4) _____

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Naturopathic

Natur Naturopathy

Naturopathic doctor (1)

Other: (2) _____

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Nursing

Nurs Nursing

Advance practice (1)

Registered (2)

Licensed practical (3)

Nursing Assistant/Technician (4)

Other: (5) _____

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Physical Therapy

PhyTh Physical Therapy

Physical therapist (1)

Physical therapy assistant (2)

Other: (3) _____

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Medicine

Or What type of health-care professional/provider/student are you? Check all that apply. = Nursing

Spec Specialty

Allergy & Immunology (1)

Anesthesiology (2)

Dermatology (3)

Critical Care (4)

Emergency Medicine (5)

Family Medicine (6)

General Surgery (7)

Internal Medicine (8)

Internal Medicine-Pediatrics (9)

Interventional Radiology (10)

Medical Genetics (11)

Neurology (12)

Neurosurgery (13)

Obstetrics & Gynecology (14)

Ophthalmology (15)

Orthopedic Surgery (16)

Otolaryngology (17)

Pediatrics (18)

Physical Medicine & Rehabilitation (19)

Preventive Medicine (20)

Psychiatry (21)

Radiology (22)

Pathology (23)

Urology (24)

Other: (25) _____

Undecided (26)

Display This Question:

If What type of health-care professional/provider/student are you? Check all that apply. = Pre-hospital (first responder)

PreHos Pre-hospital

EMT (Ambulance Technicians) (1)

Firefighter (2)

Paramedic (3)

Medical dispatcher (4)

Other (5) _____

ATTCK To help rule out internet bots please answer the following question with “Tiger”. The animal capturing lots of peoples’ attention right now is the:

Cat (1)

Dog (2)

Dinosaur (3)

Tiger (4)

Wolf (5)

Skip To: End of Survey If To help rule out internet bots please answer the following question with “Tiger”. The animal capt... != Tiger

Page Break

Display This Question:

If Are you a health-care provider/allied health professional or a health/health-care student? = Provider/professional (including Residents and Fellows)

txt Please answer a few questions about your current practice

---

Display This Question:

If Are you a health-care provider/allied health professional or a health/health-care student? = Provider/professional (including Residents and Fellows)

Patient During the Covid-19 pandemic, did you stop seeing patients/clients?

Yes (1)

No (2)

Display This Question:

If Are you a health-care provider/allied health professional or a health/health-care student? = Student

PatEdu During the Covid-19 pandemic, did you stop seeing patients/clients in your educational setting? (ex: student clinic, clinical rotations, etc.)

Yes (1)

No (2)

Display This Question:

If During the Covid-19 pandemic, did you stop seeing patients/clients? = Yes

Or During the Covid-19 pandemic, did you stop seeing patients/clients in your educational setting? (... = Yes

PatTime When did you stop seeing patients/clients? (Please provide a date (MM/DD/YYYY)

_____

Display This Question:

If During the Covid-19 pandemic, did you stop seeing patients/clients? = Yes

Or During the Covid-19 pandemic, did you stop seeing patients/clients in your educational setting? (... = Yes

PatReas Why did you stop seeing patients (check all that apply)?

Required by government action (1)

Required by employer (2)

Recommended by employer (3)

Required by professional association (4)

Recommended by professional association (5)

Required by educational institution (6)

Furloughed/laid off by employer (7)

Personal choice (8)

Other: Please describe (9) _____

Display This Question:

If During the Covid-19 pandemic, did you stop seeing patients/clients? = No

Or During the Covid-19 pandemic, did you stop seeing patients/clients in your educational setting? (... = No

PatInt How has the way you have interacted with patients otherwise changed? (Check all that apply)

Seeing patients/clients via telehealth (phone/video) (1)

Decrease in number of patients (2)

Increase in number of patients (3)

Assisting in critical care (4)

Assisting in departments other than my own (5)

Other (6) _____

Page Break

CovFam Has one of your immediate family members or a close friend been diagnosed with Covid-19?

Yes (1)

No (2)

I don't know (3)

Display This Question:

If Has one of your immediate family members or a close friend been diagnosed with Covid-19? = Yes

FamRec Has that person recovered?

Yes (1)

Not yet, they are still in treatment (2)

They passed away (3)

Choose not to answer (4)

Page Break

MS Moral distress is the stress health-care workers feel when they believe they know the ‘right’ thing to do on the job, but something in the environment prevents them from being able to do it, such as law/policies, other team members/colleagues, patient/family members, etc.. In the last week how often have you felt moral distress in relation to your job/profession?

never (1)

once a week or less (2)

2–3 times per week (3)

once per day (4)

2–3 times a day (5)

4 times a day or more (6)

Page Break

Continue Are you willing to take more ProjectCOPE surveys in the future (ex. weekly wellness survey and video journal)? You can stop at any time.

Yes (1)

No (2)

Display This Question:

If Are you willing to take more Project COPE surveys in the future (ex. weekly wellness survey and v... = Yes

*

Email Please provide email address

_____

Page Break

Vlog Finally, we invite you to participate in the video journal portion of ProjectCOPE. See the instructions for creating your video journal below. If you would rather, you may submit a voice recording without your face on the screen. First, please do not film anyone other than yourself – no other people should appear in your video journal. Also, please do not use any names, yours included in the video. Then pick one of the following questions to reflect upon in your journal entry. Questions: 1) What types of experiences led you to feel moral stress this week? 2) How are you feeling about the next time you go to work? 3) How are you coping with the pandemic while you are at home?
Please begin your video with the question you are discussing.
If you have any questions about ProjectCOPE, please contact us at InfoProjectCOPE@gmail.com or kenneda5@greenvillemed.sc.edu

End of Block: Default Question Block

Project COPE: Weekly Survey

Start of Block: Introduction

Intro

Thank you for taking part in ProjectCOPE: Chronicling healthcare prOviders' Pandemic Experiences.

We would like to request your participation in our study weekly*. We will email you a reminder each week, send you the following survey and invite you to take part in the video journaling portion of our project. Journaling and reflecting on experiences can help people manage during times of stress and great uncertainty.

This survey should take approximately 5-10 minutes to complete. Please answer each of the following questions to the best of your ability. If you are not sure of an answer to a question, please provide your best estimate. Your responses will be kept confidential. If you have any questions or concerns, please contact the Principal Investigator, Ann Blair Kennedy at kenneda5@greenvillemed.sc.edu, or the University of South Carolina's Office of Research Compliance (803) 777-6670.

*You may participate in as many or as few of these surveys as you would like.

As a reminder: Generally, completing questionnaires and documenting experiences is unlikely to significantly increase mental distress from levels you are current experiencing, but could be triggering for some with history of trauma. We care about you and understand how hard this time can be. If we have reason to believe that you are considering harming yourself or someone else, we will report to the appropriate authorities and do our best to provide appropriate referrals for professional services as needed. If you notice an increase in distress or would like to get more information about trauma and/or Post Traumatic Stress Disorder (PTSD) or to find treatment resources, here are three very good, well-vetted websites from leading professional organizations:

- The International Society for Traumatic Stress Studies (www.istss.org)
- The Anxiety and Depression Association of America (www.adaa.org)
- The National Center for PTSD (www.ptsd.va.gov).

Let's get started, are you willing to take this survey?

Yes (1)

No (2)

Skip To: End of Survey If Thank you for taking part in Project COPE: Chronicling healthcare prOviders' Pandemic Experiences... = No

End of Block: Introduction

Start of Block: General Questions

WBI During the past week:

	Yes (1)	No (2)
Have you worried that your work is hardening you emotionally? (1)		
Have you often been bothered by feeling down, depressed, or hopeless? (2)		
Have you fallen asleep while stopped in traffic or driving? (3)		
Have you felt that all things you had to do were piling up so high that you could not overcome them? (4)		
Have you been bothered by emotional problems (such as feeling anxious or irritable)? (5)		
Has your physical health interfered with your ability to do your daily work at home and/or away from home? (6)		

Page Break

MiniZ Using your own definition of "burnout," please select one of the answers below:

I enjoy my work. I have no symptoms of burnout. (1)

I am under stress, and don't always have as much energy as I did, but I don't feel burned out. (2)

I am definitely burning out and have one or more symptoms of burnout (e.g., emotional exhaustion). (3)

The symptoms of burnout that I am experiencing won't go away. I think about work frustrations a lot. (4)

I feel completely burned out. I am at the point where I may need to seek help. (5)

BO On a 0-10 scale, with 0 indicating strong feelings of burnout and 10 indicating strong feelings of well-being, please move the slider below to indicate your current state of burnout/well-being.

	Strong Feelings of Burnout 0	5	Strong Feelings of Well-being 10
Where are you right now? ()			

End of Block: General Questions

Start of Block: Seeing Patients

Patients Are you currently seeing patients/clients?

Yes (1)

No (2)

Skip To: End of Block If Are you currently seeing patients/clients? = No

CWEE Which of the following are you currently **experiencing**? Check all that apply:

Shortage of PPE (personal protective equipment) (1)

Shortage of supplies needed to treat patients (2)

Shortage of medications needed to treat patients (3)

Staffing concerns in my department/office (only my department/office is experiencing issues with too few doctors/too few nurses/too few staff) (4)

Staffing concerns in the hospital (the entire hospital is experiencing issues with too few doctors/too few nurses/too few staff) (5)

Lack of sufficient access to COVID-19 testing for health-care providers (6)

Feeling ill-prepared to manage escalating work demands (7)

Difficulty admitting or transferring patients (8)

Fear that the risk of COVID-19 exposure is not under my control (9)

Other (please describe): (10) _____

Page Break

CWEC Which of the following are you currently **concerned** about regarding your clinical work environment? Check all that apply:

Shortage of PPE (personal protective equipment) (2)

Shortage of supplies needed to treat patients (3)

Shortage of medications needed to treat patients (4)

Staffing concerns in my department (only my department/office is experiencing issues with too few doctors/too few nurses/too few staff) (5)

Staffing concerns in the hospital (the entire hospital is experiencing issues with too few doctors/too few nurses/too few staff) (6)

Lack of sufficient access to COVID-19 testing for health-care providers (7)

Feeling ill-prepared to manage escalating work demands (8)

Difficulty admitting or transferring patients (9)

Fear that the risk of COVID-19 exposure is not under my control (10)

Other (please describe): (11) _____

Page Break

GWRC Which of the following are you currently concerned about regarding general work-related stressors? Check all that apply:

Too many bureaucratic tasks (e.g., charting, paperwork) (2)

Electronic health record issues (3)

Spending too many hours at work (4)

Communication problems (e.g., unclear, delayed, conflicting, or too much information) (5)

Lack of support from the hospital/organization (6)

Lack of advance planning and resource availability at a local/national level (7)

Frustration with societal misperceptions and/or misinformation that impede my ability to care for patients quickly and effectively (8)

Increasing conflict between professional responsibilities (e.g., duty to patients and the health-care system) and personal responsibilities (e.g., keeping my family and friends safe) (9)

Other (please describe): (11) _____

Page Break

End of Block: Seeing Patients

Start of Block: Block 6

Display This Question:

If Are you currently seeing patients/clients? = No

NP_GWRC When you begin seeing patients again, which of the following are you currently concerned about regarding general work-related stressors? Check all that apply:

Too many bureaucratic tasks (e.g., charting, paperwork) (2)

Electronic health record issues (3)

Spending too many hours at work (4)

Keeping workspace sanitary (12)

Communication problems (e.g., unclear, delayed, conflicting, or too much information) (5)

Lack of support from the hospital/organization (6)

Lack of advance planning and resource availability at a local/national level (7)

Too many marketing/business related tasks (e.g., scheduling patients, advertising re-opening) (13)

Frustration with societal misperceptions and/or misinformation that impede my ability to care for patients quickly and effectively (8)

Increasing conflict between professional responsibilities (e.g., duty to patients and the healthcare system) and personal responsibilities (e.g., keeping my family and friends safe) (9)

Other (please describe): (11) _____

BOTCHK To help rule out internet bots, please respond with the answer below "Just keep swimming, swimming, swimming".

Holy cheese puffs (1)

Where is my super suit? (2)

Unicorns and rainbows (3)

Just keep swimming, swimming, swimming (4)

I'm a mystery, wrapped in an enigma, covered in chocolate sprinkles (5)

Skip To: End of Survey If To help rule out internet bots, please respond with the answer below "Just keep swimming, swimmin... = Where is my super suit?

Skip To: End of Survey If To help rule out internet bots, please respond with the answer below "Just keep swimming, swimmin... = Holy cheese puffs

Skip To: End of Survey If To help rule out internet bots, please respond with the answer below "Just keep swimming, swimmin... = Unicorns and rainbows

Skip To: End of Survey If To help rule out internet bots, please respond with the answer below "Just keep swimming, swimmin... = I'm a mystery, wrapped in an enigma, covered in chocolate sprinkles

End of Block: Block 6

Start of Block: ALL resp - personal concerns

PRC Which of the following are you currently concerned about regarding yourself? Check all that apply:

Concern that my colleagues will get sick (1)

Fear of getting sick and/or dying myself (2)

Fear of my loved ones getting sick and/or dying (3)

Feeling socially isolated/lonely (4)

Feeling like I can't share my concerns/feelings safely with others (5)

Difficulty sleeping due to increased stress from the pandemic (6)

Difficulty making arrangements for dependent care (e.g., children, elderly relatives) (7)

Uncertainty about how long the pandemic will continue (8)

Fears of societal instability (9)

Personal resource worries (e.g., financial concerns, not having a will/advance directive in place, not having adequate supplies at home) (10)

Other (please describe): (11) _____

Page Break

MD Moral distress is the stress health-care workers feel when they believe they know the 'right' thing to do on the job, but something in the environment keeps them from doing it, such as law/policies, other team members/colleagues, patient/family members, etc.
In the last week, how often have you felt moral distress in relation to your job/profession?

Never (1)

Once a week or less (2)

2-3 times per week (3)

Once per day (4)

2-3 times a day (5)

4 or more times a day (6)

Page Break

Cope Which of the following have you found helpful in the past week? Check all that apply:

Regular social interaction/check-ins (e.g., phone, videocall, texts) with friends and family (1)

Regular social interaction/check-ins (e.g., phone, videocall, texts) with work colleagues (2)

One-on-one counseling (3)

Support groups/group counseling (4)

Fully disconnecting from work (e.g., not receiving phone calls, answering emails) (5)

Prayer/religion, meditation, practicing gratitude, etc. (6)

Maintaining a daily routine (7)

Exercising (8)

Alcohol use (9)

Sleeping pill use (10)

Prescription medications (11)

Illicit substance use (i.e., marijuana) (12)

Tobacco use (13)

Support from coworkers (14)

Support from my supervisor (15)

Feeling that my work is meaningful (16)

Knowing I am helping to address the COVID-19 pandemic (17)

Having a positive impact on patients (18)

Getting positive feedback from the family members of patients (19)

Receiving assistance/resources to help manage non-work needs (e.g., childcare, personal supplies) (20)

Other (please describe): (21) _____

End of Block: ALL resp - personal concerns

Start of Block: Video journal

Vlog Finally, we invite you to participate in the video journal portion of ProjectCOPE. See the instructions for creating your video journal below. If you would rather, you may

submit a voice recording without your face on the screen.
First, please do not film anyone other than yourself – no other people should appear in your video journal. Also, please do not use any names, yours included in the video. Then pick one of the following questions to reflect upon in your journal entry.
Keep it simple - this does not have to scripted, we just want your first thoughts and initial reactions one of the questions below. If these questions don't suit, just tell us how are you are doing right now.
Questions: 1) What types of experiences led you to feel moral distress* this week? 2) How are you feeling about the next time you go to work? 3) How are you coping with the pandemic while you are at home?
*Moral distress is the stress health-care workers feel when they believe they know the 'right' thing to do on the job, but something in the environment keeps them from doing it, such as law/policies, other team members/colleagues, patient/family members, etc.
If you would not like to participate in the video journal portion of the study, please click next to complete the survey.

Page Break

Updates Would you like to receive updates on the results of the study?

Yes (4)

No (5)

Page Break

Reminder As a reminder, completing questionnaires and documenting experiences is unlikely to significantly increase mental distress from levels you are current experiencing, but could be triggering for some with history of trauma. If you notice an increase in distress or would like to get more information about trauma and/or Post Traumatic Stress Disorder (PTSD) or to find treatment resources, here are three very good, well-vetted websites from leading professional organizations:

The International Society for Traumatic Stress Studies (www.istss.org)

The Anxiety and Depression Association of America (www.adaa.org)

The National Center for PTSD (www.ptsd.va.gov).

Thank you for participating!

End of Block: Video journal

Appendix B

Demographics of Project COPE Participants

	Woman (%)	Man	Gender Expansive (%)	Chose Not to Answer	Total (%)
Asian	19 (63.3)	3 (13.6)	-	-	23 (1.7)
Black or African American	21 (84.0)	4 (16.0)	-	-	25 (1.9)
Hispanic or Latino/a	49 (87.5)	6 (10.7)	1 (1.8)	-	56 (4.3)
Native or Indigenous	5 (83.3)	1 (16.7)	-	-	6 (0.5)
Multiracial	28 (87.5)	4 (12.5)	-	-	32 (2.5)
White	937 (87.3)	125 (11.6)	11 (1.0)	-	1,073 (82.6)
Chose not to answer	40 (72.7)	7 (12.7)	3 (5.5)	5 (9.1)	55 (4.2)
Total	1,118 (86.0)	160 (12.3)	16 (1.2)	5 (0.4)	1,299

Table B-1: Gender identity and ethnicity of Project COPE participants

Profession	Woman (%)	Man (%)	Gender Expansive	Choose Not to Answer	Total (%)
Acupuncture	2 (100)	-	-	-	2 (0.2)
Allied health	13 (92.9)	1 (7.1)	-	-	14 (1.1)
Athletic training	2 (66.7)	1 (33.3)	-	-	3 (0.2)
Chiropractic	1 (50.0)	1 (50.0)	-	-	2 (0.2)
Dental	5 (62.5)	3 (37.5)	-	-	8 (0.6)
Massage therapy	517 (87.3)	69 (11.7)	5 (0.8)	1 (0.2)	592 (45.6)
Medicine	108 (76.1)	31 (21.8)	2 (1.4)	1 (0.7)	142 (10.9)
Mental health	11 (78.6)	3 (21.4)	-	-	14 (1.1)
Midwifery	1 (100)	-	-	-	1 (0.1)
Naturopathy	2 (100)	-	-	-	2 (0.2)
Nursing	261 (95.6)	9 (3.3)	2 (0.7)	1 (0.4)	273 (21.0)
Occupational therapy	16 (94.1)	1 (5.9)	-	-	17 (1.3)
Optometry	2 (40.0)	3 (60.0)	-	-	5 (0.4)
Other not listed	57 (77.0)	9 (12.2)	7 (9.5)	1 (1.4)	74 (5.7)
Pharmacy	6 (100)	-	-	-	6 (0.5)
Physical Therapy	18 (90.0)	2 (10.0)	-	-	20 (1.5)
Prehospital	6 (26.1)	17 (73.9)	-	-	23 (1.8)
Psychology	2	1	-	-	3

	(66.7)	(33.3)			(0.2)
Respiratory therapy	5 (83.3)	1 (16.7)	-	-	6 (0.5)
Social work	10 (90.9)	1 (9.1)	-	-	11 (0.8)
Dual profession	73 (90.1)	7 (8.6)	-	1 (1.2)	81 (6.2)
Total	1,118 (86.1)	160 (12.3)	16 (1.2)	5 (0.4)	1,299

Table B-2: Profession and gender identity of Project COPE participants

Profession	High school diploma or equivalent (2)	Vocational Training (3)	Bachelor's Degree (4)	Master's Degree (5)	Doctoral or Terminal Professional Degree (6)	Choose Not to Answer	Total
Acupuncture	-	-	-	2 (100.0)	-	-	2 (0.2%)
Allied health	-	2 (14.3)	9 (64.3)	3 (21.4)	-	-	14 (1.1%)
Athletic training	-	-	-	3 (100.0)	-	-	3 (0.2%)
Chiropractic	-	-	-	-	2 (100.0)	-	2 (0.2%)
Dental	-	-	1 (12.5)	3 (37.5)	4 (50.0)	-	8 (0.6%)
Massage therapy	15 (2.5)	223 (37.7)	257 (43.4)	63 (10.6)	15 (2.5)	19 (3.2)	592 (45.6%)
Medicine	1 (0.7)	1 (0.7)	35 (24.6)	19 (13.4)	85 (59.9)	1 (0.7)	142 (10.9%)
Mental health	-	-	4 (28.6)	10 (71.4)	-	-	14 (1.1%)
Midwifery	-	-	-	1 (100.0)	-	-	1 (0.1%)
Naturopathy	-	-	2 (100.0)	-	-	-	2 (0.2%)
Nursing	5 (1.8)	29 (10.6)	186 (68.1)	35 (12.8)	9 (3.3)	9 (3.3)	273 (21.0%)
Occupational therapy	-	-	4 (23.5)	11 (64.7)	1 (5.9)	1 (5.9)	17 (1.3%)
Optometry	-	-	2 (40.0)	-	3 (60.0)	-	5 (0.4%)
Other not listed	4 (5.4)	10 (13.5)	14 (18.9)	36 (48.6)	6 (8.11)	4 (5.4)	74 (5.7%)

Profession	High school diploma or equivalent (2)	Vocational Training (3)	Bachelor's Degree (4)	Master's Degree (5)	Doctoral or Terminal Professional Degree (6)	Choose Not to Answer	Total
Pharmacy	-	-	-	1 (16.7)	5 (83.3)	-	6 (0.5%)
Physical Therapy	-	1 (5.0)	5 (25.0)	5 (25.0)	9 (45.0)		20 (1.5%)

Table B-3: Reported highest level of education by profession

Prehospital	5 (21.7)	9 (39.1)	8 (34.1)	1 (4.4)	-	-	23 (1.8%)
Psychology	-	-	-	1 (33.3)	2 (66.7)	-	3 (0.2%)
Respiratory therapy	-	2 (33.3)	4 (66.7)	-	-	-	6 (0.5%)
Social work	-	-	1 (9.1)	9 (81.8)	1 (9.1)	-	11 (0.8%)
Dual profession	2 (2.5)	14 (17.3)	35 (43.2)	17 (21.0)	9 (11.1)	4 (4.9)	81 (6.2%)
Total	32 (2.5)	291 (22.4)	567 (43.6)	220 (16.9)	151 (11.6)	38 (2.9)	1,299

Table B-3 (Continued): Reported highest level of education by profession

Professional Category	**Profession**	**Baseline Surveys** N (% of Total)	**Enrolled in Prospective** N (% of Profession)	**Initiated First Weekly Survey** N (% of Profession)	**Completed Weekly First Survey** N (% of Profession)
Other	Acupuncture	2 (0.2)	2 (100.0)	2 (100.0)	1 (50.0)
Allied Health	Allied health	14 (1.1)	9 (64.3)	9 (64.3)	2 (14.3)
Allied Health	Athletic training	3 (0.2)	2 (66.7)	2 (66.7)	-
Other	Chiropractic	2 (0.2)	-	-	-
Other	Dental	8 (0.6)	4 (50.0)	4 (50.0)	2 (25.0)
Massage Therapy	Massage therapy	592 (45.6)	455 (76.9)	455 (76.9)	257 (43.4)
Medicine	Medicine	142 (10.9)	77 (54.2)	77 (54.2)	33 (23.2)
Mental Health	Mental health	14 (1.1)	11 (78.6)	11 (78.6)	5 (35.7)
Other	Midwifery	1 (0.1)	1 (100.0)	1 (100.0)	-
Other	Naturopathy	2 (0.2)	-	-	-
Nursing	Nursing	273 (21.0)	161 (59.0)	161 (59.0)	53 (19.4)
Allied Health	Occupational therapy	17 (1.3)	10 (58.8)	10 (58.8)	7 (41.2)
Other	Optometry	5 (0.4)	2 (40.0)	2 (40.0)	-
Other	Other not listed	74 (5.7)	39 (52.7)	39 (52.7)	15 (18.9)
Other	Pharmacy	6 (0.5)	2 (33.3)	2 (33.3)	-
Allied Health	Physical Therapy	20 (1.5)	12 (60.0)	12 (60.0)	2 (66.7)
Medicine	Prehospital	23 (1.8)	9 (39.1)	9 (39.1)	-
Mental Health	Psychology	3 (0.2)	2 (66.7)	2 (66.7)	2 (66.7)
Medicine	Respiratory therapy	6 (0.5)	4 (66.7)	4 (66.7)	2 (33.3)
Mental Health	Social work	11 (0.8)	8 (72.7)	8 (72.7)	4 (36.4)
Dual Profession	Dual profession	81 (6.2)	51 (63.0)	51 (63.0)	19 (23.5)
	Total	1,299	861 (66.3)	861 (66.3)	405 (31.1)

Table B-4: Professions and professional category enrollment in *ProjectCOPE*

Appendix C

Descriptive Statistics of Project COPE Survey Responses

Which of the following are you currently experiencing? (CWEE)	**N (%)**
Shortage of PPE (personal protective equipment) (1)	49 (25.5)
Shortage of supplies needed to treat patients (2)	20 (10.4)
Shortage of medications needed to treat patients (3)	5 (2.6)
Staffing concerns in my department/office (only my department/office is experiencing issues with too few doctors/too few nurses/too few staff) (4)	60 (31.2)
Staffing concerns in the hospital (the entire hospital is experiencing issues with too few doctors/too few nurses/too few staff) (5)	43 (22.4)
Lack of sufficient access to COVID-19 testing for health-care providers (6)	41 (21.4)
Feeling ill-prepared to manage escalating work demands (7)	54 (28.1)
Difficulty admitting or transferring patients (8)	23 (12.0)
Fear that the risk of COVID-19 exposure is not under my control (9)	113 (58.9)
Total Responses	**192**

Table C-1: Workplace experiences among those continuing to see patients

Which of the following are you currently concerned about regarding your clinical work environment? Check all that apply. (CWEC)	N (%)
Shortage of PPE (personal protective equipment) (2)	56 (29.2)
Shortage of supplies needed to treat patients (3)	32 (16.7)
Shortage of medications needed to treat patients (4)	13 (6.8)
Staffing concerns in my department (only my department/office is experiencing issues with too few doctors/too few nurses/too few staff) (5)	58 (30.2)
Staffing concerns in the hospital (the entire hospital is experiencing issues with too few doctors/too few nurses/too few staff) (6)	40 (20.8)
Lack of sufficient access to COVID-19 testing for healthcare providers (7)	44 (22.9)
Feeling ill-prepared to manage escalating work demands (8)	60 (31.2)
Difficulty admitting or transferring patients (9)	24 (12.5)
Fear that the risk of COVID-19 exposure is not under my control (10)	109 (56.8)
Total Responses	**192**

Table C-2: Workplace concerns among those continuing to see patients

Which of the following are you currently concerned about regarding general work-related stressors? Check all that apply: (GRWC)	**Seeing Patients** N (%)	**Not Seeing Patients** N (%)	**Total** N (%)	**P-value**
"Too many bureaucratic tasks (e.g., charting, paperwork) (2)	78 (40.6)	45 (23.4)	123 (32.0)	*<0.001
Electronic health record issues (3)	33 (17.2)	11 (5.7)	44 (11.5)	*<0.001
Spending too many hours at work (4)	40 (20.8)	38 (19.8)	78 (20.3)	0.40
Keeping workspace sanitary (12)	NA	144 (75.0)	NA	NA
Communication problems (e.g., unclear, delayed, conflicting, or too much information) (5)	94 (49.0)	95 (49.5)	189 (49.2)	0.54
Lack of support from the hospital/organization (6)	60 (31.2)	33 (17.2)	93 (24.2)	*<0.001
Lack of advance planning and resource availability at a local/national level (7)	88 (45.8)	95 (49.5)	183 (47.7)	0.76
Too many marketing/business related tasks (e.g., scheduling patients, advertising re-opening) (13)	NA	45 (24.4)	NA	NA
Frustration with societal misperceptions and/or misinformation that impede my ability to care for patients quickly and effectively (8)	98 (51.0)	102 (53.1)	200 (52.1)	0.66
Increasing conflict between professional responsibilities (e.g., duty to patients and the health-care system) and personal responsibilities (e.g., keeping my family and friends safe) (9)	99 (51.6)	113 (58.8)	212 (55.2)	0.92
Total Responses	**192**	**192**	**384**	

Table C-3: Comparison of work-related concerns between those seeing and those not seeing patients
*Indicates significant result.

Appendix D

Personal and Workplace Concerns of Nurses and Massage Therapists

Which of the following are you currently concerned about regarding yourself? Check all that apply: (PRC)	**Massage Therapists** N (%)	**Nurses** N (%)	**Dual Profession** N (%)	**Total** N (%)	**H Statistic**	**DF**	**P-Value**
Concern that my colleagues will get sick (1)	82 (31.9)	27 (50.9)	4 (23.5)	113 (34.6)	7.98	2	*0.02
Fear of getting sick and/or dying myself (2)	124 (48.2)	34 (64.2)	11 (64.7)	169 (51.7)	5.65	2	0.06
Fear of my loved ones getting sick and/or dying (3)	171 (66.5)	43 (81.1)	8 (47.1)	222 (67.9)	7.84	2	*0.02
Feeling socially isolated/lonely (4)	94 (36.6)	24 (45.3)	5 (29.4)	123 (37.6	1.93	2	0.38
Feeling like I can't share my concerns/feelings safely with others (5)	82 (31.9	26 (49.1)	6 (35.3)	114 (34.9)	5.68	2	0.06
Difficulty sleeping due to increased stress from the pandemic (6)	85 (33.1)	24 (45.3)	8 (47.1)	114 (35.8)	3.83	2	0.15
Difficulty making arrangemen	22 (8.6)	10 (18.9)	0 (0.0)	32 (9.8)	-	-	-

Which of the following are you currently concerned about regarding yourself? Check all that apply: (PRC)	**Massage Therapists** N (%)	**Nurses** N (%)	**Dual Profession** N (%)	**Total** N (%)	**H Statistic**	**DF**	**P-Value**
ts for dependent care (e.g., children, elderly relatives) (7)							
Uncertainty about how long the pandemic will continue (8)	209 (81.3)	45 (84.9)	15 (88.2)	269 (82.3)	0.82	2	0.66
Fears of societal instability (9)	157 (61.1)	39 (73.6)	11 (64.7)	207 (63.3)	2.96	2	0.23
Personal resource worries (e.g., financial concerns, not having a will/advance directive in place, not having adequate supplies at home) (10)	137 (53.3)	26 (49.1)	8 (47.1)	171 (52.3)	0.51	2	0.77
Total Responses	**257 (78.6)**	**53 (16.2)**	**17 (5.2)**	**327**			

Table D-1: Kruskal-Wallis comparison of personal concerns between professional categories
*Indicates significant result.

Which of the following are you currently concerned about regarding general work-related stressors? Check all that apply: (GRWC)	**Massage Therapists** N (%)	**Nurses** N (%)	**Dual Profession** N (%)	**Total** N (%)	**H Statistic**	**DF**	**P-Value**
"Too many bureaucratic tasks (e.g., charting, paperwork) (2)	36 (23.5)	2 (16.7)	2 (28.6)	40 (23.3)	14.87	2	*<0.001
Electronic health record issues (3)	8 (5.2)	2 (16.7)	0 (0.0)	10 (5.8)	19.13	2	*<0.001
Spending too many hours at work (4)	25 (16.3)	4 (33.3)	1 (14.3)	30 (17.4)	11.48	2	*0.003
Keeping workspace sanitary (12)	125 (81.7)	5 (41.7)	5 (71.4)	135 (78.5)	28.8	2	*<0.001
Communication problems (e.g., unclear, delayed, conflicting, or too much information) (5)	77 (50.3)	6 (50.0)	2 (28.6)	85 (49.4)	13.64	2	*0.001
Lack of support from the hospital/organization (6)	25 (16.3)	3 (25.0)	2 (28.6)	30 (17.4)	36.00	2	*<0.001
Lack of advance planning and resource availability at a local/national level (7)	84 (54.9)	5 (41.7)	3 (42.9)	92 (53.5)	4.37	2	0.11
Too many marketing/business related tasks (e.g., scheduling patients, advertising re-opening) (13)	41 (26.8)	1 (8.3)	1 (14.3)	43 (25.0)	8.42	2	*0.01
Frustration with societal misperceptions and/or misinformation that impede my ability to care for patients quickly and effectively (8)	85 (55.6)	7 (58.3)	4 (57.1)	96 (55.8)	10.51	2	*0.005
Increasing conflict between professional responsibilities (e.g., duty to patients and the health-care system) and personal responsibilities (e.g., keeping my family and friends safe) (9)	93 (60.8)	6 (50.0)	1 (14.3)	100 (58.1)	5.98	2	*0.05
Total Responses	**153**	**12**	**7**	**172**			

	(89.0)	**(7.0)**	**(4.1)**

Table D-2: Kruskal-Wallis comparison of work-related concerns between professional categories
*Indicates significant result.

Appendix E

Hashtags, Definitions, and Collapsed Codes from #Evaluation

Hashtag	Definition	Collapsed Code(s)
avoiding others	Staying away from family and friends who aren't being cautious enough	spread, quarantine
abandonment	Feeling like they're letting down their employees because of losing or being forced to let go of staff.	emotional impact – negative, burnout
adjustment	Working to be comfortable and accepting of new and changing circumstances surrounding COVID 19	coping mechanism
agency	Understanding the level of control people have over their situation and doing for themselves where they can	coping mechanism,
alternative health care	Non-traditional methods of facilitating better health like massage, acupuncture, yoga, etc.	profession
ambiguity	Feeling a lack of guidance or clarity especially in regards to COVID guidelines (or lack thereof) and their effect on businesses, job status, etc.	policy, financial concerns
angry	Being frustrated or angry–often for stuff out of someone's control (COVID guidelines, lack of leadership, people not following guidelines...)	emotional impact – negative, guidelines
anticipating	Feeling like the pandemic and election cycle have been stressful but not	emotional impact –

Hashtag	Definition	Collapsed Code(s)
difficulty	being hopeful that things will improve. Looking forward to bad news	negative, context
anti-masker	Someone who socially isolated on vacation so that they could stop wearing a mask	guidelines, PPE
anxiety	thoughts/worries driven by fear for job security, becoming sick with COVID, spreading the virus etc.	emotional impact – negative, financial concerns
apathy	Exhausted by caring in difficult COVID related situations - like none of the precautions worked so why care	emotional impact – negative, burnout
apprehensive	Unsure about the efficacy of changes made to "normal practice" in order to reopen and the amount of communication it will take to stay safe	policy, emotional impact – negative
asymptomatic	Having COVID but not having any symptoms that would suggest infection	spread, quarantine
asymptomatic testing	Getting tested for COVID even if someone doesn't have symptoms to be sure they aren't spreading	spread
avoiding	Staying away from thoughts of having to potentially change careers	career change
back to work	Getting to work again once someone's workplace is comfortable with COVID guidelines or once quarantine mandates have been lifted	guidelines
barriers to touch	Massage therapist feeling like COVID guidelines have so many ways to prevent physical touch, and noting patients needing that contact	connectedness, profession, clients
being the family for	Stepping into a closer relationship with patients who are isolated from	connectedness, clients

Hashtag	Definition	Collapsed Code(s)
our patients	relatives	
best practices	Using evidence and COVID guidelines to give the best care to patients	guidelines
biking	Recreational fun - exercise based coping mechanism	coping mechanism
boundaries	Putting guidelines in place to continue working but keep patients and providers safe	guidelines
breaking rules	Not complying with COVID safety guidelines	guidelines
burn out	Exhaustion resulting from prolonged stress/frustration in not being able to work, working under strict guidelines, dealing with the general strain of COVID.	burnout
business mgmt	Taking care of employees and paying overhead all while dealing with COVID shutdowns, decrease in patients, etc.	guidelines, financial concerns
camping	Recreational fun - getting away from COVID stress in nature	coping mechanism
CEs	Continuing Education (courses to stay current with one's occupation/license to practice)	profession
childcare	Working from home with kids and not being able to get babysitter/daycare services - distracting.	family concerns
cleaning supplies	Agents used to disinfect and sanitize surfaces of COVID to make offices safe for patients	PPE
client experience	Trying to give clients the massage at pre-COVID standard to give them	clients

Hashtag	Definition	Collapsed Code(s)
	normal experiences while staying safe	
client honesty	Being concerned about clients being truthful about keeping to COVID guidelines and not being sick	clients
closed	Not open for business due to COVID	guidelines, financial concerns
closing business	Work has been slow d/t COVID - considering closing business because of financial consideration	guidelines, financial concerns
coloring	Coping mechanism - mindless task to improve mental health	coping mechanism
communication	Frustrated by having to talk with patients virtually and with masks - feeling like communication has broken down.	guidelines, PPE
community	Seeing how COVID is affecting the community of massage therapists or the community at large - either negatively or positively	profession, emotional impact
competition	Other massage practices having lax safety protocol = steal business or going under financially = more business.	financial concerns
compliance	To conform to COVID guidelines	guidelines, policy
concern for transmitting the virus	To feel distress about spreading Covid19	spread
conflict	Unsure about the safety of working while COVID is a problem, but also	financial concerns, spread

Hashtag	Definition	Collapsed Code(s)
	needing the money.	
conflicting information	Differing guidelines from institutional leadership make for difficulty working safely	policy
confusion	Uncertainty in regards to how the future will proceed with the chaos surrounding COVID.	emotional impact - negative
cooking	Coping mechanism - fun and helps with mental health	coping mechanism
coping	Using different activities and mental techniques to manage stress and frustration	coping mechanism
corporate	The hierarchical structure making COVID guidelines and giving leadership.	policy, guidelines
creativity	Coming up with alternative ways to conduct business, keeping patients safe but still providing quality service	guidelines, profession, clients
deflecting	Talking about a topic that is comfortable when confronted with one that may cause distress.	coping mechanism
demanding patients	When clients ask more than is fair or reasonable	clients
depressed	In low sprits, being sad, inactive, feeling isolated, and apathetic	emotional impact - negative
disconnect	Feeling isolated and without normal support structures	emotional impact – negative

Hashtag	Definition	Collapsed Code(s)
distress	Being in a difficult situation (dealing with COVID) and struggling to adapt to stressors	emotional impact – negative
division	When people are separated by how they chose to respond to COVID (following mandates or not, reopening work or not)	guidelines
documentation	An administrative burden related to patient care and safety	guidelines
does not want to return	Being reluctant to work and be around others with COVID still looming	emotional impact – negative, burnout
drained	Being exhausted physically or mentally	emotional impact – negative, burnout
dreading work	Fearing going back to work - see does not want to return	emotional impact – negative, burnout
dual professional	Working two jobs	profession
duty to serve	Feeling obligated to keep working because patients depend on the services offered	essential, profession, clients
early retirement	Quitting work before the common age of 65 or before an individual planned to especially due to the financial burden of maintaining a business during COVID	career change, financial concerns
educators	People who enjoy and are skilled at teaching people	profession
election	Voting for leadership - notably for the presidential election of 2020 in the	context

Hashtag	Definition	Collapsed Code(s)
	USA	
end of life care	Taking care of people who are near death	profession
enjoyment	The emotion gained from doing things that make you feel sane and happy	emotional impact – positive
epiphany	Sudden realization - in this context that a persons will no longer be able to work as they had pre-COVID	profession
ethical	Operating within widely accepted guidelines - and often one's own moral code. In context, providers are worried returning to work and other actions are unethical due to the increased risk it places providers and patients in.	guidelines, spread
ethical boundaries	A standard guideline for health care practice around COVID	guidelines
ethically aligned with your employer	Aligning morally with the person you work for	guidelines
exhausted	To be tired (physically, emotionally, mentally)	emotional impact – negative, burnout
expense	The burden associated with certain actions (more employees to handle COVID requirements = increasing expense of business)	financial concerns
exposure risk	The likelihood of contracting COVID	spread

Hashtag	Definition	Collapsed Code(s)
exposures	Being around someone who has COVID or COVID symptoms	spread
family as support	Using family for help and strength	coping mechanism
family distress	Family dealing with stress and taking it on yourself	family concerns
family time	Coping method - being around loved ones	coping mechanism
fatigued	Weariness or exhaustion from exertion/stress especially the increased burden of COVID	emotional impact – negative, burnout
fear	Concern or worry about the spread of COVID	emotional impact – negative, spread
fear mongering	Inciting more concern or worry than necessary (in regard to COVID)	guidelines
fear of furlough	Concern of being let go/going on unpaid leave from work	financial concerns
feel heard	Feeling like other people truly are listening	emotional impact – positive, coping mechanism
feeling hopeless	Feeling like there is no reason to expect good things from the future with the black cloud of COVID hanging over the foreseeable future	emotional impact – negative, burnout
feeling pressure	Feeling added burden or stress on one's person (in regard to reopening their workplace)	financial concerns
financial burden	The expense of not being able to work d/t COVID mandates	financial concerns, policy
financial stability	Getting enough business to manage success and stay out of debt - a rarity	financial concerns

Hashtag	Definition	Collapsed Code(s)
	in COVID times	
financial stress	The burden or stress related to money	financial concerns
frustrated	Feeling discouraged or annoyed because of the uncertainty and difficulty of dealing with COVID	emotional impact – negative
getting better	Becoming healthier and coping better with COVID related stress	coping mechanism
getting help	Asking for assistance when life and COVID stress becomes too much to deal with alone	coping mechanism
good science	Referring to science that appropriately uses data (evidence based) and that has used appropriate data gathering methods and is therefore reliable	guidelines
guidelines	Established boundaries for conduct and safety in dealing with COVID	guidelines
guilt	Feeling responsible for letting patients down by not working or for potentially spreading COVID if working.	emotional impact – negative, burnout, spread
happier at work	Feeling less frustrated with COVID after going back to work	coping mechanism
happy	Feeling purpose and usefulness especially after returning to work	emotional impact – positive
happy with safety precautions	Being content with care taken to ensure the protection of others against COVID	emotional impact – positive
heard	When other people listen	emotional impact - positive

Hashtag	Definition	Collapsed Code(s)
high risk populations	Groups of people who are more likely to get COVID or have more severe illness with COVID should they have an exposure	spread
home stress	Strain or pressure coming from home - taking care of kids and family.	family concerns
honored	Privileged to be working with patients again	profession
hope for patients	Feeling fulfilled by taking care of patients and giving them something to look forward to in the future	profession
I don't trust the patients	Feeling like patients aren't forthcoming or diligent in keeping themselves and others from spreading COVID	clients, spread
identity tied to work	Feeling like who you are as a person is what you do at work	profession
increased cases	Progressively higher number of people with COVID 19	spread
increased work demands	Being pushed to work harder in response to COVID	policy
irritated	Being frustrated especially with people not COVID mandate compliant	emotional impact – negative, policy
isolated	Being lonely and aware of separation from others due to COVID mandates	emotional impact – negative, policy
lack of documentation	Rushing at work because of time constraints and cutting corners on paperwork to meet time requirements	policy, guidelines

Hashtag	Definition	Collapsed Code(s)
lack of information	Feeling like there's so much conflicting COVID info floating around, but a lack of answers from that data	guidelines
lack of leadership	Corporate heads aren't supporting employees sufficiently	guidelines
lack of preparedness	Feeling unready to return to work because safety precautions won't be sufficient	guidelines, spread
lack of protocols	There aren't enough guidelines/rules to work while COVID is a concern	guidelines
lack of support	Feeling like work isn't offering enough assistance to staff dealing with COVID	guidelines
leadership	Giving guidance and help - steering through COVID difficulties	guidelines
less clients	Fewer people asking for care - increased isolation and financial burden	financial concerns
less stress	Having external pressures alleviated by getting help in response to increased stress from COVID's effects	emotional impact – positive
letting staff go	Dismissing employees	financial concerns
liability	Feeling responsible (legally or not) for patient health and safety	profession
lifestyle change	Making significant changes to "normal" to follow COVID guidelines	guidelines
long term wellness	Having COVID put into perspective how important health is to future wellbeing	coping mechanism
long walks	Recreation - coping mechanism	coping mechanism
looking forward to	Excitement about doing a job again when COVID mandates are relaxed	profession

Hashtag	Definition	Collapsed Code(s)
work		
loss	The death of a coworker	emotional impact – negative
low energy	Due to depression - feeling fatigue	emotional impact – negative, burnout
masks	Face coverings meant to protect people from COVID transmission	PPE
massage education	Working as a massage therapy teacher	profession
meditation	Coping mechanism - practicing mindfulness and breathing techniques	coping mechanism
mental health	Seeing a therapist to address depression, anxiety, etc.	coping mechanism
mindfulness	Coping mechanism - being attuned to thoughts (especially anxious or depressed thoughts)	coping mechanism
Minimal talking	Not conversing with patients to reduce transmission risk	spread, clients
minimizing risks	Decreasing the risk of COVID exposure	spread
missing work	Wishing to go back to work	profession
mixed feelings	See conflict	emotional impact
moral	Feels irresponsible returning to work like it's a bad decision with repercussions for other people	guidelines
moral distress	Frustration and apathy toward work - can no longer make oneself care.	burnout
more	Desire for increased, clearer communication from leadership and	guidelines

Hashtag	Definition	Collapsed Code(s)
communication	organizations	
more time between sessions	Spacing out patient encounters to appropriately maintain a clean workspace	policy, PPE
more work	Having to pick up slack at work because of COVID	burnout
navigating test results	Struggling with when to provide services again to those who test positive for COVID	guidelines, spread, quarantine
necessity	Wondering which COVID precautions are actually helpful	guidelines
nervous	Feeling anxious about catching COVID	spread
new career	Maybe having to switch careers since business has decreased to a financially untenable level	career change
new normal	Adjusting to COVID guidelines and figuring out how to operate day to day	guidelines
no end in sight	Felling like restrictions for COVID will last forever and being unsure how long they can remain financially solvent	burnout, financial concerns
no guidelines	Feeling a lack of instruction and surety especially surrounding massage therapy	guidelines
no PPE	Concern about not being able to protect oneself sufficiently from the spread of COVID when seeing patients	PPE
no shows	Clients not keeping appointments due to restrictions	clients
no time to process	Feeling like there's no break or escape from reality to maintain mental	burnout

Hashtag	Definition	Collapsed Code(s)
	health	
no work	COVID guidelines have shut down business - feeling isolated	guidelines
noncompliance	Due to wildfires, people wear masks with ventilation - increases spread?	PPE, context
nonessential	Is not considered to be in a job that must continue to operate while COVID is raging	nonessential
normal	Return to work has made life feel normal again	profession
not concerned about the spread	No longer feeling anxious about getting or giving COVID	spread
not confident	Feeling underprepared to return to work and like the guidelines aren't enough	guidelines
not ready	Being hesitant to work again maybe due to lack of protection against COVID	PPE, spread
obligation	Feels a duty to patients to get back to work	essential, clients
occupy her mind	Coping to keep oneself distracted	coping mechanism
outdoor	getting outside to promote mental health	coping mechanism
outpatient v inpatient	Frustrated that inpatient providers can work because their job is deemed more important than outpatient work	nonessential, emotional impact – negative
overly cautious	Thinking the massage therapy community is being too concerned and that	policy

Hashtag	Definition	Collapsed Code(s)
	new policies will cause low compliance and loss of clientele	
overwhelmed	Feeling like there are too many things to deal with and not having enough time or energy to manage them	emotional impact – negative, burnout
over-working	Being all consumed by work	burnout
paranoia	Being excessively watchful about the health of oneself or others.	emotional impact – negative
pause	The pandemic has allowed reflection and a moment to stop and rest	coping mechanism
personal responsibility	COVID awareness increasing has affected how people are individually responsible to themselves and others to not contribute to COVID spread	spread
physical activity	Coping mechanism - exercise and fitness	coping mechanism
physical and mental health	Being reminded of the importance of health d/t COVID	coping mechanism
physical distancing	Staying away from people to decrease COVID spread	spread
play	Coping - doing fun things to be happy	coping mechanism
political climate	Concern surrounding the 2020 US election and its future ramifications	context
positivity	Coping mechanism - focusing on good things and appreciation	coping mechanism
PPE	Concerns about having enough PPE, whether it will affect existing conditions, or coworkers and patients will be compliant	PPE

Hashtag	Definition	Collapsed Code(s)
PPE source	Where to get PPE	PPE
practicality	Recommendations for returning to work aren't tenable	guidelines
preparing to open business	Getting ready to work again	guidelines
pressure to re-open	Being told to go back to work before they feel safe	guidelines, emotional impact – negative
private practice	Owned by the individual working - allows for greater autonomy and client choice	profession, clients
protection	Taking appropriate safety precautions to keep patients safe	PPE
proud	Feelings of self-respect in regard to one's job	emotional impact - positive
public health decision	Reopening work isn't just a personal decision but one that has in mind the health of communities as a whole	spread
quarantine	14 strict isolations to prove that you don't have COVID or have recovered from COVID	quarantine
racial tension	Lack of appropriate communication led to being called racist by clients	context
rage	Feeling strong anger about COVID situations	emotional impact – negative
reassess values	Spending time figuring out what is important to you	coping mechanism
rebuilding	Figuring out how to reconnect with patients and work again	clients, connectedness

Hashtag	Definition	Collapsed Code(s)
recommendations	Guidelines for working while COVID is a concern passed down by leadership	guidelines
reduced hours	Having fewer hours at work because COVID decreasing business	financial concerns
reflection	Being able to look back on previous actions and emotions	coping mechanism
refusing clients	Denying services to people who work certain jobs to prevent COVID risk	clients, spread
relationship distress	Feeling sad about having trouble maintaining relationships especially with people who aren't sufficiently following guidelines	emotional impact – negative
rent	Owns office space - has been paying rent since subleases haven't been able to	financial concerns
re-open	Going back to work	guidelines
resistance	Clients not wanting to follow COVID guidelines	clients, guidelines
respectful	Clients have been adhering to boundaries and giving notice of cancellation better	clients
return to normal	As jobs reopen, concern for patients being dishonest to receive services	guidelines
return to school	Not letting kids go back to school because of family w/ autoimmune disease	family concerns, spread
right thing to do	keeping business closed because reopening would be increasing COVID risk	spread
rise in cases	Increasing number of COVID cases	spread

Hashtag	Definition	Collapsed Code(s)
risk assessment	Evaluating whether actions would increase the risk of spreading COVID	spread
risks	Knowing that spreading COVID is possible and having methods to mitigate such odds when reopening business	spread
routine	Day to day schedule - distress has become a part of it	coping mechanism
rushed work	Being forced to decrease time with patients to stay compliant with COVID guidelines	guidelines
safety	Concern about protecting patients, self, and family from COVID risks	spread
satisfied	Feeling good about returning to work and the guidelines in place	guidelines
saying no to clients	See refusing	guidelines
scared	Worried about spreading or getting COVID	emotional impact – negative
schedule	Not having enough patients to fill up their schedule	financial concerns
secondhand trauma	Afraid to return to the job in which they experienced trauma	burnout
self employed	Not having a boss - increased autonomy for how to work	profession
settling in	Getting used to how life has changed because of COVID	guidelines
shaming	Trying to make other people feel guilty especially if their COVID guidelines are more relaxed	guidelines
short staffed	Not having enough staff to meet client demands	burnout
shut down	Keeping business closed to avoid COVID risks	guidelines

Hashtag	Definition	Collapsed Code(s)
sleeping a lot	Coping mechanism - staying in bed, partially to avoid	coping mechanism
slowing down	Reducing work because protocol and masks are limiting	policy, PPE
smiling	Trying to figure out facial features when masks obscure so much	PPE, connectedness
spike	Increase in number of COVID cases	spread
spread	Having COVID and giving it to other people	spread
stay home	If people can't follow guidelines, they should remain at home	guidelines
staying busy	Being busy had kept minds off some of the frustrating aspects of COVID and promoted wellness	coping mechanism
stopped working	With COVID spikes - after returning to work is shutting down again	guidelines
stress	Feeling pressure from patients to ignore guidelines but knowing how important they are	burnout
support group	Having other people to lean on when life gets hard	coping mechanism
supporting new staff	With new employees, making sure they are well and capable of performing their job appropriately	emotional impact – positive
surge	Spike in COVID cases	spread
sustainability	Thinking about the long-term ability to work under COVID conditions	guidelines
switching careers	Due to increasing job stress due to COVID - considering another career	career change
telehealth	Using technology - usually video conferencing to have patient encounters	profession
temporary	Remembering that COVID craziness won't last forever	coping mechanism

Hashtag	Definition	Collapsed Code(s)
tested	Getting swabbed to determine if COVID positive or not	spread
therapy	Talking with a mental health professional to stay mentally healthy	coping mechanism
this isn't going away	Getting used to the long-term prospects of COVID	coping mechanism
tired	Feeling exhausted by the duration of the pandemic	emotional impact – negative
too early to return	Need to wait to go back to work until cases are down and PPE is better	PPE
too many changes	COVID has caused so much to have to operate differently	guidelines
transition	Moving back into working again	guidelines
traveling	Recreation - going places (to see family)	coping mechanism
uncertain	Not always clear COVID guidelines	guidelines
unease	Feeling unsettled about going back to work	emotional impact – negative
unemployment	Without a job – especially due to COVID	financial concerns
unknown	Things that can't be anticipated or are unclear surrounding COVID	guidelines
unpopular opinion	Thinking contrary to common consensus (i.e., COVID isn't quite as bad as we think)	guidelines
unsafe	Worried precautions taken aren't enough to keep people protected from COVID	guidelines

Hashtag	Definition	Collapsed Code(s)
vacation	Recreation – taking time off work often leaving home to relax	coping mechanism
valuable service	Believing your work has value	profession
valuing health	With the threat of COVID – people are more thankful for good health	clients
vector	Being a transmitter of COVID	spread
virtual	Doing things that used to be in person via video conferencing or other online methods	profession
virtual learning	Studying/watching lectures online	profession
virtual clients	Having patient encounters online/video conferences	profession, clients
vulnerable patients	Patients at increased risk of having COVID	spread, clients
want to work	Feeling like they want to do their job again	profession
wants to help	Feeling like their job is helpful and wanting to provide for patients	profession, clients
wants to see pt	reopen to have patient encounters again	guidelines, profession
weary	Feeling exhausted by being questioned and lack of institutional leadership	emotional impact – negative
weekly testing	testing for COVID-19 on a weekly basis	guidelines
we're only human	The idea that people are imperfect and can only do so much	coping mechanism
what ifs	Hypothetical situations surrounding COVID	guidelines
wildfires	Fires happening in Australia and across the western USA - devastating consequences	context

Hashtag	Definition	Collapsed Code(s)
work life balance	Setting boundaries with how much you work in order to give sufficient time to the other things that are important to you	coping mechanism
work stress	Feeling additional pressure from working	burnout
working overtime	Working more than standard hours to pick up the slack with coworkers who get COVID	spread
worried about exposure	Being concerned about getting COVID from someone else	spread
worried about the future	Being concerned about what the future holds in the shadow of COVID	emotional impact – negative
yardwork	Recreation - coping by doing manual labor outside	coping mechanism

Table E-1: Original hashtags developed by students

Appendix F

Aim 1 Qualitative Codebook

Code	Definition
Allostatic load	generalized burden of non-pandemic stressors. When applied, this theme should include a sub code, e.g. (allostatic_load-politics)
Burnout	experience of burnout or burning out
comorbidities	mention or acknowledgement of underling medical risk/conditions
confidence_others	sense or comment on whether those with whom they interact are appropriately cautious about exposure
connectedness	feeling part of something or bonding with clients/colleagues/strangers
covid_stress	general anxiety about COVID
Educator	Respondent identifies as an educator
Essential	reference or understanding of being a "essential worker"
experiences_others	describing experiences of close contacts
helplessness	Feelings of being overwhelmed and unable to improve the situation or response to it despite knowing how to improve or respond

hypervigilence	excessive data collection and monitoring of surroundings
isolation	feeling restricted or disconnected
LMT	Respondent identifies as a licensed massage therapist
Meaningful_work	a sense of the impact or effect of one's role. Feeling like they are making a difference.
mindfulness	evidence of or discussion of application of the practice of mindfulness (e.g. acceptance of circumstance, "this won't last forever"
moral_distress	emotional pain caused by knowing the correct thing to do, but being prevented from doing so by an external authority (e.g. organization, law, policy)
Non-Essential	reference or understanding of being a "non-essential worker"
Nurse	registered or licensed practical nurse
Org_Policy	Reference or discussion of COVID specific organizational policies including testing, PPE,
personal impact	death or illness or other direct impact in immediate or extended family or social circles
Policy	Reference or discussion of COVID policies including testing, PPE, but external to their organization or practice setting
PPE	mention of personal protective equipment. Valance code as needed.
quarantine	discussion or acknowledgement of being quarantined (clarify as self, spouse, child, etc.)

resources	availability of equipment, physical space, and tools to provide care
self_efficacy	sense or comment on whether the respondent is appropriately cautious about exposure
social_media	Use or reliance on social media or other online forum for (support, information,
Social_Support	support and relationships with family and friends. May include pets?
somatization	physical symptoms of unwellness which may be related to psychological stressors
spread	concern about spread of COVID-19, valence coded: pt-pt, prov-pt, pt-prov
spread_family	worry about transmitting COVID to family members
vulnerable	mention or evidence of feelings of emotional vulnerability
vulnerable_patients	taking care of or working with patients at high risk for severe COVID-19

Appendix G

SAS Coding for Aim 1

```
dm 'log;clear;output;clear;odsresults;select all;clear;';


proc import
      datafile="C:\Users\sheavner\OneDrive - Critical Path Institute\Desktop\Project
COPE\Dissertation\COPE_first_values.csv"
            out=work.first_survey
            dbms=csv
            replace;

            getnames=YES;

            run;

proc import
      datafile="C:\Users\sheavner\OneDrive - Critical Path Institute\Desktop\Project
COPE\Dissertation\COPE_weekly_values.csv"
            out=work.weekly_COPE_survey
            dbms=csv
            replace;

            getnames=YES;

            run;


*data review and standardization;
proc contents data=work.first_survey; run;
proc contents data=work.weekly_COPE_survey; run;
```

```
*raw frequencies for cleaning comparisons;
proc freq data=work.first_survey;
table ethn age edu yrsprac yrssch;
table Gender ProfStud continue;
table Prof_10*Continue  Prof_5*Continue;
table prof_10*prof_5/missing;
table attck Spec loc Patient PatEdu status;
run;*/

proc freq data=work.first_survey;
table finished Willing AgeReq HCReq
             EngReq Status ms/missing;
title 'Summary Stats of Consent and Requirements';
run; title;

data work.first_IDs; set work.first_survey;
*removing bots and spam;
if attck^='4'
      then delete;
if yrsPrac='99' then delete;
if age='99' then delete;
if Willing^='1' or AgeReq^='1' or HCReq^='1'
            or EngReq^='1'
      then delete;
if MS='' then delete;

*Defining study period;
if datepart(StartDate)>'24Mar2021'd then delete;

*ResponseID is in each dataset. Need to keep first ID separate;
First_ID=ResponseId;

first_StartDate=StartDate;
format first_StartDate datetime.;
format StartDate datetime.;

*creating dichotomous indicator for baseline vlog submissions;
if vlog_ID^=''
```

```
      then baseline_vlog=1;
else if vlog_id=''
      then baseline_vlog=0;
*creating categorical variable for profession. RN, LMT, Dual cert,
      or other;
length Nurse_LMT $5;
if prof_5^='' and prof_10^=''
      then Nurse_LMT='Dual';
else if prof_5^='' and prof_10=''
      then Nurse_LMT='LMT';
else if prof_5='' and prof_10^=''
      then Nurse_LMT='Nurse';
else if prof_5='' and prof_10=''
      then Nurse_LMT='Other';

length profession $32;
if sum(Prof_18, Prof_1, Prof_2, Prof_3, Prof_4, Prof_5, Prof_6, Prof_7, Prof_8,
      Prof_9, Prof_10, Prof_11, Prof_20, Prof_12, Prof_13, Prof_19, Prof_14,
      Prof_15, Prof_16, Prof_17)>1 then profession='dual';
else if Prof_18='1' then profession='Athletic Training';
else if Prof_1='1' then profession='Acupuncture';
else if Prof_2='1' then profession='Allied health';
else if Prof_3='1' then profession='Chiropractic';
else if Prof_4='1' then profession='Dental';
else if Prof_5='1' then profession='Massage therapy';
else if Prof_6='1' then profession='Medicine';
else if Prof_7='1' then profession='Mental Health';
else if Prof_8='1' then profession='Midwifery';
else if Prof_9='1' then profession='Naturopathic';
else if Prof_10='1' then profession='Nursing';
else if Prof_11='1' then profession='Occupational Therapy';
else if Prof_20='1' then profession='Optometry';
else if Prof_12='1' then profession='Pharmacy';
else if Prof_13='1' then profession='Physical Therapy';
else if Prof_19='1' then profession='Prehospital';
else if Prof_14='1' then profession='Psychology';
else if Prof_15='1' then profession='Registered Dietitian';
else if Prof_16='1' then profession='Respiratory Therapist';
```

```
else if Prof_17='1' then profession='Social Work';
else profession='Other';

*creating professional categories;
length prof_cat $32;
if sum(Prof_18, Prof_1, Prof_2, Prof_3, Prof_4, Prof_5, Prof_6, Prof_7, Prof_8,
      Prof_9, Prof_10, Prof_11, Prof_20, Prof_12, Prof_13, Prof_19, Prof_14,
      Prof_15, Prof_16, Prof_17)>1 then prof_cat='dual';
else if Prof_18='1' then prof_cat='Allied Health';
else if Prof_1='1' then prof_cat='Other';
else if Prof_2='1' then prof_cat='Allied Health';
else if Prof_3='1' then prof_cat='Other';
else if Prof_4='1' then prof_cat='Other';
else if Prof_5='1' then prof_cat='Massage Therapy';
else if Prof_6='1' then prof_cat='Medicine';
else if Prof_7='1' then prof_cat='Mental Health';
else if Prof_8='1' then prof_cat='Other';
else if Prof_9='1' then prof_cat='Other';
else if Prof_10='1' then prof_cat='Nursing';
else if Prof_11='1' then prof_cat='Allied Health';
else if Prof_20='1' then prof_cat='Other';
else if Prof_12='1' then prof_cat='Other';
else if Prof_13='1' then prof_cat='Allied Health';
else if Prof_19='1' then prof_cat='Medicine';
else if Prof_14='1' then prof_cat='Mental Health';
else if Prof_15='1' then prof_cat='Other';
else if Prof_16='1' then prof_cat='Medicine';
else if Prof_17='1' then prof_cat='Mental Health';
else if Prof_21='1' then prof_cat='Other';
else prof_cat='Other';

if (Prof_2='1' or Prof_6='1' or Prof_10='1' or Prof_12='1'
            or Prof_19='1' or Prof_16='1')
      then essential=1;
else essential=0;

*cleaning race, ethnicity, and gender;
length Race_Ethnicity $55;
```

```
if Ethn='1' then Race_Ethnicity='Hispanic or Latino/a ';
else if Race_4='1' then Race_Ethnicity='Hispanic or Latino/a ';
else if sum(Race_1, Race_2, Race_3, Race_4, Race_5, Race_6)>1
      then Race_Ethnicity='multiracial';
else if Race_1='1' then Race_Ethnicity='Native or Indigenous';
else if Race_2='1' then Race_Ethnicity='Asian';
else if Race_3='1' then Race_Ethnicity='Black or African American';
else if Race_5='1' then Race_Ethnicity='Native or Indigenous';
else if Race_6='1' then Race_Ethnicity='White';
else if Race_7='1' then Race_Ethnicity='Another not listed';
else if Race_8='1' then Race_Ethnicity='Choose not to answer ';
else Race_Ethnicity='Choose not to answer ';

length gender_ID $32;
if gender=1 then gender_ID='Woman';
else if gender=2 then gender_ID='Man';
else if gender=7 then gender_ID='Choose not to answer';
else gender_ID='Gender Expansive';

length race_cat $5;
if race_ethnicity='White'
      then race_cat='White';
else race_cat='Other';
if gender='1' then gender_cat='Woman';
else gender_cat='Other';

*education categories;
length education_category $32;
if edu='' or edu=7
      then education_category='';
else if edu=4
      then education_category='Bachelors';
else if edu=5
      then education_category='Masters';
else if edu=6
      then education_category='Doctorate';
else if edu<4
      then education_category='Less than a Bachelors';
```

```
*specialty categories;
if spec='2' or spec='4' or spec='5'
      then specialty_cat='Critical Care/Emergency/Anesthesia';
else if spec='1' or spec='3' or spec='6'
      then specialty_cat='Outpatient Specialty';
else if spec='7' or spec='8' or spec='9'
      then specialty_cat='Surgery and Internal Med';
else specialty_cat='';

*collapsing reason stopped seeting patients to by choice or no;
if PatReas_3='1' or PatReas_4='1' or PatReas_8='1'
      then choice='yes';
else if PatReas_1='1' or PatReas_2='1' or PatReas_3='1' or PatReas_4='1'
      or PatReas_5='1' or PatReas_6='1' or PatReas_7='1'
      then choice='no';

*creating 'no' responses for PatReas and PatInt;
if patient=1 or PatEdu=1 then do;
      if PatReas_1='' then PatReas_1=0;
      if PatReas_2='' then PatReas_2=0;
      if PatReas_3='' then PatReas_3=0;
      if PatReas_4='' then PatReas_4=0;
      if PatReas_5='' then PatReas_5=0;
      if PatReas_6='' then PatReas_6=0;
      if PatReas_7='' then PatReas_7=0;
      if PatReas_8='' then PatReas_8=0;
end;
if patient=2 or PatEdu=2 then do;
      if PatInt_1='' then PatInt_1=0;
      if PatInt_2='' then PatInt_2=0;
      if PatInt_3='' then PatInt_3=0;
      if PatInt_4='' then PatInt_4=0;
      if PatInt_5='' then PatInt_5=0;
end;

*creating binary MS variable;
length MS_binary $4;
```

```
if MS>3 then MS_binary='high';
else if MS<4 then MS_binary='low';
if MS=. then MS_binary='';
run;

proc freq data=work.first_ids;
table PatReas_1   PatReas_2   PatReas_3   PatReas_4   PatReas_5   PatReas_6   PatReas_7   PatReas_8
      PatReas_9

      /missing;
where patient=1 or patEdu=1;
title 'Reasons Stopped Seeing Patients';
run; title;

proc freq data=work.first_ids;
table PatInt_1    PatInt_2    PatInt_3    PatInt_4    PatInt_5    PatInt_6

      /missing;
where patient=2 or patEdu=2;
title 'Changes in Interactions with Patients';
run; title;

proc freq data=work.first_ids;
table race_ethnicity*gender_ID
      profession*gender_ID
      profession*continue
      profession*specialty_cat
      prof_cat*Continue
      essential*patient
      profession*edu
      prof_cat*education_category
      prof_cat edu essential
      race_cat gender_cat continue MS
      profession*choice
      prof_cat*choice
      profession*baseline_vlog
      prof_cat*baseline_vlog
      /missing;
```

```
title 'Baseline Survey Professions';
run; title;

proc freq data=work.first_ids;
table MS*patient / nopercent norow nocol missprint;
table MS*essential / nopercent norow nocol missprint;
table MS*education_category / nopercent norow nocol missprint;
table MS*race_cat / nopercent norow nocol missprint;
table MS*loc / nopercent norow nocol missprint;
table MS*gender_cat / nopercent norow nocol missprint;
table spec*MS / nopercent norow nocol missprint;
table prof_cat*MS / nopercent norow nocol missprint;
Title 'MS Logit Model Diagnostics';
run; title;

proc logistic data=work.first_ids desc;
class essential (Ref='0') patient (ref='2') race_cat (Ref='White') gender_cat (Ref='Woman') loc
(ref='1');
model MS = YrsPrac loc patient essential race_cat gender_cat;
title 'Moral distress among all professions controlling for location';
run; title;

proc sort data=work.first_ids;
by prof_cat; run;

proc logistic data=work.first_ids desc;
class patient (ref='2') education_category (Ref='Bachelors') race_cat (Ref='White') gender_cat
(Ref='Woman');
model MS = YrsPrac patient education_category race_cat gender_cat;
title 'Moral Distress Among All Professions';
run; title;

proc logistic data=work.first_ids desc;
by prof_cat;
class patient (ref='2') education_category (Ref='Bachelors') race_cat (Ref='White') gender_cat
(Ref='Woman');
model MS = YrsPrac patient education_category race_cat gender_cat;
title 'Moral Distress Among Professional Categories';
```

```
run; title;

*repeating with Binary MS;
proc logistic data=work.first_ids desc;
class patient (ref='2') education_category (Ref='Bachelors') race_cat (Ref='White') gender_cat
(Ref='Woman');
model MS_binary (event='high') = YrsPrac patient education_category race_cat gender_cat;
title 'Binary Moral Distress Among All Professions';
run; title;

proc logistic data=work.first_ids desc;
by prof_cat;
class patient (ref='2') education_category (Ref='Bachelors') race_cat (Ref='White') gender_cat
(Ref='Woman');
model MS_binary (event='high') = YrsPrac patient education_category race_cat gender_cat;
title 'Binary Moral Distress Among Professional Categories';
run; title;



*merging demographics with weekly survey responses;
proc sort data=work.first_IDs;
by participant_ID first_StartDate; run;

proc sort data=work.weekly_COPE_survey;
by participant_ID StartDate; run;

data work.weekly_demog;
merge work.first_ids (in=inIDs) work.weekly_COPE_survey (in=inWEEKLY);
by participant_ID;
length joinWeekly $2;
joinWEEKLY=cats(inIDS,inWEEKLY);
run;

*creating weekly ID dataset for linkage;
proc sort data=work.weekly_demog;
by participant_ID StartDate; run;
```

```
data work.weekly_IDs; set work.weekly_demog;
*keep joinWEEKLY RecipientEmail First_ID first_StartDate Continue
      ResponseId StartDate Vlog_Id baseline_vlog Vlog Nurse_LMT Prof_10 Prof_5
      weekly_response response_days response participation_days;
*creating dichotomous indicator for vlog submissions;
if vlog_ID^=''
      then vlog=1;
else if vlog_id=''
      then vlog=0;
response=1;
if participant_ID=''
      then response=0;
by participant_ID; do;
weekly_response+1;
if first.participant_ID
      then weekly_response=1;
response_days=intck('dtday',lag(startdate),startdate);
if first.participant_ID
      then response_days=intck('dtday',first_StartDate,startdate);

if startdate^=''
      then participation_days=intck('dtday',first_StartDate,startdate);
end;
if participant_ID=''
      then weekly_response=0;
if participant_ID=''
      then response_days=.;
run;

proc freq data=work.weekly_ids;
table
baseline_vlog*vlog
prof_cat*baseline_vlog
prof_cat*vlog
prof_cat*response

Race_Ethnicity*baseline_vlog
Gender_ID*baseline_vlog
```

```
Race_Ethnicity*vlog
Gender_ID*vlog

/*
weekly_response*prof_cat
response_days*prof_cat
participation_days*prof_cat*/
/missing;

title 'Summary Statistics of VLOGS';
run; title;

/*
proc freq data=work.weekly_ids;
table weekly_response response_days;
table weekly_response*vlog;
where prof_10^='';
title 'Responses in Nurses';
run; title;

proc freq data=work.weekly_ids;
table weekly_response response_days;
table weekly_response*vlog;
where prof_5^='';
title 'Responses in LMT';
run; title;*/

*selecting first response from weekly surveys;
proc sort data=work.weekly_IDs;
by participant_ID StartDate; run;

data work.weekly_first; set work.weekly_ids;
by participant_ID;
if first.participant_ID then Dr_Smitty=1;
else Dr_Smitty=0;
run;

/*
```

```
proc freq data=work.weekly_first;
table prof_cat*Dr_Smitty;
title 'First Weekly Survey Professional Categories';
run; title;

proc freq data=work.weekly_first;
table WBI_1 WBI_2 WBI_3 WBI_4 WBI_5 WBI_6 MiniZ BO_1;
where Dr_Smitty=1;
title 'WBI, MiniZ, and BO Scale';
run; title; */

data work.AIM1; set work.weekly_first;
if Intro='' and WBI_1='' and WBI_2='' and WBI_3='' and WBI_4='' and
      WBI_5='' and WBI_6='' and MiniZ='' and BO_1='' and Patients=''
then incomplete=1;
else incomplete=0;

if WBI_1=2 then WBI_1=0;
if WBI_2=2 then WBI_2=0;
if WBI_3=2 then WBI_3=0;
if WBI_4=2 then WBI_4=0;
if WBI_5=2 then WBI_5=0;
if WBI_6=2 then WBI_6=0;
WBI=sum(WBI_1, WBI_2, WBI_3, WBI_4, WBI_5, WBI_6);

length WBI_binary $4;
if wbi>3 then WBI_binary='high';
else if wbi<4 then WBI_binary='low';
if wbi=. then wbi_binary='';

length miniz_binary $4;
if miniz>3 then miniz_binary='high';
else if miniz<4 then miniz_binary='low';
if miniz=. then miniz_binary='';

length MD_binary $4;
if MD>3 then MD_binary='high';
else if MD<4 then MD_binary='low';
```

```
if MD=. then MD_binary='';

length BO_1_binary $4;
if BO_1>6 then BO_1_binary='high';
else if MD<7 then BO_1_binary='low';
if BO_1=. then BO_1_binary='';


*collapsing BO slider;
if BO_1<3 then BO_col=1;
else if BO_1<5 then BO_col=2;
else if BO_1<7 then BO_col=3;
else if BO_1<9 then BO_col=4;
else BO_col=5;
if bo_1=. then BO_col=.;

*creating 'no' responses;
if patients=1 and incomplete=0 then do;

      if CWEE_1='' then CWEE_1=0;
      if CWEE_2='' then CWEE_2=0;
      if CWEE_3='' then CWEE_3=0;
      if CWEE_4='' then CWEE_4=0;
      if CWEE_5='' then CWEE_5=0;
      if CWEE_6='' then CWEE_6=0;
      if CWEE_7='' then CWEE_7=0;
      if CWEE_8='' then CWEE_8=0;
      if CWEE_9='' then CWEE_9=0;

      if CWEC_2='' then CWEC_2=0;
      if CWEC_3='' then CWEC_3=0;
      if CWEC_4='' then CWEC_4=0;
      if CWEC_5='' then CWEC_5=0;
      if CWEC_6='' then CWEC_6=0;
      if CWEC_7='' then CWEC_7=0;
      if CWEC_8='' then CWEC_8=0;
      if CWEC_9='' then CWEC_9=0;
      if CWEC_10='' then CWEC_10=0;
```

```
      if GWRC_2='' then GWRC_2=0;
      if GWRC_3='' then GWRC_3=0;
      if GWRC_4='' then GWRC_4=0;
      if GWRC_5='' then GWRC_5=0;
      if GWRC_6='' then GWRC_6=0;
      if GWRC_7='' then GWRC_7=0;
      if GWRC_8='' then GWRC_8=0;
      if GWRC_9='' then GWRC_9=0;
end;

if patients=2 and incomplete=0 then do;
      if NP_GWRC_2='' then NP_GWRC_2=0;
      if NP_GWRC_3='' then NP_GWRC_3=0;
      if NP_GWRC_4='' then NP_GWRC_4=0;
      if NP_GWRC_5='' then NP_GWRC_5=0;
      if NP_GWRC_6='' then NP_GWRC_6=0;
      if NP_GWRC_7='' then NP_GWRC_7=0;
      if NP_GWRC_8='' then NP_GWRC_8=0;
      if NP_GWRC_9='' then NP_GWRC_9=0;
      if NP_GWRC_12='' then NP_GWRC_12=0;
      if NP_GWRC_13='' then NP_GWRC_13=0;
end;

if incomplete=0 then do;
      if Cope_1=. then Cope_1=0;
      if Cope_2=. then Cope_2=0;
      if Cope_3=. then Cope_3=0;
      if Cope_4=. then Cope_4=0;
      if Cope_5=. then Cope_5=0;
      if Cope_6=. then Cope_6=0;
      if Cope_7=. then Cope_7=0;
      if Cope_8=. then Cope_8=0;
      if Cope_9=. then Cope_9=0;
      if Cope_10=. then Cope_10=0;
      if Cope_11=. then Cope_11=0;
      if Cope_12=. then Cope_12=0;
      if Cope_13=. then Cope_13=0;
```

```
        if Cope_14=. then Cope_14=0;
        if Cope_15=. then Cope_15=0;
        if Cope_16=. then Cope_16=0;
        if Cope_17=. then Cope_17=0;
        if Cope_18=. then Cope_18=0;
        if Cope_19=. then Cope_19=0;
        if Cope_20=. then Cope_20=0;
        if Cope_21=. then Cope_21=0;

        if PRC_1='' then PRC_1=0;
        if PRC_2='' then PRC_2=0;
        if PRC_3='' then PRC_3=0;
        if PRC_4='' then PRC_4=0;
        if PRC_5='' then PRC_5=0;
        if PRC_6='' then PRC_6=0;
        if PRC_7='' then PRC_7=0;
        if PRC_8='' then PRC_8=0;
        if PRC_9='' then PRC_9=0;
        if PRC_10='' then PRC_10=0;
end;

if Cope_9=1 then maladaptive=1;
else if Cope_10=1 then maladaptive=1;
else if Cope_12=1 then maladaptive=1;
else if Cope_13=1 then maladaptive=1;
else if incomplete=0 then maladaptive=0;

negative_cope=0;
negative_cope=sum(Cope_9,Cope_10,Cope_11,Cope_12,Cope_13);
run;

proc freq data=work.AIM1;
table patients*incomplete
/missing;

where Dr_Smitty=1;
title 'Seeing Patients and Survey Completeness';
run; title;
```

```
proc freq data=work.AIM1;
table patients incomplete MS MD WBI_1 WBI_2 WBI_3 WBI_4 WBI_5 WBI_6 WBI MiniZ BO_1
           maladaptive negative_cope choice
/missing;

where Dr_Smitty=1 and incomplete=0;
title 'Validated Measures, Maladaption, and Negative Coping';
run; title;

proc means data=work.aim1 n mean std;
var wbi;
where Dr_Smitty=1 and incomplete=0;
title 'Mean and SD of WBI';
run; title;


proc freq data=work.AIM1;
table PRC_1 PRC_2 PRC_3 PRC_4 PRC_5
      PRC_6 PRC_7 PRC_8 PRC_9 PRC_10
/missing;

exact fisher;
where Dr_Smitty=1 and incomplete=0;
title 'Which of the following are you currently concerned about regarding yourself?';
run; title;

proc freq data=work.AIM1;
table Cope_1      Cope_2      Cope_3      Cope_4      Cope_5      Cope_6      Cope_7      Cope_8
      Cope_9      Cope_10     Cope_11     Cope_12     Cope_13     Cope_14     Cope_15     Cope_16
      Cope_17     Cope_18     Cope_19     Cope_20
/missing;

where Dr_Smitty=1 and incomplete=0;
title 'Which of the following have you found helpful in the past week?';
run; title;

proc freq data=work.AIM1;
```

```
table       CWEE_1      CWEE_2      CWEE_3      CWEE_4      CWEE_5      CWEE_6      CWEE_7
      CWEE_8      CWEE_9
/missing;

where Dr_Smitty=1 and incomplete=0 and patients=1;
title 'Which of the following are you currently experiencing? Check all that apply.';
run; title;

proc freq data=work.AIM1;
table       CWEC_2      CWEC_3      CWEC_4      CWEC_5      CWEC_6      CWEC_7      CWEC_8
      CWEC_9      CWEC_10
/missing;

where Dr_Smitty=1 and incomplete=0 and patients=1;
title 'Which of the following are you currently concerned about regarding your clinical work
environment? Check all that apply.';
run; title;

proc freq data=work.AIM1;
table       GWRC_2      GWRC_3      GWRC_4      GWRC_5      GWRC_6      GWRC_7      GWRC_8
      GWRC_9
/missing;

where Dr_Smitty=1 and incomplete=0 and patients=1;
title 'Which of the following are you currently concerned about regarding general work-related
stressors? Check all that apply.';
run; title;

proc freq data=work.AIM1;
Table NP_GWRC_2   NP_GWRC_3   NP_GWRC_4   NP_GWRC_12  NP_GWRC_5   NP_GWRC_6   NP_GWRC_7   NP_GWRC_13
      NP_GWRC_8   NP_GWRC_9
      /missing;

where Dr_Smitty=1 and incomplete=0 and patients=2;
title 'When you begin seeing patients again, which of the following are you currently concerned about
regarding general work-related stressors? Check all that apply.'
run; title;
```

```
proc freq data=work.AIM1;
table prof_cat*incomplete
      profession*incomplete
      profession*continue
/missing;

where Dr_Smitty=1;
title 'Professions Participating and Completing Initial Weekly Survey';
run; title;

proc corr data=work.aim1;
var CWEE_1  CWEE_2      CWEE_3      CWEE_4      CWEE_5      CWEE_6      CWEE_7      CWEE_8
      CWEE_9;
where Dr_Smitty=1 and incomplete=0;
title 'Correlations in CWEE';
run; title;

proc corr data=work.aim1;
var CWEC_2  CWEC_3      CWEC_4      CWEC_5      CWEC_6      CWEC_7      CWEC_8      CWEC_9
      CWEC_10;
where Dr_Smitty=1 and incomplete=0;
title 'Correlations in CWEC';
run; title;

proc corr data=work.aim1;
var GWRC_2  GWRC_3      GWRC_4      GWRC_5      GWRC_6      GWRC_7      GWRC_8      GWRC_9;
where Dr_Smitty=1 and incomplete=0;
title 'Correlations in GWRC';
run; title;

proc corr data=work.aim1;
var NP_GWRC_2     NP_GWRC_3   NP_GWRC_4   NP_GWRC_12  NP_GWRC_5   NP_GWRC_6   NP_GWRC_7   NP_GWRC_13
      NP_GWRC_8   NP_GWRC_9;
where Dr_Smitty=1 and incomplete=0;
title 'Correlations in NP_GWRC';
run; title;

proc freq data=work.AIM1;
```

```
table PRC_1*patients PRC_2*patients PRC_3*patients PRC_4*patients PRC_5*patients
      PRC_6*patients PRC_7*patients PRC_8*patients PRC_9*patients PRC_10*patients
;

exact fisher;
where Dr_Smitty=1;
title 'Concerns by Seeing Patients';
run; title;

proc freq data=work.AIM1;
table Cope_1*patients Cope_2*patients Cope_3*patients Cope_4*patients Cope_5*patients
      Cope_6*patients Cope_7*patients Cope_8*patients Cope_9*patients Cope_10*patients
      Cope_11*patients Cope_12*patients Cope_13*patients Cope_14*patients Cope_15*patients
      Cope_16*patients Cope_17*patients Cope_18*patients Cope_19*patients Cope_20*patients
;

exact fisher;
where Dr_Smitty=1;
title 'Coping Strategies by Seeing Patients';
run; title;

proc freq data=work.aim1;
table maladaptive*patients/nopercent norow nocol expected;
exact chisq;
where Dr_Smitty=1;
title 'Correlation between Maladaption and Seeing Patients';
run; title;

proc freq data=work.aim1;
table MS*MD/nopercent norow nocol expected;
exact chisq;
where Dr_Smitty=1;
title 'Correlation between Moral Distress Baseline and Weekly';
run; title;


proc freq data=work.aim1;
table WBI*BO_1/nopercent norow nocol expected;
```

```
exact chisq;
where Dr_Smitty=1 and incomplete=0;
title 'Correlation between WBI and BO';
run; title;

proc freq data=work.aim1;
table MD*BO_1/nopercent norow nocol expected;
exact chisq;
where Dr_Smitty=1 and incomplete=0;
title 'Correlation between Moral Distress and BO';
run; title;

proc freq data=work.aim1;
table MiniZ*BO_1/nopercent norow nocol expected;
exact chisq;
where Dr_Smitty=1 and incomplete=0;
title 'Correlation between MiniZ and BO';
run; title;

proc freq data=work.aim1;
table MiniZ*BO_col/nopercent norow nocol expected;
exact chisq;
where Dr_Smitty=1 and incomplete=0;
title 'Correlation between MiniZ and BO Collapsed';
run; title;

proc logistic data=work.aim1 desc;
class patients race_cat (Ref='White') gender_cat (Ref='Woman');
model MD = patients YrsPrac gender_cat race_cat;
where Dr_Smitty=1;
title 'First Week Moral Distress';
run; title;

proc logistic data=work.aim1 desc;
class patients race_cat (Ref='White') gender_cat (Ref='Woman');
model WBI = patients YrsPrac gender_cat race_cat;
where Dr_Smitty=1;
title 'First WBI';
```

```
run; title;

proc logistic data=work.aim1 desc;
class patients race_cat (Ref='White') gender_cat (Ref='Woman');
model MiniZ = patients YrsPrac gender_cat race_cat;
where Dr_Smitty=1;
title 'First Week MiniZ';
run; title;

proc logistic data=work.aim1 desc;
class patients race_cat (Ref='White') gender_cat (Ref='Woman');
model BO_1 = patients YrsPrac gender_cat race_cat;
where Dr_Smitty=1;
title 'First Week Burnout Scale';
run; title;

*repeat models for those who stopped seeing patients. controlling for choice;
proc logistic data=work.aim1 desc;
class PatReas_8 race_cat (Ref='White') gender_cat (Ref='Woman');
model MD = PatReas_8 YrsPrac gender_cat race_cat;
where Dr_Smitty=1 and patients=2;
title 'First Week Moral Distress in Those Not Seeing Patients Controlling for Choice';
run; title;

proc logistic data=work.aim1 desc;
class PatReas_8 race_cat (Ref='White') gender_cat (Ref='Woman');
model WBI = PatReas_8 YrsPrac gender_cat race_cat;
where Dr_Smitty=1 and patients=2;
title 'First WBI in Those Not Seeing Patients Controlling for Choice';
run; title;

proc logistic data=work.aim1 desc;
class PatReas_8 race_cat (Ref='White') gender_cat (Ref='Woman');
model MiniZ = PatReas_8 YrsPrac gender_cat race_cat;
where Dr_Smitty=1 and patients=2;
title 'First Week MiniZ in Those Not Seeing Patients Controlling for Choice';
run; title;
```

```
proc logistic data=work.aim1 desc;
class PatReas_8 race_cat (Ref='White') gender_cat (Ref='Woman');
model BO_1 = PatReas_8 YrsPrac gender_cat race_cat;
where Dr_Smitty=1 and patients=2;
title 'First Week Burnout Scale in Those Not Seeing Patients Controlling for Choice';
run; title;

**************REPEAT WITH BINARY OUTCOMES********;
proc freq data=work.aim1;
table WBI_binary*BO_1_binary/nopercent norow nocol expected;
exact chisq;
where Dr_Smitty=1 and incomplete=0;
title 'Binary Correlation between WBI and BO';
run; title;

proc freq data=work.aim1;
table MD_binary*BO_1_binary/nopercent norow nocol expected;
exact chisq;
where Dr_Smitty=1 and incomplete=0;
title 'Binary Correlation between Moral Distress and BO';
run; title;


proc logistic data=work.aim1 desc;
class patients race_cat (Ref='White') gender_cat (Ref='Woman');
model MD_binary (event='high') = patients YrsPrac gender_cat race_cat;
where Dr_Smitty=1;
title 'Binary First Week Moral Distress';
run; title;

proc logistic data=work.aim1 desc;
class patients race_cat (Ref='White') gender_cat (Ref='Woman');
model WBI_binary (event='high') = patients YrsPrac gender_cat race_cat;
where Dr_Smitty=1;
title 'Binary First WBI';
run; title;

proc logistic data=work.aim1 desc;
```

```
class patients race_cat (Ref='White') gender_cat (Ref='Woman');
model MiniZ_binary (event='high') = patients YrsPrac gender_cat race_cat;
where Dr_Smitty=1;
title 'Binary First Week MiniZ';
run; title;

proc logistic data=work.aim1 desc;
class patients race_cat (Ref='White') gender_cat (Ref='Woman');
model BO_1_binary (event='high') = patients YrsPrac gender_cat race_cat;
where Dr_Smitty=1;
title 'Binary First Week Burnout Scale';
run; title;

*repeat models for those who stopped seeing patients. controlling for choice;
proc logistic data=work.aim1 desc;
class PatReas_8 race_cat (Ref='White') gender_cat (Ref='Woman');
model MD_binary (event='high') = PatReas_8 YrsPrac gender_cat race_cat;
where Dr_Smitty=1 and patients=2;
title 'Binary First Week Moral Distress in Those Not Seeing Patients Controlling for Choice';
run; title;

proc logistic data=work.aim1 desc;
class PatReas_8 race_cat (Ref='White') gender_cat (Ref='Woman');
model WBI_binary (event='high') = PatReas_8 YrsPrac gender_cat race_cat;
where Dr_Smitty=1 and patients=2;
title 'Binary First WBI in Those Not Seeing Patients Controlling for Choice';
run; title;

proc logistic data=work.aim1 desc;
class PatReas_8 race_cat (Ref='White') gender_cat (Ref='Woman');
model MiniZ_binary (event='high') = PatReas_8 YrsPrac gender_cat race_cat;
where Dr_Smitty=1 and patients=2;
title 'Binary First Week MiniZ in Those Not Seeing Patients Controlling for Choice';
run; title;

proc logistic data=work.aim1 desc;
class PatReas_8 race_cat (Ref='White') gender_cat (Ref='Woman');
model BO_1_binary (event='high') = PatReas_8 YrsPrac gender_cat race_cat;
```

```
where Dr_Smitty=1 and patients=2;
title 'Binary First Week Burnout Scale in Those Not Seeing Patients Controlling for Choice';
run; title;

********Chi-squared;

/*
proc sort data=work.weekly_2_survey;
by participant_ID StartDate; run;

data work.weekly2_IDs; set work.weekly_2_survey;
keep RecipientEmail ResponseId StartDate Vlog_Id Vlog
      weekly_response response_days;
if vlog_ID^=''
      then vlog=1;
else if vlog_id=''
      then vlog=0;
by participant_ID; do;
weekly_response+1;
if first.participant_ID
      then weekly_response=0;
response_days=intck('dtday',lag(startdate),startdate);
if first.participant_ID
      then response_days=.;
end; run;

proc freq data=work.weekly2_ids;
table weekly_response response_days; run;

proc sort data=work.time2_survey;
by RecipientEmail StartDate; run;

data work.time2_IDs; set work.time2_survey;
keep RecipientEmail ResponseId StartDate Vlog_Id Vlog;
if vlog_ID^=''
      then vlog=1;
else if vlog_id=''
      then vlog=0; run;
```

Appendix H

Aim 2 Qualitative Codebook

Code	Definition
Allostatic load	generalized burden of non-pandemic stressors. When applied, this theme should include a sub code, e.g. (allostatic_load-politics)
Burnout	experience of burnout or burning out
comorbidities	mention or acknowledgement of underling medical risk/conditions
compassion_fatigue	emotional exhaustion of carrying a high burden of support for patients
confidence_others	sense or comment on whether those with whom they interact are appropriately cautious about exposure
connectedness	feeling part of something or bonding with clients/colleagues/strangers
coping strategies	Mention or discussion of methods to process emotions or increase tolerance of uncertainty/stress
Covid benefits	No idea how to word this but looking at the bright-side of what is coming out of a bad situation. Also put mindfulness because maybe it is just that.
covid_stress	general anxiety about COVID

Code	Definition
crosstraining	Re-specialization or cross professional training (potentially in response to the pandemic?)
decisions	difficult or significant choices relating to work, family, or social life weighted by the impact of COVID-19
denial	carrying on with normal routine despite presence of symptoms or high risk of COVID infection (symptoms vs exposure)
disruption	adaptations to work or care delivery in response to the pandemic (e.g. telehealth, e-learning, etc)
Educator	Respondent identifies as an educator
EMT	Respondent identifies as an emergency medical technician
Essential	reference or understanding of being a "essential worker"
experiences_others	describing experiences of close contacts
fear	fear of symptoms, disease process, or long-term outcomes of COVID-19
guilt	emotional pain of knowing or feeling that respondents' own decisions have negatively impacted patients/family/colleagues (i.e. lead to COVID infection)
helplessness	Feelings of being overwhelmed and unable to improve the situation or response to it (sometimes despite knowing how to improve or respond)
home_precautions	description of decontamination procedures when coming home (e.g. stripping at the door, washing clothes immediately, showering)

Code	Definition
hopeful	feeling that things will improve
hypervigilence	excessive data collection and monitoring of surroundings
isolation	feeling restricted or disconnected
livelihood	impact of the pandemic on income, job security, and stability
LMT	licensed massage therapist
maladaption	inappropriate or unhelpful coping mechanisms (e.g. overworking, compartmentalization, overeating, smoking, isolation)
Meaningful_work	a sense of the impact or effect of one's role. Feeling like they are making a difference.
media portrayal	representation of the pandemic in media (e.g. TV, movies, etc.)
Medical Professional	Respondent identifies as a medical professional (e.g., physician, advanced practice provider)
mindfulness	evidence of or discussion of application of the practice of mindfulness (e.g. acceptance of circumstance, "this won't last forever"
moral_differences	strong objection or aversion to the decision making of others
moral_distress	emotional pain caused by knowing the correct thing to do, but being prevented from doing so by an external

Code	Definition
	authority (e.g. organization, law, policy)
need to be needed	A desire to be of help, to be useful, to live out a professional identity of providing assistance
Non-Essential	reference or understanding of being a "non-essential worker"
Nurse	registered or licensed practical nurse
Org_Policy	Reference or discussion of COVID specific organizational policies including testing, PPE,
paternalism	sense of being "talked down to" whether perceived or verifiable
personal impact	death or illness or other direct impact in immediate or extended family or social circles
Policy	Reference or discussion of COVID policies including testing, PPE, but external to their organization or practice setting
positive	respondent mentioning testing positive
PPE	mention of personal protective equipment. Valance code as needed.
Project COPE	meta - mention of healing impact of recording vlogs or study participation
quarantine	discussion or acknowledgement of being quarantined (clarify as self, spouse, child, etc.)
resources	availability of equipment, physical space, and tools to provide care

Code	Definition
secondary_trauma	emotional exhaustion from vicarious moral injury or witnessing suffering
self_efficacy	sense or comment on whether the respondent is appropriately cautious about exposure
social_media	Use or reliance on social media or other online forum for (support, information,
Social_Support	support and relationships with family and friends. May include pets?
somatization	physical symptoms of unwellness which may be related to psychological stressors
spread	concern about spread of COVID-19, valence coded: pt-pt, prov-pt, pt-prov
spread_family	worry about transmitting COVID to family members
symptoms	description of personal COVID symptoms, regardless of whether they tested positive
touch	discussion or assessment of intimacy of care delivery (valences: deprivation, overload
vaccine	availability of or anticipation of vaccine
vulnerable	mention or evidence of feelings of emotional vulnerability
vulnerable_patients	taking care of or working with patients at high risk for severe COVID-19

Appendix I

SAS Coding for Aim 2

```
dm 'log;clear;output;clear;odsresults;select all;clear;';


proc import
      datafile="C:\Users\sheavner\OneDrive - Critical Path Institute\Desktop\Project
COPE\Dissertation\COPE_first_values.csv"
            out=work.first_survey
            dbms=csv
            replace;

            getnames=YES;

            run;

proc import
      datafile="C:\Users\sheavner\OneDrive - Critical Path Institute\Desktop\Project
COPE\Dissertation\COPE_weekly_values.csv"
            out=work.weekly_COPE
            dbms=csv
            replace;

            getnames=YES;

            run;



*data review and standardization;
proc contents data=work.first_survey; run;
proc contents data=work.weekly_COPE; run;
```

```
*raw frequencies for cleaning comparisons;
proc freq data=work.first_survey;
table ethn age edu yrsprac yrssch;
table Gender ProfStud continue;
table Prof_10*Continue  Prof_5*Continue;
table prof_10*prof_5/missing;
table attck Spec loc Patient PatEdu status;
run;*/

proc freq data=work.first_survey;
table finished Willing AgeReq HCReq
             EngReq Status ms/missing;
title 'Summary Stats of Consent and Requirements';
run; title;

data work.first_IDs; set work.first_survey;
*removing bots and spam;
if attck^='4'
      then delete;
if yrsPrac='99' then delete;
if age='99' then delete;
if Willing^='1' or AgeReq^='1' or HCReq^='1'
            or EngReq^='1'
      then delete;
if MS='' then delete;

*Defining study period;
if datepart(StartDate)>'24Mar2021'd then delete;

*ResponseID is in each dataset. Need to keep first ID separate;
First_ID=ResponseId;

first_StartDate=StartDate;
format first_StartDate datetime.;
format StartDate datetime.;

*creating dichotomous indicator for baseline vlog submissions;
```

```
if vlog_ID^=''
      then baseline_vlog=1;
else if vlog_id=''
      then baseline_vlog=0;
*creating categorical variable for profession. RN, LMT, Dual cert,
      or other;
length Nurse_LMT $5;
if prof_5='' and prof_10=''
      then delete;
else if prof_5^='' and prof_10^=''
      then Nurse_LMT='Dual';
else if prof_5^='' and prof_10=''
      then Nurse_LMT='LMT';
else if prof_5='' and prof_10^=''
      then Nurse_LMT='Nurse';

length profession $32;
if sum(Prof_18, Prof_1, Prof_2, Prof_3, Prof_4, Prof_5, Prof_6, Prof_7, Prof_8,
      Prof_9, Prof_10, Prof_11, Prof_20, Prof_12, Prof_13, Prof_19, Prof_14,
      Prof_15, Prof_16, Prof_17)>1 then profession='dual';
else if Prof_18='1' then profession='Athletic Training';
else if Prof_1='1' then profession='Acupuncture';
else if Prof_2='1' then profession='Allied health';
else if Prof_3='1' then profession='Chiropractic';
else if Prof_4='1' then profession='Dental';
else if Prof_5='1' then profession='Massage therapy';
else if Prof_6='1' then profession='Medicine';
else if Prof_7='1' then profession='Mental Health';
else if Prof_8='1' then profession='Midwifery';
else if Prof_9='1' then profession='Naturopathic';
else if Prof_10='1' then profession='Nursing';
else if Prof_11='1' then profession='Occupational Therapy';
else if Prof_20='1' then profession='Optometry';
else if Prof_12='1' then profession='Pharmacy';
else if Prof_13='1' then profession='Physical Therapy';
else if Prof_19='1' then profession='Prehospital';
else if Prof_14='1' then profession='Psychology';
else if Prof_15='1' then profession='Registered Dietitian';
```

```
else if Prof_16='1' then profession='Respiratory Therapist';
else if Prof_17='1' then profession='Social Work';
else profession='Other';

*creating professional categories;
length prof_cat $32;
if sum(Prof_18, Prof_1, Prof_2, Prof_3, Prof_4, Prof_5, Prof_6, Prof_7, Prof_8,
      Prof_9, Prof_10, Prof_11, Prof_20, Prof_12, Prof_13, Prof_19, Prof_14,
      Prof_15, Prof_16, Prof_17)>1 then prof_cat='dual';
else if Prof_18='1' then prof_cat='Allied Health';
else if Prof_1='1' then prof_cat='Other';
else if Prof_2='1' then prof_cat='Allied Health';
else if Prof_3='1' then prof_cat='Other';
else if Prof_4='1' then prof_cat='Other';
else if Prof_5='1' then prof_cat='Massage Therapy';
else if Prof_6='1' then prof_cat='Medicine';
else if Prof_7='1' then prof_cat='Mental Health';
else if Prof_8='1' then prof_cat='Other';
else if Prof_9='1' then prof_cat='Other';
else if Prof_10='1' then prof_cat='Nursing';
else if Prof_11='1' then prof_cat='Allied Health';
else if Prof_20='1' then prof_cat='Other';
else if Prof_12='1' then prof_cat='Other';
else if Prof_13='1' then prof_cat='Allied Health';
else if Prof_19='1' then prof_cat='Medicine';
else if Prof_14='1' then prof_cat='Mental Health';
else if Prof_15='1' then prof_cat='Other';
else if Prof_16='1' then prof_cat='Medicine';
else if Prof_17='1' then prof_cat='Mental Health';
else if Prof_21='1' then prof_cat='Other';
else prof_cat='Other';

if (Prof_2='1' or Prof_6='1' or Prof_10='1' or Prof_12='1'
            or Prof_19='1' or Prof_16='1')
      then essential=1;
else essential=0;

*cleaning race, ethnicity, and gender;
```

```
length Race_Ethnicity $55;
if Ethn='1' then Race_Ethnicity='Hispanic or Latino/a ';
else if Race_4='1' then Race_Ethnicity='Hispanic or Latino/a ';
else if sum(Race_1, Race_2, Race_3, Race_4, Race_5, Race_6)>1
      then Race_Ethnicity='multiracial';
else if Race_1='1' then Race_Ethnicity='Native or Indigenous';
else if Race_2='1' then Race_Ethnicity='Asian';
else if Race_3='1' then Race_Ethnicity='Black or African American';
else if Race_5='1' then Race_Ethnicity='Native or Indigenous';
else if Race_6='1' then Race_Ethnicity='White';
else if Race_7='1' then Race_Ethnicity='Another not listed';
else if Race_8='1' then Race_Ethnicity='Choose not to answer ';
else Race_Ethnicity='Choose not to answer ';

length gender_ID $32;
if gender=1 then gender_ID='Woman';
else if gender=2 then gender_ID='Man';
else if gender=7 then gender_ID='Choose not to answer';
else gender_ID='Gender Expansive';

length race_cat $5;
if race_ethnicity='White'
      then race_cat='White';
else race_cat='Other';
if gender='1' then gender_cat='Woman';
else gender_cat='Other';

*education categories;
length education_category $32;
if edu='' or edu=7
      then education_category='';
else if edu=4
      then education_category='Bachelors';
else if edu=5
      then education_category='Masters';
else if edu=6
      then education_category='Doctorate';
else if edu<4
```

```
      then education_category='Less than a Bachelors';

*specialty categories;
if spec='2' or spec='4' or spec='5'
      then specialty_cat='Critical Care/Emergency/Anesthesia';
else if spec='1' or spec='3' or spec='6'
      then specialty_cat='Outpatient Specialty';
else if spec='7' or spec='8' or spec='9'
      then specialty_cat='Surgery and Internal Med';
else specialty_cat='';

*collapsing reason stopped seeting patients to by choice or no;
if PatReas_3='1' or PatReas_4='1' or PatReas_8='1'
      then choice='yes';
else if PatReas_1='1' or PatReas_2='1' or PatReas_3='1' or PatReas_4='1'
      or PatReas_5='1' or PatReas_6='1' or PatReas_7='1'
      then choice='no';

*creating 'no' responses for PatReas and PatInt;
if patient=1 or PatEdu=1 then do;
      if PatReas_1='' then PatReas_1=0;
      if PatReas_2='' then PatReas_2=0;
      if PatReas_3='' then PatReas_3=0;
      if PatReas_4='' then PatReas_4=0;
      if PatReas_5='' then PatReas_5=0;
      if PatReas_6='' then PatReas_6=0;
      if PatReas_7='' then PatReas_7=0;
      if PatReas_8='' then PatReas_8=0;
end;
if patient=2 or PatEdu=2 then do;
      if PatInt_1='' then PatInt_1=0;
      if PatInt_2='' then PatInt_2=0;
      if PatInt_3='' then PatInt_3=0;
      if PatInt_4='' then PatInt_4=0;
      if PatInt_5='' then PatInt_5=0;
end;

*creating binary MS variable;
```

```
length MS_binary $4;
if MS>3 then MS_binary='high';
else if MS<4 then MS_binary='low';
if MS=. then MS_binary='';
run;

proc freq data=work.first_ids;
table PatReas_1*profession PatReas_2*profession PatReas_3*profession
            PatReas_4*profession PatReas_5*profession PatReas_6*profession
            PatReas_7*profession PatReas_8*profession PatReas_9*profession
;
where patient=1 or patEdu=1;
title 'Reasons Stopped Seeing Patients';
run; title;

proc freq data=work.first_ids;
table PatInt_1*profession PatInt_2*profession PatInt_3*profession
            PatInt_4*profession PatInt_5*profession PatInt_6*profession
;
where patient=2 or patEdu=2;
title 'Changes in Interactions with Patients';
run; title;

/*
proc freq data=work.first_ids;
table race_ethnicity*gender_ID
      profession*race_ethnicity
      profession*gender_ID
      profession*continue
      profession*specialty_cat
      prof_cat*Continue
      essential*patient
      profession*edu
      prof_cat*education_category
      prof_cat edu essential
      race_cat gender_cat continue MS
      profession*choice
      prof_cat*choice
```

```
      profession*baseline_vlog
      prof_cat*baseline_vlog
      /missing;
title 'Baseline Survey Professions';
run; title;

proc freq data=work.first_ids;
table MS*patient / nopercent norow nocol missprint;
table MS*essential / nopercent norow nocol missprint;
table MS*education_category / nopercent norow nocol missprint;
table MS*race_cat / nopercent norow nocol missprint;
table MS*loc / nopercent norow nocol missprint;
table MS*gender_cat / nopercent norow nocol missprint;
table spec*MS / nopercent norow nocol missprint;
table prof_cat*MS / nopercent norow nocol missprint;
Title 'MS Logit Model Diagnostics';
run; title;*/


*merging demographics with weekly survey responses;
proc sort data=work.first_IDs;
by participant_ID first_StartDate; run;

proc sort data=work.weekly_COPE_survey;
by participant_ID StartDate; run;

data work.weekly_demog;
merge work.first_ids (in=inIDs) work.weekly_COPE_survey (in=inWEEKLY);
by participant_ID;
length joinWeekly $2;
joinWEEKLY=cats(inIDS,inWEEKLY);
run;

*creating weekly ID dataset for linkage;
proc sort data=work.weekly_demog;
by participant_ID StartDate; run;

data work.weekly_IDs; set work.weekly_demog;
```

```
*keep joinWEEKLY RecipientEmail First_ID first_StartDate Continue
      ResponseId StartDate Vlog_Id baseline_vlog Vlog Nurse_LMT Prof_10 Prof_5
      weekly_response response_days response participation_days;
*creating dichotomous indicator for vlog submissions;
if vlog_ID^=''
      then vlog=1;
else if vlog_id=''
      then vlog=0;
response=1;
if participant_ID=''
      then response=0;
by participant_ID; do;
weekly_response+1;
if first.participant_ID
      then weekly_response=1;
response_days=intck('dtday',lag(startdate),startdate);
if first.participant_ID
      then response_days=intck('dtday',first_StartDate,startdate);

if startdate^=''
      then participation_days=intck('dtday',first_StartDate,startdate);
end;
if participant_ID=''
      then weekly_response=0;
if participant_ID=''
      then response_days=.;
run;

proc freq data=work.weekly_ids;
table
baseline_vlog*vlog
prof_cat*baseline_vlog
prof_cat*vlog
prof_cat*response

Race_Ethnicity*baseline_vlog
Gender_ID*baseline_vlog
Race_Ethnicity*vlog
```

```
Gender_ID*vlog

/*
weekly_response*prof_cat
response_days*prof_cat
participation_days*prof_cat*/
;

title 'Summary Statistics of VLOGS';
run; title;

/*
proc freq data=work.weekly_ids;
table weekly_response response_days;
table weekly_response*vlog;
where prof_10^='';
title 'Responses in Nurses';
run; title;

proc freq data=work.weekly_ids;
table weekly_response response_days;
table weekly_response*vlog;
where prof_5^='';
title 'Responses in LMT';
run; title;*/

*selecting first response from weekly surveys;
proc sort data=work.weekly_IDs;
by participant_ID StartDate; run;

data work.weekly_first; set work.weekly_ids;
by participant_ID;
if first.participant_ID then Dr_Smitty=1;
else Dr_Smitty=0;
run;

proc freq data=work.weekly_first;
table prof_cat*Dr_Smitty;
```

```
title 'First Weekly Survey Professional Categories';
run; title;
/*
proc freq data=work.weekly_first;
table WBI_1 WBI_2 WBI_3 WBI_4 WBI_5 WBI_6 MiniZ BO_1;
where Dr_Smitty=1;
title 'WBI, MiniZ, and BO Scale';
run; title; */



data work.aim1_new; set work.weekly_first;

coping9 = input(cope_9, 8.);
coping10 = input(cope_10, 8.);
coping12 = input(cope_12, 8.);
coping13 = input(cope_13, 8.);
coping21 = input(cope_21, 8.);

run;

data work.aim1_drop; set work.aim1_new;

drop cope_9 cope_10 cope_12 cope_13 cope_21;

run;

data work.aim1_corrected; set work.aim1_drop;

rename coping9=cope_9;
rename coping10=cope_10;
rename coping12=cope_12;
rename coping13=cope_13;
rename coping21=cope_21;

run;

data work.AIM1; set work.aim1_corrected;
```

```
if Intro='' and WBI_1='' and WBI_2='' and WBI_3='' and WBI_4='' and
      WBI_5='' and WBI_6='' and MiniZ='' and BO_1='' and Patients=''
then incomplete=1;
else incomplete=0;

if WBI_1=2 then WBI_1=0;
if WBI_2=2 then WBI_2=0;
if WBI_3=2 then WBI_3=0;
if WBI_4=2 then WBI_4=0;
if WBI_5=2 then WBI_5=0;
if WBI_6=2 then WBI_6=0;
WBI=sum(WBI_1, WBI_2, WBI_3, WBI_4, WBI_5, WBI_6);

length WBI_binary $4;
if wbi>3 then WBI_binary='high';
else if wbi<4 then WBI_binary='low';
if wbi=. then wbi_binary='';

length miniz_binary $4;
if miniz>3 then miniz_binary='high';
else if miniz<4 then miniz_binary='low';
if miniz=. then miniz_binary='';

length MD_binary $4;
if MD>3 then MD_binary='high';
else if MD<4 then MD_binary='low';
if MD=. then MD_binary='';

length BO_1_binary $4;
if BO_1>6 then BO_1_binary='high';
else if MD<7 then BO_1_binary='low';
if BO_1=. then BO_1_binary='';


*collapsing BO slider;
if BO_1<3 then BO_col=1;
else if BO_1<5 then BO_col=2;
else if BO_1<7 then BO_col=3;
```

```
else if BO_1<9 then BO_col=4;
else BO_col=5;
if bo_1=. then BO_col=.;

*creating 'no' responses;
if patients=1 and incomplete=0 then do;

      if CWEE_1='' then CWEE_1=0;
      if CWEE_2='' then CWEE_2=0;
      if CWEE_3='' then CWEE_3=0;
      if CWEE_4='' then CWEE_4=0;
      if CWEE_5='' then CWEE_5=0;
      if CWEE_6='' then CWEE_6=0;
      if CWEE_7='' then CWEE_7=0;
      if CWEE_8='' then CWEE_8=0;
      if CWEE_9='' then CWEE_9=0;

      if CWEC_2='' then CWEC_2=0;
      if CWEC_3='' then CWEC_3=0;
      if CWEC_4='' then CWEC_4=0;
      if CWEC_5='' then CWEC_5=0;
      if CWEC_6='' then CWEC_6=0;
      if CWEC_7='' then CWEC_7=0;
      if CWEC_8='' then CWEC_8=0;
      if CWEC_9='' then CWEC_9=0;
      if CWEC_10='' then CWEC_10=0;

      if GWRC_2='' then GWRC_2=0;
      if GWRC_3='' then GWRC_3=0;
      if GWRC_4='' then GWRC_4=0;
      if GWRC_5='' then GWRC_5=0;
      if GWRC_6='' then GWRC_6=0;
      if GWRC_7='' then GWRC_7=0;
      if GWRC_8='' then GWRC_8=0;
      if GWRC_9='' then GWRC_9=0;
end;

if patients=2 and incomplete=0 then do;
```

```
      if NP_GWRC_2='' then NP_GWRC_2=0;
      if NP_GWRC_3='' then NP_GWRC_3=0;
      if NP_GWRC_4='' then NP_GWRC_4=0;
      if NP_GWRC_5='' then NP_GWRC_5=0;
      if NP_GWRC_6='' then NP_GWRC_6=0;
      if NP_GWRC_7='' then NP_GWRC_7=0;
      if NP_GWRC_8='' then NP_GWRC_8=0;
      if NP_GWRC_9='' then NP_GWRC_9=0;
      if NP_GWRC_12='' then NP_GWRC_12=0;
      if NP_GWRC_13='' then NP_GWRC_13=0;
end;

if GWRC_2=1 or NP_GWRC_2=1 then
      sum_GWRC_2=1;
else sum_GWRC_2=0;

if GWRC_3=1 or NP_GWRC_3=1 then
      sum_GWRC_3=1;
else sum_GWRC_3=0;

if GWRC_4=1 or NP_GWRC_4=1 then
      sum_GWRC_4=1;
else sum_GWRC_4=0;

if GWRC_12=1 or NP_GWRC_12=1 then
      sum_GWRC_12=1;
else sum_GWRC_12=0;

if GWRC_5=1 or NP_GWRC_5=1 then
      sum_GWRC_5=1;
else sum_GWRC_5=0;

if GWRC_6=1 or NP_GWRC_6=1 then
      sum_GWRC_6=1;
else sum_GWRC_6=0;

if GWRC_7=1 or NP_GWRC_7=1 then
      sum_GWRC_7=1;
```

```
else sum_GWRC_7=0;

if GWRC_13=1 or NP_GWRC_13=1 then
      sum_GWRC_13=1;
else sum_GWRC_13=0;

if GWRC_8=1 or NP_GWRC_8=1 then
      sum_GWRC_8=1;
else sum_GWRC_8=0;

if GWRC_9=1 or NP_GWRC_9=1 then
      sum_GWRC_9=1;
else sum_GWRC_9=0;

if GWRC_11=1 or NP_GWRC_11=1 then
      sum_GWRC_11=1;
else sum_GWRC_11=0;

if incomplete=0 then do;
      if Cope_1=. then Cope_1=0;
      if Cope_2=. then Cope_2=0;
      if Cope_3=. then Cope_3=0;
      if Cope_4=. then Cope_4=0;
      if Cope_5=. then Cope_5=0;
      if Cope_6=. then Cope_6=0;
      if Cope_7=. then Cope_7=0;
      if Cope_8=. then Cope_8=0;
      if Cope_9=. then Cope_9=0;
      if Cope_10=. then Cope_10=0;
      if Cope_11=. then Cope_11=0;
      if Cope_12=. then Cope_12=0;
      if Cope_13=. then Cope_13=0;
      if Cope_14=. then Cope_14=0;
      if Cope_15=. then Cope_15=0;
      if Cope_16=. then Cope_16=0;
      if Cope_17=. then Cope_17=0;
      if Cope_18=. then Cope_18=0;
      if Cope_19=. then Cope_19=0;
```

```
      if Cope_20=. then Cope_20=0;
      if Cope_21=. then Cope_21=0;

      if PRC_1='' then PRC_1=0;
      if PRC_2='' then PRC_2=0;
      if PRC_3='' then PRC_3=0;
      if PRC_4='' then PRC_4=0;
      if PRC_5='' then PRC_5=0;
      if PRC_6='' then PRC_6=0;
      if PRC_7='' then PRC_7=0;
      if PRC_8='' then PRC_8=0;
      if PRC_9='' then PRC_9=0;
      if PRC_10='' then PRC_10=0;
end;

if Cope_9=1 then maladaptive=1;
else if Cope_10=1 then maladaptive=1;
else if Cope_12=1 then maladaptive=1;
else if Cope_13=1 then maladaptive=1;
else if incomplete=0 then maladaptive=0;

negative_cope=0;
negative_cope=sum(Cope_9,Cope_10,Cope_11,Cope_12,Cope_13);
run;


proc freq data=work.AIM1;
table profession*patients
      race_ethnicity*profession
      gender_ID*profession
      education_category*profession
      edu*profession
;

where Dr_Smitty=1 and incomplete=0;
title 'Seeing Patients and Demographics';
run; title;
```

```
proc freq data=work.AIM1;
table patients*profession incomplete*profession MS*profession
      MD*profession WBI_1*profession WBI_2*profession WBI_3*profession
      WBI_4*profession WBI_5*profession WBI_6*profession WBI*profession
      MiniZ BO_1*profession maladaptive*profession negative_cope*profession choice*profession
;

where Dr_Smitty=1 and incomplete=0;
title 'Validated Measures, Maladaption, and Negative Coping';
run; title;

proc freq data=work.aim1;
table PatReas_1*profession
PatReas_2*profession
PatReas_3*profession
PatReas_4*profession
PatReas_5*profession
PatReas_6*profession
PatReas_7*profession
PatReas_8*profession
PatReas_9*profession
PatInt_1*profession
PatInt_2*profession
PatInt_3*profession
PatInt_4*profession
PatInt_5*profession
PatInt_6*profession
;

where Dr_Smitty=1 and incomplete=0;
title 'Reasons for Stopping and Changes in Patient Interaction';
run; title;


proc freq data=work.AIM1;
table PRC_1*profession PRC_2*profession PRC_3*profession PRC_4*profession PRC_5*profession
      PRC_6*profession PRC_7*profession PRC_8*profession PRC_9*profession PRC_10*profession
;
```

```
where Dr_Smitty=1 and incomplete=0;
title 'Which of the following are you currently concerned about regarding yourself?';
run; title;

proc freq data=work.AIM1;
table Cope_1*profession Cope_2*profession Cope_3*profession Cope_4*profession
            Cope_5*profession Cope_6*profession Cope_7*profession Cope_8*profession
            Cope_9*profession Cope_10*profession Cope_11*profession Cope_12*profession
            Cope_13*profession Cope_14*profession Cope_15*profession Cope_16*profession
            Cope_17*profession Cope_18*profession Cope_19*profession Cope_20*profession
;

where Dr_Smitty=1 and incomplete=0;
title 'Which of the following have you found helpful in the past week?';
run; title;

proc freq data=work.AIM1;
table       CWEE_1*profession CWEE_2*profession CWEE_3*profession CWEE_4*profession
            CWEE_5*profession CWEE_6*profession CWEE_7*profession CWEE_8*profession
            CWEE_9*profession
;

where Dr_Smitty=1 and incomplete=0 and patients=1;
title 'Which of the following are you currently experiencing? Check all that apply.';
run; title;

proc freq data=work.AIM1;
table       CWEC_2*profession CWEC_3*profession CWEC_4*profession CWEC_5*profession
            CWEC_6*profession CWEC_7*profession CWEC_8*profession CWEC_9*profession
            CWEC_10*profession
;

where Dr_Smitty=1 and incomplete=0 and patients=1;
title 'Which of the following are you currently concerned about regarding your clinical work
environment? Check all that apply.';
run; title;
```

```
proc freq data=work.AIM1;
Table sum_GWRC_2*profession sum_GWRC_3*profession sum_GWRC_4*profession
            sum_GWRC_12*profession sum_GWRC_5*profession sum_GWRC_6*profession
            sum_GWRC_7*profession sum_GWRC_13*profession sum_GWRC_8*profession
            sum_GWRC_9*profession sum_GWRC_11*profession
;

where Dr_Smitty=1 and incomplete=0 and patients=2;
title 'Which of the following are you currently concerned about regarding general work-related
stressors? Check all that apply.'
run; title;

proc freq data=work.AIM1;
table prof_cat*incomplete
      profession*incomplete
      profession*continue
;

where Dr_Smitty=1;
title 'Professions Participating and Completing Initial Weekly Survey';
run; title;


proc freq data=work.AIM1;
table PRC_1*profession PRC_2*profession PRC_3*profession PRC_4*profession PRC_5*profession
      PRC_6*profession PRC_7*profession PRC_8*profession PRC_9*profession PRC_10*profession
;
where Dr_Smitty=1 and incomplete=0;
title 'Concerns by profession';
run; title;

proc freq data=work.AIM1;
table Cope_1*profession Cope_2*profession Cope_3*profession Cope_4*profession Cope_5*profession
      Cope_6*profession Cope_7*profession Cope_8*profession Cope_9*profession Cope_10*profession
      Cope_11*profession Cope_12*profession Cope_13*profession Cope_14*profession Cope_15*profession
      Cope_16*profession Cope_17*profession Cope_18*profession Cope_19*profession Cope_20*profession
;
where Dr_Smitty=1 and incomplete=0;
```

```
title 'Coping Strategies by profession';
run; title;

proc sort data=work.aim1;
by profession; run;

proc means data=work.aim1 median QRANGE Q1 Q3 n mean std;
by profession;
var age YrsPrac MD MS WBI MiniZ BO_1 ;
where Dr_Smitty=1 and incomplete=0;
run;

proc means data=work.aim1 median QRANGE Q1 Q3 n mean std;
var age YrsPrac MD MS WBI MiniZ BO_1 ;
where Dr_Smitty=1 and incomplete=0;
run;

proc npar1way data=work.aim1 WILCOXON; class profession; var WBI; where Dr_Smitty=1 and incomplete=0;
title 'Kruskal-Wallis WBI'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var MiniZ; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis MiniZ'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var BO_1; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis BO_1'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var MS; where Dr_Smitty=1 and incomplete=0;
title 'Kruskal-Wallis MS'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var MD; where Dr_Smitty=1 and incomplete=0;
title 'Kruskal-Wallis MD'; run; title;

proc freq data=work.aim1;
table MD*profession WBI*profession MiniZ*profession/exact;
      where Dr_Smitty=1 and incomplete=0 and profession^='dual';
title 'Fishers Exact Nurse v LMT'; run; title;

proc freq data=work.aim1;
table MD*profession WBI*profession MiniZ*profession/exact;
where Dr_Smitty=1 and incomplete=0 and profession^='Massage therapy';
title 'Fishers Exact Nurse v Dual'; run; title;
```

```
proc freq data=work.aim1;
table MD*profession WBI*profession MiniZ*profession/exact;
where Dr_Smitty=1 and incomplete=0 and profession^='Nursing';
title 'Fishers Exact Dual v LMT'; run; title;

proc npar1way data=work.aim1 WILCOXON; class profession; var WBI_1; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis WBI_1'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var WBI_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis WBI_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var WBI_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis WBI_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var WBI_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis WBI_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var WBI_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis WBI_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var WBI_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis WBI_6'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var MD_binary; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis MD_binary'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var WBI_binary; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis WBI_binary'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var MiniZ_binary; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis MiniZ_binary'; run; title;


proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_1; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_1'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_6'; run; title;
```

```
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_7; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_7'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_8; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_8'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_9; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_9'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_10; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_10'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_11; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_11'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_12; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_12'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_13; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_13'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_14; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_14'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_15; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_15'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_16; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_16'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_17; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_17'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_18; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_18'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_19; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_19'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_20; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_20'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Cope_21; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Cope_21'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var maladaptive; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis maladaptive'; run; title;

proc freq data=work.aim1;
table Cope_3*profession Cope_8*profession Cope_10*profession Cope_14*profession Cope_15*profession
Cope_18*profession Cope_19*profession/exact;
      where Dr_Smitty=1 and incomplete=0 and profession^='dual';
title 'Fishers Exact Nurse v LMT'; run; title;
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proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_1; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_1'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_6'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_7; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_7'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_8; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_8'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_9; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_9'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PRC_10; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PRC_10'; run; title;

proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_6'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_7; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_7'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_8; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_8'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_9; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_9'; run; title;
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proc npar1way data=work.aim1 WILCOXON; class profession; var GWRC_11; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis GWRC_11'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_12; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_12'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_6'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_7; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_7'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_13; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_13'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_8; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_8'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_9; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_9'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var NP_GWRC_11; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis NP_GWRC_11'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_12; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_12'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_6'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_7; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_7'; run; title;
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proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_13; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_13'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_8; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_8'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_9; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_9'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var sum_GWRC_11; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis sum_GWRC_11'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var Patients; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis Patients'; run; title;

proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_1; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_1'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_6'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_7; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_7'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_8; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_8'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_9; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_9'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEE_10; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEE_10'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_4'; run; title;
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proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_6'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_7; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_7'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_8; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_8'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_9; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_9'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_10; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_10'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var CWEC_11; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis CWEC_11'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_1; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_1'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_3'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_6'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_7; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_7'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_8; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_8'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatReas_9; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatReas_9'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatInt_1; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatInt_1'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatInt_2; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatInt_2'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatInt_3; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatInt_3'; run; title;
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proc npar1way data=work.aim1 WILCOXON; class profession; var PatInt_4; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatInt_4'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatInt_5; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatInt_5'; run; title;
proc npar1way data=work.aim1 WILCOXON; class profession; var PatInt_6; where Dr_Smitty=1 and
incomplete=0; title 'Kruskal-Wallis PatInt_6'; run; title;


proc power;
      onewayanova
            groupmeans = 3.35 | 3.66 | 3.78
            stddev = 1.63
            alpha = 0.025
            ntotal = .
            power = 0.9
      ; title 'MD Power Analysis'; run; title;

proc power;
      onewayanova
            groupmeans = 3.35 | 3.66 | 3.78
            stddev = 1.63
            alpha = 0.025
            ntotal = 405
            power = .
      ; title 'MD Power Analysis'; run; title;

proc power;
      onewayanova
            groupmeans = 2.20 | 3.13 | 2.62
            stddev = 1.45
            alpha = 0.025
            ntotal = 405
            power = .
      ; title 'WBI Power Analysis'; run; title;

proc power;
      onewayanova
            groupmeans = 2.09 | 2.86 | 2.38
```

```
            stddev = 0.86
            alpha = 0.025
            ntotal = 405
            power = .
      ; title 'PWLS Power Analysis'; run; title;

proc power;
      onewayanova
            groupmeans = 5.67 | 4.77 | 6.44
            stddev = 2.53
            alpha = 0.025
            ntotal = 405
            power = .
      ; title 'Slider Power Analysis'; run; title;
```