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Leadership, job stress and uncertainty among nurses during the COVID-19 pandemic: Impacts and implications in lieu of pertinent theoretical constructs

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Leadership, job stress and uncertainty among nurses during the COVID-19 pandemic: Impacts and implications in lieu of pertinent theoretical constructs

by

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ABSTRACT

The purpose of this study is to determine the effect of the COVID-19 pandemic on practicing nurses in the United States. The study considered the effect of communication, self-efficacy, intolerance to uncertainty, and life satisfaction on nurses' job satisfaction; additionally, this study considered the extent to which nurses perceived organizational response efficacy was predicted by their perceptions of communication and perceived threat susceptibility. A total of 191 nurses participated in the online survey. The study revealed that life satisfaction was positively predicted by communication, self-efficacy, and life satisfaction in multiple regression analyses. Perceived communication positively predicted perceived organizational response efficacy while perceived threat susceptibility predicted an inverse relationship with organizational response efficacy. This study reveals that improving job satisfaction, even in a pandemic, can be accomplished by empowering nurses through improving job resources while minimizing job demands. The implications for the study discuss the necessity for an overhaul of nursing leadership during the COVID-19 crisis to maintain the care standard and nurse commitment.

Keywords: COVID-19, job satisfaction, uncertainty, nursing shortage, leadership, communication, self-efficacy, regression, stress, burnout, response efficacy, susceptibility

DEDICATION

Dedicated to my family and all those who I consider to be family for their undying support of me in this endeavor.

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LIST OF ABBREVIATIONS

USM	The University of Southern Mississippi
COVID-19	Coronavirus Disease 2019
SARS	Severe Acute Respiratory Syndrome
WHO	World Health Organization
CDC	Centers for Disease Control and Prevention
AHRQ	Agency for Health Research and Quality
EMS	Emergency Medical Services
ER	Emergency Room
ICU	Intensive Care Unit
IUS	Intolerance to Uncertainty
SIT	Social Identity Theory
SD	Structurational Divergence
PI	Problematic Integration theory
COR	Conservation of Resources theory
JD-R	Job Demands-Resources model
EPPM	Extended Parallel Processing Model
PMT	Protection Motivation Theory
ICU N-P-Q	Intensive Care Unite Nurse-Physician Questionnaire
SIJS	Short Index of Job Satisfaction
SWLS	Satisfaction with Life Scale
LMX	Leader-member exchange model
UMT	Uncertainty Management Theory

INTRODUCTION

Until the outbreak of Severe Acute Respiratory Syndrome (SARS-CoV) in 2002 and 2003, Coronaviruses, which typically manifest as respiratory and enteric infections of humans and animals, were thought to be relatively benign (Habibzadeh & Stoneman, 2020). The novel Coronavirus (SARS-CoV-2), which causes Coronavirus Disease (COVID-19), emerged from Wuhan, China, and created a prominent global health concern (Zhu et al., 2020). By December 31, 2019, there was a series of patients with pneumonia of unknown etiology hailing from Hubei province in China. SARS-CoV-2 was isolated on January 7, 2020, and on January 30, 2020, the WHO had declared an International Public Health Emergency (Habibzadeh & Stoneman, 2020). As of July 19, 2020, the total reported cases of COVID-19 exceeded 14 million individuals (WHO, 2020). This total should be considered alongside the documented shortages of testing kits, lack of laboratory facilities, and a dearth of personnel qualified to safely and effectively run the assays necessary to identify positive cases of SARS-CoV-2 (Giri & Rana, 2020).

SARS-CoV-2 has caused widespread public panic, economic perturbations, and social deceleration on a level unmatched since the outbreak of the Spanish Influenza in 1918. Both viruses were highly infectious respiratory diseases, but while the Spanish flu caused mortality mainly in young, working-age adults, COVID-19 has proven more lethal in the elderly population—especially among those with comorbidities (Wheelock, 2020). Amidst the present COVID-19 pandemic, many businesses have restricted economic and social interactions, which has dropped U.S. economic production and employment rates (Wheelock, 2020). These downturns parallel those affected by the Spanish flu pandemic in 1918. In each global health crisis, a viral agent has claimed lives,

whether by the more documented method of infectious illness or the less traceable effects that the economic downturn has on those living on the cusp.

Although lessons from the Spanish Flu pandemic may be relevant, there is still much uncertainty surrounding COVID-19; furthermore, despite having sequenced the entire 1918 avian flu strain, Morens and Fauci (2007) remind us that unanswered questions about that virus remain a century later. Although the mortality rates caused by the SARS-CoV-2 virus are much less than the deaths caused by the 1918 Spanish flu, some coronaviruses in the future may be more virulent and dangerous than COVID-19. The necessity to learn from the COVID-19 crisis cannot be overstated (Ioannidis, 2020).

Nurses, making up the largest section of the health profession, are not only integral to the U.S. service side of the economy, but they are necessary assets when it comes to the front-line combat against COVID-19. Our nation's nurses have been called on to travel to hotspots of the SARS-CoV-2 outbreaks to reinforce these grossly unprepared healthcare sectors. From a grim perspective, there was no worse time for SARS-CoV-2 to strike than in a nursing shortage.

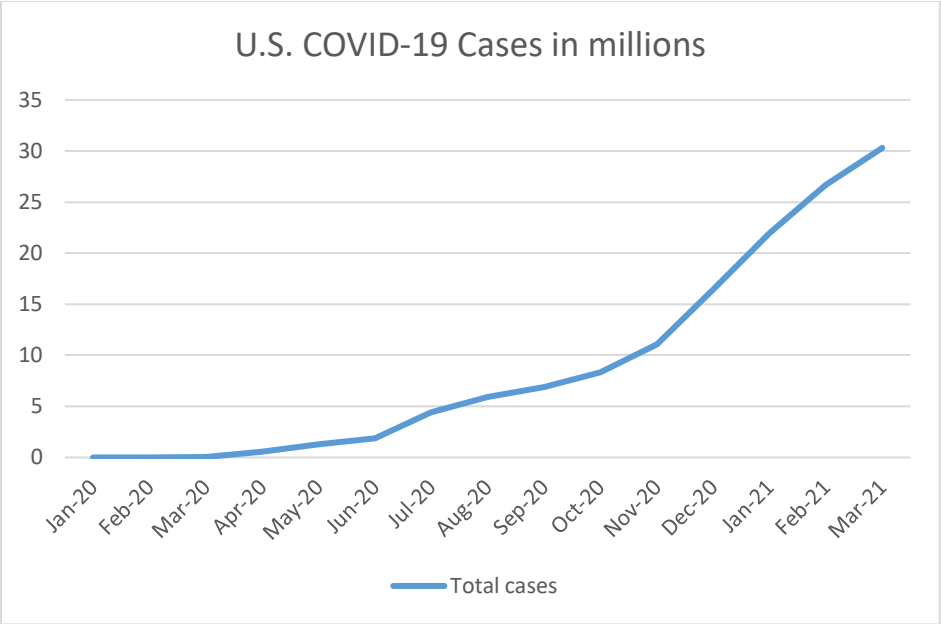
For a variety of reasons, even before the emergence of COVID-19, healthcare projections pointed to the need for an additional one million nurses in 2020 to keep the U.S. healthcare system running smoothly (Haddad et al., 2020). Amidst an aging general population, a nursing workforce nearing retirement age, nurse faculty shortages resulting in a slowed training of new nurses, a maldistribution of nurses (regional surplus and deficit), and changing career and childbearing goals in the predominantly female occupation, the U.S. nursing shortage persists (Aiken et al., 2009; Haddad et al., 2020). Job and patient dissatisfaction, poor staffing ratios, increased medical errors, and higher

patient morbidity and mortality rates accompany the nursing shortage (Aiken et al., 2009; Haddad et al., 2020). The nursing shortage was a well-established problem before the COVID-19 outbreak, but there have paradoxically been competing problems in the layoffs of healthcare personnel (including nurses), a patient shortage, and a workload excess for remaining nurses. Understaffing, a major stressor, lowers the quality of teamwork and results in psychosomatic complaints related to job demands (Busch et al., 2013). Faced with the issue of excessive job demands, nursing leadership often fails to meet care standards and functionality goals (James & Bennett, 2020).

Between the window of April 1- July 14, 2020, the CDC estimated that only 63% of all inpatient hospital bed spaces in the U.S. were occupied, and 8% of those were COVID-19 cases. Despite this, the national hospital occupancy rate in July 2018—before the emergence of SARS-CoV-2—was 64% (Shoemaker, 2018). Given that warmer summer temperatures insignificantly reduce transmission of SARS-CoV-2 (Sehra et al., 2020), the actual number of hospitalizations in August 2020 was surprisingly low at 39,142 individuals (CDC, 2020), considering the 20,598,725 individuals who were projected to require hospitalization based on the initial COVID-19 prevalence rate mid-level estimate of 40% (Tsai et al., 2020). After many public health infection control measures had been lifted, the peak of the prevalent hospitalizations of patients with confirmed COVID-19 was recorded at 125,20 individuals on January 6, 2021 (CDC, 2021). With these measures, continued testing and reporting of the numbers of cases are necessary to accurately adjudicate the health status of the U.S. population; hospital bed capacity serves solely as a proxy statistic, but it is an inaccurate measure of the prevalence of the impact of COVID-19 (Kissler et al., 2020). The graph in figure 1

illustrates the number of documented COVID-19 cases compiled by Johns Hopkins University and Medical Center (2021) for the United States.

Figure 1. United States COVID-19 case count for Jan 2020- March 2021



Additionally, another problematic trend related to the COVID-19 crisis suggests that patients have avoided seeking routine medical care for fear of contracting the novel coronavirus. From February to March 2020—the month that California first issued a shelter-in-place order—EMS personnel of Adventist Health Lodi Memorial (LMH) in California reported a 45% increase in cardiac deaths in the field, and all stroke victims that month came in too late to receive the appropriate stroke treatment medication known as tPA (Wong et al., 2020). Without any revenue generated from elective procedures and necessary medical care unrelated to COVID-19, some hospitals were forced to furlough their employees (Fadel et al., 2020). Due to maldistribution associated with the preexisting nursing shortage, other hospitals have needed to pay the high premium rates to travel nursing agencies to meet the demand placed on them by the surge of COVID-19

patients in some areas of the country. However, ER visits related to COVID-19 are not lucrative. Combined with an 18% decrease in healthcare spending, healthcare workers falling ill with the virus, and people losing their work-sponsored private health insurance due to economic impacts of the virus, the nurses who remain employed are being assigned increasing amounts of work—sometimes even needing training on tasks that they were not obliged to perform when they were originally hired (Fadel et al., 2020).

Although emotional exhaustion is common for ICU nurses, the COVID-19 outbreak increased an already strenuous workload and added the additional fear of contagion, or the fear of spreading the disease to family and friends (Sasangohar et al., 2020). If history is to repeat itself, healthcare workers on the front line are at higher risk of developing anxiety, depression, and long-term psychiatric issues, much as the survivors of the 2003 SARS outbreak faced (Bai et al., 2004). Limited resources and proper protective equipment[1], disruptions in work-life balance and biological occupational exposure to SARS-CoV-2 contributed to the stress, fatigue, anxiety, and burnout seen during the COVID-19 pandemic (Sasangohar et al., 2020). The most taxing aspect of the whole pandemic for nurses may not be the workload, but rather the increased numbers of morbidity, mortality, and unpredictable risks of COVID-19 (Kackin et al., 2020)

The newness and uncertainty about this virus can be daunting for those charged with controlling cases and for those who cannot interpret the barrage of health-related information. The ability to decipher health-related information, be well informed, and

[1] Healthcare workers are versed in recommended usages of PPE and will be attuned to the decreased effectiveness of makeshift uses of PPE in preventing infections which contributes further to their psychological discomfort (Sasangohar et al., 2020)

make appropriate health-promoting behaviors accordingly was described as "health literacy" in an IOM report (Nielsen-Bohlman et al., 2004). The deluge of Coronavirus news still being reported during the time of the data-gathering portion of this study often contradicted previous recommendations and made the role of the healthcare provider as decoder and communicator for the public more difficult (Ioannidis, 2020). Those people with low health literacy are also likely to be the least worried about becoming infected (Wolf et al., 2020). Widespread grief and frustration complicate public health nurses' ability to communicate the importance of implementing precautionary health measures (Kackin et al., 2020). Successfully communicating this information would increase health literacy, implementation of health precautions, and limit the spread of COVID-19.

Evidence-based communication methods remain the primary process by which providers connect with patients, but with the added elements of apprehension, uncertainty, and fear concerning the novel coronavirus, additional obstacles are likely to appear (Back et al., 2020). One such obstacle is explaining why a scant resource cannot be given to the patient during this period of crisis standards[2]. Providing information about ethical dilemmas and using supporting statements better personal and team performance by enhancing communication (Kackin et al., 2020). Establishing clear roles, standard procedures, and a sense of belonging help prevent conflicts that arise from working with staff from other units (Karam et al., 2018). Nursing leaders and managers have tended to use excessive direction-giving when communicating during the pandemic and not enough meaning-making and empathy, which, according to Mayfield and Mayfield (2018),

[2] Crisis standards dictate that the best be done for the greatest number—shifting ethical viewpoints from an individual value-based philosophy to a more utilitarian public health resource allocation one (Back et al., 2020).

positively correlates to reduced absenteeism and reduced turnover along with job satisfaction and willingness of nurses to express their voice (James & Bennett, 2020). Communication and the aforementioned factors are intricately interwoven, dynamic events that have coalesced to contribute to the unique experience of nurses during the COVID-19 pandemic.

COVID-19 has spurred many corollary events and thus parented new entries into many avenues of research such as communication, psychology, nursing, public health, and others not specifically addressed within the scope of this article. Chapter I explored how a novel strain of Coronavirus has caused a global pandemic that has produced widespread alterations in how society views standing preparedness for unforeseen disasters in terms of the number of physical resources, adaptability of staffing resources, and effectivity of healthcare leadership. Widespread public panic has resulted from SARS-CoV-2, much how it has resulted from past pandemics. The difference is that a nursing shortage places an additional burden on efforts to resolve the COVID-19 pandemic. Instituting effective health protection behaviors, increasing health literacy, and reducing job stress through harnessing effective nursing leaders are all ways to diminish the impacts of COVID-19 on society. Chapter II directs more focused attention toward the prominent theories that shape how the variables measured in this article are viewed independently and how they are expected to interact interdependently.

LITERATURE REVIEW

The research questions posed at the end of this chapter span a broad swath of research literature per the nature of the quandaries. Leading up to the research questions, the organization of this chapter is constructed in such a way as to detail necessary findings and link the essential concepts, theories, and models from each of the Communications and Nursing fields of study. For this research and by the end of this chapter, the reader should be easily able to conceive of a subtly intricate interplay, yet overtly interdisciplinary bond, between each of the theories researched in their respective fields. From the researcher's perspective, the unfortunate impacts of the COVID-19 pandemic are cause enough to integrate aspects from the fields of Nursing and Communications so that problems in healthcare delivery may more effectively be solved.

Theories of Personal Communication

Communication and the Group

The quality of healthcare is affected by many factors, and one often overlooked, yet vital, component is the intergroup communication within the healthcare organization (Batalden & Davidoff, 2007). Collaboration among groups can aid in the attainment of common aims, or strife may disrupt strides in organizational improvement.

Conflict can be bred in a healthcare organization through perceptions that one group (i.e., physicians) believes that another group (i.e., administrators) is not cognizant and responsive to their needs (Ramirez & Bartunek, 1989); moreover, those same physicians may perceive that they are working quite well with the nurses when nurses may perceive a rift in the relationship due to the status differences in the organization (Sirota, 2007). When knowledge levels differ between nurses and physicians, Stein-

Parbury and Liaschenko (2007) found that ICU patient care quality degrades; this may also be due to the necessary formation of "communities of practice" formed during career training because information does not readily penetrate the community boundaries. Communities of practice are formed through a socialization process whereby apprentices, such as nursing students, learn to adopt norms and an appreciably general yet individually important career outlook through training and education (Brown & Duguid, 2001; Bartunek et al., 2003).

Communication and the Individual

Problematic Integration Theory (PI) centrally claims that one's perceptions are each probabilistic (speaking to characteristics) and evaluative (considering importance) and become integrated into his or her experience (Babrow, 2001). Babrow (1991) claims that probability affects value and vice versa (e.g., the characteristic of scarcity may influence the probability of obtaining that object by inciting optimistic bias or defensive rationalization to increase or decrease pursuit efforts). Integration is problematic because probability and value destabilize one another in a variety of ways, forming elements of divergence, ambiguity, ambivalence, or impossibility (Babrow, 1992). These four types of integrative dilemmas can be modified through transformations. Individually, the initial form can be cognitively turned into another problematic form, or one may focus on a less problematic aspect, or foci, of the initial form; however, if a PI is shared by others, the transformation of the individual's idiosyncratic problem becomes a collective one (Babrow, 1993). Lastly, communication powers the processes of PI described above.

Problematic integration theory places emphasis on how uncertainty is managed and enforces the statement that integrative dilemmas beget others through this

management (Babrow, 2001). Take COVID-19 for example: reducing our uncertainty of the real source of our nagging cough through information-seeking (visiting a hospital) may only reveal a worse fate than that which we initially dreaded. In attempting to integrate the problem of having a cough while headlines of coronavirus flash on every screen, you find out at the door of the hospital that you also have a fever, and in radiology that you have diffuse, patchy atelectasis as well. Having solved the mystery of the former one, this presents a new, disastrous problem for you to integrate. Often leading to avoidance, reappraisal may not always be the best coping technique, but reframing PI's as challenges rather than decisive failures is a more productive option (Babrow, 2001). Although unpredictable, uncertainty does not punctuate human experience: it simply permeates it (Babrow, 2001).

Nurse Burnout

Nurse burnout is among the most concerning cause that doubles as an effect of the nursing shortage. Burnout was defined by Maslach (1982) as "a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do 'people work' of some kind" (p. 3). This tripartite definition of burnout has been the subject of much debate and scrutiny in the literature which is later discussed. Emotional exhaustion describes the feeling of being depleted of the emotional reserves that brings alacrity and vigor to the work of human service professions such as nursing. Depersonalization is associated with cynicism in the literature, and it manifests as the person being callous, detached, and decoupled from an attitude of interest toward their work (Halbesleben & Buckley, 2004).

Another definition of burnout is described as the opposite of engagement. Vigor and dedication are hallmarks of engagement in one's work. Burnout—representing the opposite side of the spectrum—is characterized by the core dimensions of emotional exhaustion and cynicism (Leiter, 1993). Vigor is the theoretical opposite of emotional exhaustion, and dedication is the opposite of cynicism (González-Romá et al., 2006). Burnout can be described as the attrition of engagement with one's work in which vigor and dedication descend into exhaustion and cynicism.

In addition to the metrics described above, burnout syndrome may result in the development of nonspecific symptoms such as frustration, anger, fearfulness, anxiety, anhedonia, and physical symptoms: insomnia, muscle tension, headaches, and GI upset (Mealer et al., 2016). Critical care nurses have one of the highest rates of burnout syndrome: 25-33% displaying severe symptoms, and 86% displaying at least one of the core dimensions (Mealer et al., 2016). Skilled decision-making, effective and collaborative communication, and either innate or learned resilience are powerful techniques to prevent and treat burnout syndrome (Mealer et al., 2016).

Nursing is by nature a caring profession, and the compassionate people who are drawn to this field are susceptible to the strain of the sheer volume of emotional work that they assume in their profession (Gandi et al., 2011). This type of emotional demand can cause burnout across the span of a career, but sustained stress is only one cause of burnout. Acute organizational change, individual attitude variations, and specific critical care attributes are all risk factors that collide during a pandemic to form the constellation that shapes burnout syndrome (Mealer et al., 2016). Nurses in recent months have been facing a two-pronged attack from long-term stress burnout from a nursing shortage and

an additional acute stress load from increased demands and personal health concerns placed on them as frontline workers in the COVID-19 pandemic.

Resource Theories of Burnout

Conservation of Resources Model. The conservation of resources model (COR) of burnout is a motivational theory with its basic tenet describing how individuals' innate desire "to obtain, retain, foster, and protect those things they centrally value" may lead to burnout by way of the resultant stress (*a*) when there is a threatened loss of resources, (*b*) the actual loss of resources, (*c*) or an insufficient return on the investment of resources following significant effort (Hobfoll et al., 2018, p. 104). An advantage of the COR is that it views the objective elements of resources rather than solely their perceptions as prevailing influences on the model (Hobfoll et al., 2018).

Resources are individually appraised and ranked secondary to being centrally and culturally valued (Hobfoll et al., 2018). Examples of centrally and culturally valued resources that individuals strive to obtain for either their inherent value or their value in facilitating the accrual of other resources are "health, well-being, family, self-esteem, and a sense of purpose and meaning in life" (Hobfoll et al., 2018, p. 104). Job resources in the literature by Schaufeli and Bakker (2004) on work engagement include job resources from supervisors (e.g., feedback, autonomy, and a sense of support) and personal resources (e.g., self-efficacy, self-esteem).

According to COR, self-efficacy is conferred through "the obtaining and retaining of personal, social, and material resources" which "creates in people, families, and organizations the sense that they are capable of meeting stressful challenges." (Hobfoll et al., 2018, p. 104). Not only has job-related self-efficacy, as a primary investigated

resource in COR has been shown to not only benefit an individual (Abele & Spurk, 2009), but also, through crossover, a resource transfer between two individuals, impacts teams, organizations, and spouses by increasing resiliency (Neff et al., 2012, 2013; Hobfoll et al., 2018). Certain cornerstone resources such as self-efficacy and positive self-regard often interrelate and aid resistance to loss by preventing resource depletion (Hobfoll & Freedy, 1993). For example, self-efficacious individuals are more optimistic, and holding a positive self-regard endows one with social desirability which enables the deployment of social resources during stress (Hobfoll & Leiberman, 1987). On the contrary, individuals with low self-efficacy also display low social support, low self-esteem, and decreased coping in periods of increased demands (Kobasa & Puccetti, 1983; Thoits, 1994).

Several principles which provide the COR scaffolding follow. The primacy of resource loss is the first principle which proposes that more consideration is given to a set amount of resource loss than would be given to a proportionally equal amount of resource gain; however, in the wake of sequential resource loss, resource gain derives more importance than it otherwise would have (Hobfoll, 2001; Hobfoll et al., 2018). Due to the primacy of resource loss, loss events more accurately reflect positive and negative affect than do resource gains (Suh, Diener, Fujita, 1996; Hobfoll et al., 2018). However traumatic an event or resource loss, Meichenbaum (1994) found that sharing that story with others promotes healing. Storytelling is adaptive in the sense that other members of your social circle are buffered from experiencing the same incident of resource loss that the victim did if the occurrence is of a preventable nature.

The second principle is called resource investment, and it asserts that people must invest resources if they are to protect against losses, recover from losses, or gain more resources (Hobfoll, 2001; Hobfoll et al., 2018). People can better stave off large losses during oppressively demanding times by cultivating their resource stocks during halcyon times. Those with greater resource reserves are more readily able to mobilize and capitalize on them. The reverse of this reflects another axiom of COR: those without appropriate resources are more vulnerable to loss. Paradoxically, gains become more salient in the context of resource loss, so for those with dwindling resources, a small accumulation of resources will beget a large gain in momentum (Hobfoll et al., 2018). Loss begets future loss in what is known as resource spirals which result from not having resources to offset the loss (Hobfoll, 1989; Hobfoll et al., 2018). Gain also begets further gain, but because of loss primacy, loss spirals develop quicker and with greater potency. COR's final principle is that those without resources will revert to defensive tactics to conserve the few resources they have (Hobfoll, 2001; Hobfoll et al., 2018). This may take the form of problem-solving or the less effective denial and avoidance which offers temporary psychological respite while resources are recouped for adequate coping (Breznitz, 1983). More coping—healthy or not—always follow greater losses, and coping is a form of resource investment that may result in depletion (Hobfoll & Freedy, 1993).

COR is a motivational theory of stress which means that not only does it predict how people will reactively behave when subjected to stressors, but it also accounts for the proactive behavior of people with varying levels of resources when not facing imminent stress (Hobfoll, 2001). Individuals seek to constantly acquire resources by their respective means to buffer themselves against the possibility of future losses. Those

individuals who have plentiful resources are in a better position to plan, reinvest, and prevent losses while those who are resource-poor cannot risk the cost of reinvestment for the lack of resources or the necessity to conserve their scarce resource supply (Hobfoll et al., 2018). On the other hand, when one is exhausted and overworked, burnout may sap their physical and psychological reserves such that one may doubt his or her ability to effectively carry out a motivational process due to decreased time to consider a range of the most productive methods of mobilizing resources (Hobfoll & Freedy, 1993).

The principle of self-regulation addresses how ongoing loss continually makes coping ineffective as individuals become more "strategically defensive" and employ accommodative coping—reducing expectations and ambitions of overcoming the stressor—as a short term stress reduction method (Brandstädter, 1989; Halbesleben & Wheeler, 2015; Hobfoll et al., 2018, p. 113). Social cohesion may facilitate burnout on a team level through crossover, so resource losses, rather than solely gains, may crossover and trigger losses in those around them (Li et al., 2016). The social support resource that is protective at an individual level exacerbates crossover of job demands and exhaustion at a group level (Westman et al., 2011). Resource depletion is tied to emotional exhaustion which is associated with decreased work performance (Demerouti et al., 2014).

An important focus of this research has been on leadership since the conception of the leader-member exchange (LMX) model (Graen & Uhl-Bien 1995). Facilitating each other's engagement and performance, leaders and subordinates who maintain a positive exchange relationship confer job resources to one another (Breevaart et al., 2014); meanwhile, less impactful but still potentially, chronically damaging to work

culture is negative crossover by which supervisors with diminished resources transfer exhaustion within the organization (Westman et al., 2013; Hobfoll et al., 2018).

Job Demands—Resources Model. Attesting to the importance of the COR is its centrality in the development of the leading theory of organizational stress: the job-demands resource model (JD-R) described in 2001 by Demerouti, Bakker, Nachreiner & Schaufeli (Hobfoll et al., 2018). The first way in which JD-R specifies the theoretical framework is by focusing on work's positive and negative aspects that contribute to the health of the employee. Secondly, JD-R narrows the definition of resources from both situational resources and psychological traits to specifically job-related resources—a type of situational resource (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014). Job demands are the physical, social, and organizational aspects of one's work that tap into physical and psychological reserves and lead to exhaustion, but demands are not necessarily negative until they exceed an employee's adaptive capacity and results in burnout (Schaufeli & Bakker, 2004). Job resources refer to the physical, social, and organizational components of a job that help an individual to achieve work goals, reduce job demands, and/or spur personal growth (Demerouti, Bakker, Nachreiner & Schaufeli, 2000). For nurses, job demands can be draining patient contact, poor working conditions, and emotional demands from patients with poor prognoses, lack of planning time, frequent interruptions, and responsibility without decision latitude, work overload/pressure, lack of formal rewards (personal growth, job security, pay), and work-life imbalance (Demerouti et al., 2000; Broetje et al., 2020). Nursing job resources are consistent with COR: supervisor support, equitable and authentic leadership, inspirational leadership practices, positive social climate and interpersonal interactions, autonomy,

organizational structure, and professionalism in the practice environment (Broetje et al., 2020).

Burnout in JD-R results from two separate processes. Chronic confrontation with job demands follows the energetic process that results in exhaustion, and by way of a second process, pervasive lack of job resources hampers the meeting of job demands, results in withdrawal consistent with COR, and ends in disengagement (Demerouti et al., 2000). Likewise, the presence of job resources may lead to engagement through the motivational process described in COR (Hobfoll, 2001), and self-efficacy is believed to play a central role in perpetuating this gain spiral by mediating job resources and engagement—resulting in increased perceived self-efficacy (Llorens et al., 2007).

The degree to which people initiate and carry out behaviors is dependent, in part, on their perceptions—the extent to which people believe that they will satisfy their needs (Deci & Ryan, 2000). This psychological process is imperative for goal setting and subsequent resource mobilization that contributes to personal growth and integrity (Van Den Broeck et al., 2008). A shared perception of burnout among a team is a stronger predictor of developing burnout syndrome than any one individual's perception of burnout (González-Morales et al., 2012). However, having better social relationships with colleagues decrease exhaustion and disengagement for individuals (Li et al., 2013). Leading to engagement and life satisfaction, the pursuit of needs is energizing, and thwarting needs may be de-energizing, therefore maladaptive.

Theories Regarding Uncertainty

Conceptualizing Uncertainty

Uncertainty, according to Brasher (2001), is a self-perception that "exists when details of situations are ambiguous, complex, unpredictable, or probabilistic; when information is unavailable or inconsistent; and when people feel insecure in their own state of knowledge or the state of knowledge in general" (p.478). Uncertainty is not just ignorance; it is a "meta-ignorance" of acknowledging the experience of ignorance (Smithson, 1989). The distinction is important for the phenomenology of the construct since, without the awareness of ignorance on a preconscious, metacognitive level, uncertainty would be unlikely to affect people's thoughts, feelings, or actions (Anderson, Carleton, Diefenbach, & Han, 2019). Researchers Han, Klein, & Arora (2011) have distinguished three main sources of uncertainty in their integrative taxonomy: probability, ambiguity, complexity. Issues of uncertainty from a source fall into a subgroup of scientific, practical, or personal and lie on a range of loci from patient-oriented locus to the clinician-oriented locus (Han et al., 2011). Probability sources are those relating to random indeterminacy of the future outcome, ambiguity sources are those springing from limitations of reliability of the information, and complexity sources are created by situations that are difficult to comprehend—perhaps owing to the possibility of multiple outcomes (Han et al., 2011).

The construct of *intolerance to uncertainty* is defined as "A dispositional characteristic that arises from a set of negative beliefs about uncertainty and its connotations and consequences" by Rosen, Ivanova, and Knäuper (2013, p. 58) to distinguish it from similar constructs. Since the ensuing dispositional stress response manifests as anxiety, in a pandemic, individuals will have different responses and behaviors to varying types and levels of uncertainty and their tolerance or lack thereof to

uncertainty (Harwood, 2020). During the H1N1 outbreak Taha, Matheson, Cronin, and Anisman (2014) revealed that intolerance to uncertainty correlated to a lower appraisal of one's self-efficacy; furthermore, participants with a greater intolerance to uncertainty appraised the pandemic as more threatening whilst using emotion-focused coping strategies which lead to higher anxiety levels. This is problematic, for example, in an intensive care unit. ICU nurses must respond rapidly to delicate patient care decisions fraught with uncertainty by choosing between any number of interventions that vary in usefulness and probability of expected outcomes (Grote, 2009). Depending on a nurse's response, uncertainty puts patient safety and nursing care quality in jeopardy by impacting clinical decision-making ability (El-Demerdash & Obied, 2018).

Through the lens of the Theory of Recognizing and Responding to Uncertainty, Cranley et al. (2012) explain how nurses experience uncertainty. The process model of emotion regulation describes how humans may experience uncertainty through phases starting with a situation, attending to aspects of that situation, appraising the situation, and responding or managing the situation (Gross, 2014). Certain patient care situations prompt uncertainty in a nurse: "(1) feeling caught off-guard, (2) encountering unfamiliar or unique orders, and (3) navigating the ethical gray areas of practice" (Cranley et al., 2012, p. 152). Four themes relate to a nurse attending to and appraising their uncertainty: The nurses (1) assessed and were unable to get a clear picture, (2) reflected and realized a gap between their knowledge and experience and knowing the correct course of action, (3) questioned their judgment and that of others, and (4) were unable to predict the clinical outcome and the efficacy that their interventions may have (Cranley et al., 2012).

Uncertainty management may prompt a (1) cognitive response, using intuition, critical thinking, and open-mindedness in consideration when "figuring it out for themselves," a (2) collaborative response, demonstrating teamwork from approachable, knowledgeable colleagues, or a (3) behavioral response, seeking information on evidence-based practices and continuing education from any individual nurse to manage uncertainty (Cranley et al., 2012). Resolving uncertainty is a result of finding a definitive answer; meanwhile, having lingering doubt resulted from having an unsatisfying answer that is insufficient for the moment. Lingering doubt or embracing uncertainty as a learning opportunity results from being time-pressed, one's adaptive willingness to accept a degree of uncertainty (Mishel, 1990), and beginning a feedback loop in which nurses begin searching for another more satisfactory answer to an uncertain situation later (Cranley et al., 2012). Regardless of which uncertainty management technique is used—with using the decision-making process being reported as the most frequently used strategy among ICU nurses (El-Demerdash & Obied, 2018)—a human tendency toward aversion to uncertainty is closely tied to affective state through a psychological propensity to simulate negative outcomes in the midst of unknowing (Anderson, Carleton, Diefenbach, & Han, 2019).

Temporal aspects of uncertainty also merit mention considering the longevity of the Sars-Cov-2 pandemic at hand. Afifi and Burgoon found that a single conversation has power enough to either create or resolve uncertainty (2000). As one issue of uncertainty is managed, it may undergo transmutation or another issue may altogether arise in its stead (Babrow & Kline, 2000). Mishel describes the nature of uncertainty as having subtle meanings that may shift across time as people grow accustomed to the presence of

uncertainty (1990). Uncertainty is a dynamic confluence of factors and appraisals, and the formula for uncertainty is constantly changing for each person experiencing it. The characteristics of uncertainty at the start of a world health crisis will not be proportionally the same as the aspects of uncertainty that predominate midway through or at the end of a global pandemic.

Perception of Risk as Uncertainty

Falling within the integrative taxonomy described by Han et al. (2011), the theoretical concept of risk is another of the manifold manifestations of uncertainty. Risk perception can be spoken of in two ways: affective or analytical. The affective view of risk refers to one's feelings, instinct, and intuitive response to danger; meanwhile, the analytical view of risk is the less common but more intentional, logical, and deliberative way to examine risk (Slovic & Peters, 2006). Risk in daily life is usually handled under the governance of automatic and experiential mental processes that form the "affect heuristic" (Slovic & Peters, 2006). Describing "affect" as a positive or negative quality ascribed to one's feeling correlated with a certain stimulus, the affect heuristic is one's established tendency to rely on feelings rather than reason to guide judgment and decision-making (Slovic, Finucane, Peters, & MacGregor, 2007). This plays out as a favorable feeling toward an activity prompting perceptions of that activity as high benefit and low risk while an unfavorable feeling associated with an activity begetting perceptions of high risk and low benefit (Finucane, Alhakami, Slovic, & Johnson, 2000). Decreased time to think translates into greater use of the affect heuristic driving behaviors, and giving information about benefit acts positively on affect which decreases perceived risk (Slovic & Peters, 2006).

Psychologic biases and heuristics inform much of the way that humans determine events. According to Kousky, Pratt, and Zeckhauser (2010), four categories of risk are observed. Virgin risks are those that have not happened before, and we are unaware of the possibility of their occurrence. Contrastingly, recognized risks are those that have still not happened, but we recognize the possibility that they could occur. Next in the typology of risk are neglected risks that have had past occurrences, but this category remains out of mind for most people. Recognized risks are those that have a history of occurring, and we view them as noteworthy risks worth our consideration.

Bayesian modeling is the term for the mathematical equation describing rational updating of risk assessments when provided with new information on a topic, and in an ideally rational world, people would utilize Bayes' rule to calculate risk (Kousky et al., 2010). Because we do not live in such a world, people alter expectations about risk in a biased manner. After a virgin risk occurs, people overestimate the probability of another occurrence, and after an experienced risk occurs, people will underestimate the importance and probability of another reoccurrence (Kousky et al., 2010). As is with the case of viral outbreaks, they have happened before and are, by definition, experienced risks. When contemplating experienced risks, people falsely believe that it is extensively understood and that the systems in place are prepared to guard against its reoccurrence. We counterproductively and perfunctorily do insufficient risk assessment updating because the new incidence is thought to not add much to the pre-existing body of knowledge, but "…with most of the low-probability experienced risks of great interest that affect society as a whole, we have relatively little experience" (Kousky et al., 2010, p. 105). So, the calamitous truth of the matter when it comes to the SARS-CoV-2

pandemic—a low probability, experienced risk greatly affecting society—is that our risk updating should be major during and especially after this coronavirus takes its toll.

Integrating Uncertainty with the Extended Parallel Processing Model

The EPPM (Witte, 1992) elaborates and integrates previous research performed on the nature of and reasons behind why fear appeals either succeed or fail in producing behavioral change (Popova, 2012). The EPPM emerged from these three preceding models: fear-as-acquired drive model (Hovland, Janis, & Kelly, 1953) grounded in learning theory, parallel process model (Leventhal, 1970) which expresses the duality of cognitive and emotional responses, and protection motivation theory (PMT; Rogers, 1975, 1983) which homes in on the danger control response. EPPM inherits adaptive response terminology, extended parallel processing model explanatory power, and incorporates PMT into danger control on the cognitive response side of the model (Popova, 2012).

The fear-as-acquired drive model (Hovland et al., 1953) details how fear can be reduced by "adaptive" or "maladaptive" responses, and the valued response that relieves fear, regardless of its adaptivity quotient, becomes the habitual one. The parallel process model (Leventhal, 1970) distinguishes between two independent fear responses: cognitive control through thoughts about the threat and averting threat through a danger control process and emotional control through avoidance, denial, and reactance by way of a fear control process. The protection motivation theory (PMT; Rogers, 1975, 1983) extrapolates the four constituents of a threat message: the probability of a threat occurrence, magnitude of a threat occurrence, ability to respond after a threat occurrence, and effectiveness of a response to a threat.

Witte (1992) employs self-reports of fear perceptions rather than newer objective measures of fear such as skin conductance testing per her conceptualizations of the subjective nature of fear in her EPPM alongside high validity and ease of administration of verbal reports. Threat's two forms in EPPM are as a message component as well as a subjective evaluation of the cognitive construct of perceived threat also consisting of perceived threat severity and perceived susceptibility to the threat (Popova, 2012). The distinction between threat in messages and the perceived threat is flattened by meta-analyses, such as the one by Witte and Allen (2000), which consistently finds that message threat is inextricably linked to a perceived threat by the viewers. Efficacy as a message characteristic refers to response efficacy (features of the message focusing on how effectively a threat is averted), and perceived organizational response efficacy is a variation of self-efficacy—how well a target audience affects a response (Popova, 2012). For example, if a low organizational response efficacy message about the futility and infeasibility of organizational attempts to contain COVID-19 is spread, then the quantified self-efficacy score of the individual will most likely reflect a hampered belief in one's duty, as a part of a whole, to aid an orchestrated effort to halt the viral spread in one's workplace or community.

Three types of responses to fear appeals are danger control, fear control, and no response. Danger control is a cognitive process including beliefs, attitudes, intentions, and behavior connected to message recommendations occurring when one perceives high levels of efficacy—the ability to avert a threat through self-protective changes (Witte, 1998). In COVID-19, some nurses have tried to redefine the pandemic as an experience to promote positive growth and change (Sun et al., 2020). Fear control is an emotional

process including avoidance, denial, and reactance occurring when one perceives low levels of efficacy—leading to engagement in defensive, fear-reducing mechanisms that culminate in non-protective actions intended to lessen the fear of the threat rather than lessen the threat itself (Witte, 1994; 1998). Sun et al. (2020) report nurses who, during COVID-19, have avoided expressing their feelings by using strategies to refocus their experiences.

The EPPM assumes that individuals continuously appraise their levels of threat and efficacy in relation to thresholds—above which, a certain effect is triggered and below which, that subsequent effect is absent (Eagly & Chaiken, 1993). People will appraise threat first, and if their threat appraisal reaches a threshold, people begin their efficacy appraisal. If the threat appraisal is not significantly concerning, no threshold is met, and no subsequent process ensues. However, if a threshold is met, fear begins, and an efficacy appraisal is performed (Witte, 1998). Owing to the language of EPPM, assuming the instantaneity of the appraisal process would be misleading (Popova, 2012). The fact that appraisals take time has implications for research, as people may be more stable in their perceptions of COVID-19 related updates rather than having spikes in the data depending on whether a certain participant recently saw a frightful news article.

Quarantines

The human tendency toward an insensitivity to numbers is an important consideration when daily new coronavirus case counts seem unquantifiable. As nurses save lives, the law of diminishing returns applies to COVID-19 patients saved—the first life is extremely rewarding, but every subsequent one seems to be of increasingly menial importance (Slovic & Peters, 2006). When naturally compassionate nurses are subject to

the inclination to devalue patients as the volume of people given care increases, the cognitive dissonance that results from perceived disingenuous care can result in compassion fatigue. Maunder et al. (2008) describe evidence-based practices to foster resilience in healthcare workers and organizations by way of effective leadership, training and support, resource reserves, "magnet hospital" characteristics, and a justice culture that are designed to reduce staff stress.

During quarantines, sufficient communication should be conveyed rapidly and accurately, the prescribed length of quarantine should not be changed frivolously, and the altruistic nature of this behavior should be emphasized (Brooks et al., 2020). Even under ideal conditions, quarantines for healthcare staff amidst the SARS outbreak have been shown to contribute to an acute stress disorder, exhaustion, social disengagement, anxiety about caring for febrile patients, indecision and reduced attentiveness, and poor job performance (Bai et al., 2004). After quarantine, avoiding close direct patient contact and even avoiding work altogether was documented among healthcare staff (Marjanovic, Greenglass & Coffey, 2007). Healthcare workers also felt more stigmatization, performed more avoidance behaviors, were likely to believe themselves to be infectious, and were haunted psychologically by feelings of fear, guilt, preoccupation, frustration, anxiety, and loneliness (Reynolds et al., 2007). Fear nurses have about being stigmatized as infectious disease spreaders, anxiety about potentially infecting their family, and concern over their own mental and physical deterioration has caused many nurses to feel social isolation, loneliness, and perform avoidance behaviors (Kackin et al., 2020; Reynolds et al., 2007).

Research Questions and Hypotheses

The goal of this study is to draw connections between the COVID-19 pandemic and perceived job stress and satisfaction among nurses by exploring multitudinous mediating factors. A pandemic can undoubtedly increase fear and panic. Constant fear about this unknown bodily intruder can also activate our stress responses to make us hyper-vigilant. Being that this has been a prolonged disturbance in our daily schedules and stress levels, this stress can be exhausting, so for healthcare providers, the question is "What factors contribute to excess stress among nurses during the COVID-19 pandemic?" The list of research questions drawn from these unprecedented times that inspired this study are as follows:

1. How does life satisfaction affect job satisfaction?
2. How does self-efficacy affect job satisfaction?
3. How does communication affect job satisfaction?
4. How does intolerance to uncertainty affect job satisfaction?
5. How does communication affect perceived organizational response efficacy?
6. How does perceived threat susceptibility affect perceived organizational response efficacy?

Hypotheses developed from the following research questions and based on communication and nursing theory are as follows:

1. For every unit increase in reported life satisfaction, there will be a unit increase in job satisfaction.

2. For every unit increase in self-efficacy, there will be a unit increase of perceived job satisfaction.
3. For every unit increase in communication, there will be a unit increase in job satisfaction.
4. For every unit increase of intolerance to uncertainty, there will be a unit decrease in perceived job satisfaction.
5. For every unit increase in communication, there will be a unit increase in perceived organizational response efficacy to COVID-19.
6. For every unit increase in perceived susceptibility to COVID-19, there will be a unit decrease of perceived organizational response efficacy to COVID-19.

METHODOLOGY

Purpose

The objective of this study is to understand how our contemporary front-line professionals are responding to the crisis by quantifying theoretically applicable variables and determining their effect on how satisfied nurses are in their jobs. Researchers also sought to learn to what extent nurses perceived their organizations to be responding effectively to the COVID-19 pandemic. Uncovering the impact that the SARS-CoV-2 viral threat has had on the perceptions of nurse stress, satisfaction, communication, and efficacy will facilitate the discovery of appropriate responses to pandemics and, specifically, the proper support needed by nurses from their leaders.

Participants

The total number of respondents numbered 314, but out of those respondents, only 191 meet the inclusion criteria of at least 85% survey completion with 189 respondents completing 100% of the survey. Thus, the sample consists of 191 adults (N=191) with 88.5% being younger than 55 years of age and the mean age being 33 years. Of the participants, 8.4% are male and 91.6% are female. The majority of the respondents (n=162, 84.8%) are Caucasian. African Americans constitute (n=10, 5.2%) of respondents, American Indian (n=1, 0.5%), Hispanic or Latino (n=6, 3.1%), and multi-racial (n=12, 6.3%) constitute the remainder of participants. Single never married participants compose 24.6% of respondents, those who are married account for 60.2%, and the widowed, separated and divorced constitute 1.0%, 1.6%, and 12.6% respectively. Notably, 100% of respondents work in the U.S., and 50.8% of those participants work in the southeast. 44 participants (23%) respond that they work 40+ hours a week with

COVID-19 patients directly while 71 participants (37.2%) report only working 0-10 hours a week with COVID-19 patients. This means that 76 respondents (39.8%) self-report working between 10 and 40 hours a week with COVID-19 patients. The majority of respondents are registered nurses (n=165, 86.4%) with 16 respondents (8.4%) being either a licensed vocational nurse (LVN) or a licensed practical nurse (LPN) and 5.2% being an advanced practice nurse (n=10). Demographics are shown in Table 6 in Appendix A.

Study Design

This study employs a cross-sectional quantitative format with data collection proceeded by a questionnaire relying on referrals of respondents to other respondents and so on via snowball sampling promoted on social media. Cross-sectional quantitative sampling allows for the measurement of variables to encapsulate the viewpoints of the sampled population of nurses. The dependent variables are the job satisfaction/stress felt by nurses during the COVID-19 pandemic and perceived organizational response efficacy relating to how well nurses thought their workplace handled the COVID-19 induced changes. Independent variables are perceived threat susceptibility, satisfaction with life, overall communication, occupational self-efficacy, and intolerance to uncertainty. This study reports data on job satisfaction with its antithetical construct (i.e. job dissatisfaction) used as a proxy measurement to estimate the risk of developing burnout. Researchers did this due to the comparative ease of measurement using the SIJS and recent research using the JD-R model to link the constructs of burnout and

satisfaction[3]. The researchers recognize that it is conceivable to have cross-sectional data from a satisfied employee who is also experiencing burnout.[4]

Data Collection Procedure

The data collection portion of this study began after receiving approval from the IRB of The University of Southern Mississippi.[5] Participation in the study was completely voluntary. Consent was obtained, and participants answered a series of questions related to their feelings regarding their experience as a nurse during COVID-19. A survey consisting of 70 five-point Likert-type questions and two short answer questions was disseminated utilizing snowball sampling as a means by which we could reach the target population of COVID-19 nurses. Our survey was promoted on social media between September 29, 2020, and November 1, 2020, taken by nurses, and subsequently sent to other nurses for the process to repeat. In this way, the respondent base "snowballs". The benefit of this tactic is that nurses who initially took the survey were more likely to send it to other nurses that they knew had worked with COVID-19 patients. The risk of using this method is that one may end up with a largely homogenous subsection of the desired population.

The participants were free to answer questions on their own time at their own pace. Participants were informed beforehand about the chance to receive a gift card as an incentive to take the survey. Only the responses obtained from nurses meeting inclusion criteria were used in the data evaluation portion of this research.

Instruments

[3] See Scanlan & Still (2019)
[4] See Lizano (2015)
[5] See Appendix B

Perceived Threat Susceptibility and Response Efficacy Scales. The threat susceptibility and response efficacy scales we used were adapted from McGlone et al. (2013). These scales measure the components discussed in the Extended Parallel Process Model conceived of and tested by Witte (1994). When a provocation such as COVID-19 that evokes fear is experienced, people initially assess their perceptions of personal levels of susceptibility. Once they establish their level of vulnerability, they evaluate their perceived efficacy to respond. When perceived threat susceptibility, perceived self-efficacy, and response efficacy are relatively high, conditions are optimal for taking self-protective measures (McGlone et al., 2013). The four-item perceived threat susceptibility scale (α=.79) relates to personal aspects of contracting COVID-19. The three-item perceived response efficacy scale (α=.79) relates to how effective individuals believe the healthcare organization to be at controlling COVID-19. An item we asked participants to rate on the threat susceptibility scale was "As a nurse, I am at risk for being a COVID-19 victim". An example of a question on the perceived response efficacy scale is "Policies concerning hospital or clinic visitors has increased the safety of hospital employees."

Self-Efficacy Scale. To measure our participants' innate sense of self-efficacy as a practicing nurse when confronted with the COVID-19 pandemic, we adapted a 5 point Likert-type version of the 6-question short version of the Occupational Self-Efficacy scale by Rigotti, Schyns, and Mohr (2008). This scale showed retest reliability of (α=.83). Bandura (1977) originally introduced the concept of self-efficacy, defining it as the belief or confidence that one has in his or her ability to cope with problems or complete a task. In the literature, self-efficacy is correlated to optimism, performance, and work satisfaction; meanwhile, negative coefficients of self-efficacy are stress, burnout, anxiety,

health complaints, and depression (Schwarzer & Jerusalem, 1995). Questions asked on this scale include “Whatever comes my way in my job, as a nurse, I can usually handle it” and “I meet the goals that I set for myself in my job.”

ICU Nurse–Physician Questionnaire. The ICU N-P-Q originally is a 120-question scale derived from the Organizational Culture Inventory which measured organizational and managerial factors affecting ICU functioning, and responses are graded on a five-point Likert scale with 1 being strongly disagreed and 5 being strongly agreed (Shortell et al., 1991). For this study, we use the communication openness and communication accuracy subscales adapted from the original ICU N-P-Q—adapting them to compose our overall communication variable consisting of 7 items on a five-point Likert scale (α=.85). This modified scale describes the extent to which nurses and physicians can say what they mean without fear of negative consequences and the extent to which information presented to them is believed to be correct (Roberts & O'Reilly, 1974). Some example items used to measure overall communication were “In the recent months, it has been easy to ask advice from nurses within the healthcare organization” and “I can think of several times when I received incorrect information from healthcare providers on this unit during the pandemic.”

Short Index of Job Satisfaction. The SIJS is a 5 item Likert scale adapted from Judge et al. (2000) to pertain more toward being a nurse in the context of the COVID-19 pandemic. This scale showed retest reliability of (α=.87). Job satisfaction refers to the degree to which individuals either like or dislike their jobs. Originally, job satisfaction indices operated under the assumption that job satisfaction could be inferred from one’s attitude toward his or her work, and this metric was shown to be reliable and valid

(Brayfield & Rothe, 1951). Job satisfaction is a complex construct, constantly influenced by dynamic factors, so satisfaction inventories are best appreciated in conjunction with other dimensions of study (Sinval & Marôco, 2020). Common antecedents of job satisfaction include interpersonal and social relations, decision-latitude, management and supervision, support, leadership style, and effort-reward (McVicar, 2015). While organizational commitment correlates with increased job satisfaction and preventing burnout, stress is detrimental to job satisfaction and predicts compassion fatigue (Li et al., 2014); moreover, compassion satisfaction is a term used to describe the deep joy felt in caring for patients despite stressful circumstances and predicts quality care (Stamm, 2002). An example question used to measure job satisfaction was "Most days I am enthusiastic about my work in the nursing profession," and a reverse coded question was "Given the current healthcare climate, each day at work seems like it will never end."

Satisfaction with Life Scale. The SWLS was developed and validated by Diener, Emmons, Larsen, and Griffin (1985). This index is a 5-item Likert scale that measures global life satisfaction with regards to the cognitive and judgment-based rather than emotional and affective-based appraisals (Diener et al.,1985). Retest reliability was good with a Cronbach's Alpha of (α=.86). Individuals weigh their values differently from other people such that the perceived satisfaction of one's life is internally rather than externally imposed (Diener, 1984). For this reason, an overall life satisfaction score is required rather than solely differentially valued life aspects due to the possibility of one person placing less weight on that life aspect or value than another person with the same value lightly held (Diener et al., 1985). An example question used to measure life satisfaction was "In most ways, my life is close to my ideal at this moment."

Intolerance to Uncertainty Scale. The Short Version of the Intolerance to Uncertainty Scale is a 12-item scale authored by Carleton, Norton, and Asmundson (2007). We adapted the IUS-12 to more accurately reflect this variable as it pertains to respondents' thoughts on COVID-19, and this modified scale showed a reliability of (α=.89). Anxious and avoidance components are the two stable factors theoretically linked to intolerance to uncertainty in the original IUS-12 (Carleton et al., 2007). This scale measures respondents' intolerance to the belief that adverse events may occur unpredictably. Those who rank highly on the IUS-12 are predisposed to viewing ambiguous situations as threatening, and the IUS-12 was correlated more closely with worry than with depression (Dugas, Schwartz, & Francis, 2004). Examples of ranked questions for this scale are "A small unforeseen event can spoil everything, even with the best of planning" and "I must get away from all uncertain situations."

Data Analysis

The researchers recoded items according to positively asked and negatively asked items. Variables were constructed from the corresponding questionnaire items and tested for reliability in IBM SPSS Statistics 27 software. A simple linear regression was first conducted to determine the predictive power and significance of independent variables on the dependent variables. Those independent variables with significant predictive power were included in additional in multiple regression models. The results and discussion are listed below.

RESULTS AND DISCUSSION

Results

In the current study, job satisfaction M=2.9204 (SD=1.08208) and response efficacy M=3.7452 (SD = .98539) served as the dependent variables. To test the hypotheses and research questions, linear univariate regression models were first created to assess the relationship between each dependent variable and independent variable. Then, once the researcher determined the statistically significant predictor variables, those independent variables were included in the multivariate analysis. The total mean scores for our independent and dependent variables are listed in Table 1.

Table 1. Descriptive statistics for all variables

	Mean	Std. Deviation
Intolerance to uncertainty	3.6453	.77612
Perceived threat susceptibility	1.6725	.71373
Job Satisfaction	2.9204	1.08208
Life Satisfaction	3.1518	.96452
Self-efficacy	4.1632	.67559
Overall Communication	3.3478	.87506
Organizational Response efficacy	3.7452	.98539

Correlation analysis shows that the positive correlation between job satisfaction and life satisfaction was the strongest of all measured variables (r = .516). Of note was the negative correlation between the two measured trait-based variables of self-efficacy and intolerance to uncertainty (r = -.403). Participants who had low self-efficacy were more likely to have a high intolerance to uncertainty. Self-efficacy had significant

moderate positive correlations with each job satisfaction (r = .410) and life satisfaction (r = .378). The dependent variables in our regressions, organizational response efficacy and job satisfaction, also had a significant moderate positive correlation with one another (r = .424). Participants who perceive working for an effectively responding organization in the COVID-19 crises were most likely to report satisfaction in their job as well. Table 2 shows the multivariate correlation report of all measured variables.

Table 2. Summary of multivariate correlations analysis

	IUS	PTS	JS	LS	SE	OC	ORE
Intolerance to uncertainty	--						
Perceived threat susceptibility	.149*	--					
Job Satisfaction	-.196**	-.196**	--				
Life Satisfaction	-.289 ***	-.181*	.516***	--			
Self-efficacy	-.403 ***	-.101	.410***	.378***	--		
Overall Communication	.005	.145*	.219**	.139	.168*	--	
Organizational Response efficacy	-.030	-.201**	.424***	.177 *	.155 *	.107	--

***:p<.001, **:p<.01, *:p<.05.

Univariate Regressions

Results of univariate regressions run to predict job satisfaction and organizational response efficacy are depicted in Table 3. Standard error was relatively low in each univariate regression, only exceeding one standard deviation in the predictive power that self-efficacy has on job satisfaction (*SE* = 1.06).

Table 3. Summary of the univariate regressions

Dependent Variables (Outcomes)	Independent variables (Predictors)	R^2	B	SE	Beta	t	p	95% CI
Job Satisfaction	Life satisfaction	.266	.579	.070	.516	8.284	.000	0.441, 0.717
	Self-efficacy	.168	.657	.106	.410	6.184	.000	0.447, 0.867
	Communication	.231	.595	.079	.481	7.540	.000	0.439, 0.750
	Intolerance to uncertainty	.038	-.272	.100	-.196	-2.713	.007	-.470, -.74
Organizational response efficacy	Communication	.179	.477	.074	.424	6.429	.000	0.331, 0.623
	Perceived threat susceptibility	.041	-.281	.099	-.201	-2.827	.005	-0.476, -0.085

Multiple Regression Model 1

In the first multiple regression model, we placed the life satisfaction predictor in the model first, the self-efficacy predictor second, and the communication predictor third. The correlation statistics read as such: Job satisfaction (dependent) was positively associated with life satisfaction ($r = 0.516$, $p < 0.001$), self-efficacy ($r = 0.410$, $p < 0.001$), and communication ($r = 0.481$, $p < 0.001$). Multiple regression analysis showed that life satisfaction, self-efficacy, and communication were significant predictors of job satisfaction ($F = 42.683$, $p = 0.000$, $R^2 = 0.406$, Adjusted $R^2 = 0.397$) explaining 40.6% of the variance (Table 4). Nurses who are more satisfied with life and perceive themselves

as having more self-efficacy and better communication are predicted to have increased job satisfaction.

Table 4. Summary of the multiple regression model in job satisfaction

Variables	B	SE	Beta	t	p	95% CI
Life satisfaction	.425	.069	.379	6.167	.000	0.289, 0.561
Self-efficacy	.214	.104	.134	2.063	.041	0.009, 0.419
Communication	.401	.077	.325	5.207	.000	0.249, 0.553
F	42.683				.000	
df	187					
R Squared	0.406					

Step 1: ΔR^2=.266, Step 2: ΔR^2=.054, Step 3: ΔR^2=.086

Hypothesis 1. For every unit increase in reported life satisfaction, there will be a unit increase in job satisfaction.

Life satisfaction, in univariate regression, significantly predicts the most difference in job satisfaction and has the greatest effect size compared to the other univariately regressed predictive variables of job satisfaction $F(1, 189) = 68.628$, MSE = .864, $p = 0.000$). Life satisfaction's predictive ability on job satisfaction in this univariate model is $t(190) = 8.284$, $p < 0.001$ and accounts for 26.6% of the model fit ($R^2 = 0.266$). For every unit increase in life satisfaction, there is a $B = .579$ unit increase in job satisfaction. There is not as great of an effect between life satisfaction and job satisfaction as hypothesized, but, as hypothesized, life satisfaction did predict a positive change in job satisfaction.

Life satisfaction, having been placed first into the multiple regression model, predicts job satisfaction by accounting for 26.6% of the model fit in job satisfaction scores ($\Delta R^2 = 0.266$). In this multiple regression model, for every one unit increase of life satisfaction ($B = 0.425$, $p < .001$), nurses' job satisfaction scores increase by 0.425.

Hypothesis 2. For every unit increase in self-efficacy, there will be a unit increase in perceived job satisfaction.

Self-efficacy, in univariate regression, showed to be significantly predictive of job satisfaction $t(190) = 6.184$, $p < 0.001$ with a model fit of ($R^2 = 0.168$). For every unit increase in self-efficacy, there is a $B = .657$ unit increase in job satisfaction ($B = 0.657$, Beta = 0.410, $p < .001$). There is not as great of an effect between self-efficacy and job satisfaction as hypothesized, but, as hypothesized, self-efficacy did predict a positive change in job satisfaction.

Findings of the first multiple regression model indicate that self-efficacy was significantly correlated to job satisfaction scores ($r = 0.410$, $p < 0.001$), but self-efficacy $t(188) = 2.063$ did not have as great a predictive value on job satisfaction as did life satisfaction $t(189) = 6.167$ or communication $t(187) = 5.207$. In this multiple regression model, for every one unit increase of self-efficacy ($B = 0.214$, $p = .041$), nurses' job satisfaction scores increase by 0.214.

Hypothesis 3. For every unit increase in communication, there will be a unit increase in job satisfaction.

Communication alone in univariate regression predicts job satisfaction by accounting for 23.1% of the model fit in job satisfaction scores ($R^2 = 0.231$) such that for every unit increase in communication, there was a 0.595 increase in job satisfaction ($B =$

0.595, Beta = 0.481, p < .001). Communication, in univariate regression, showed to be significantly predictive of job satisfaction $t(190) = 7.540$, $p < 0.001$. There is not as great of an effect between communication and job satisfaction as hypothesized, but, as hypothesized, communication did predict a positive change in job satisfaction.

Through multiple regression analysis in the first model organizational communication indicates to be a significant positive predictor of job satisfaction t(187) = 5.207, p <.001. In this multiple regression model, for every one unit increase of communication (B= 0.401, p < .001), nurses' job satisfaction scores increase by 0.401.

Hypothesis 4. For every unit increase of intolerance to uncertainty, there will be a unit decrease in perceived job satisfaction.

Although still statistically significant, the lowest predictive power in univariate regression was that of the intolerance to uncertainty on job satisfaction $t(186) = -2.713$, $p = 0.007$. In univariate regression, for every increase in intolerance to uncertainty by one unit, there is a corresponding decrease in job satisfaction by 0.272 ($B = -0.272$, Beta = -0.196, p = .007). There is not as great of an effect between intolerance to uncertainty and job satisfaction as hypothesized, but, as hypothesized, intolerance to uncertainty did still predict a statistically significant negative change in job satisfaction.

This study revealed that intolerance to uncertainty is negatively correlated to job satisfaction (r = -.196, p = 0.007), but multiple regression analysis showed that intolerance to uncertainty, when in a model with life satisfaction as the first predictor, self-efficacy second, and communication third, loses its predictive power; thus, it no longer carries the statistical significance needed to reject the null hypothesis $t(183) = .406$, $p = 0.685$.

Multiple Regression Model 2

In the second multiple regression model, the communication predictor was placed in the model first, followed by the perceived susceptibility predictor. The correlation statistics read as such: Perceived organizational response efficacy was positively associated with communication (r = 0.424, $p < 0.001$) and negatively with perceived susceptibility (r = -0.201, p = 0.005). No variance was explained by correlations between the independent variables of communication and perceived susceptibility (R^2 = .000, p = 0.720). Multiple regression analysis revealed that communication and perceived susceptibility are significant predictors of perceived organizational response efficacy F(2, 188) = 25.855, MSE= .770, p < 0.001 explaining 21.6% of the total model fit (R^2 = 0.216). Results are shown in Table 5.

Table 5. Summary of the multiple regression model in organizational response efficacy

Variables	**B**	**SE**	**Beta**	**t**	**p**	**95% CI**
Communication	.471	.073	.419	6.479	.000	0.328 , 0.615
Perceived susceptibility	-.265	.090	-.190	-2.948	.004	0.088, 0.443
F	25.855				.000	
df	188					
R^2	0.216					

Step 1: ΔR^2=.179, Step 2: ΔR^2=.037

Hypothesis 5. For every unit increase in communication, there will be a unit increase of perceived organizational response efficacy to COVID-19.

Communication in the univariate regression model predicts perceived organizational response efficacy by accounting for 17.9% of the model fit in perceived organizational response efficacy scores (R^2= 0.179). For every unit increase in communication, there is a 0.477 increase in perceived organizational response efficacy (*B* = 0.477, Beta = 0.424, p < .001). The effect size of communication as a predictor variable is the greater of the two independent variables run in univariate regression with perceived organizational response efficacy to COVID-19 as the outcome variable $t(190) = 6.429$, $p < 0.001$. There is not as great of an effect between communication and perceived organizational response efficacy to COVID-19 as hypothesized, but, as hypothesized, communication did predict a positive change in perceived organizational response efficacy.

In multiple regression analysis with organizational response efficacy as the outcome variable, communication significantly predicts organizational response efficacy scores $t(189) = 6.479$, $p < .001$, and for every increase in communication scores by one unit, there is a 0.419 increase in organizational response efficacy scores (*B* = 0.419). Communication also accounts for 17.9% of model fit ($R^2 = .179$) in the multiple regression analysis with organizational response efficacy as the outcome variable. Communication has a statistically significant positive predictive effect in the multiple regression model with organizational response efficacy as the outcome variable F(1, 189) = 41.334, MSE = .801, p < .001.

Hypothesis 6. For every unit increase in perceived susceptibility to COVID-19, there will be a unit decrease of perceived organizational response efficacy to COVID-19.

There is a positive association between both variables predictive of perceived organizational response efficacy except for perceived threat susceptibility which negatively predicts perceived organizational response efficacy. For every unit increase in perceived susceptibility to COVID-19, there is a 0.281 decrease in perceived organizational response efficacy (B = -0.281, Beta = -0.201, p < .001). The effect size of perceived threat susceptibility to COVID-19 as a predictor variable is the lesser of the two independent variables run in univariate regression with perceived organizational response efficacy to COIVD-19 as the outcome variable $t(190) = -2.827$, $p = 0.005$. Perceived threat susceptibility in the univariate regression model predicts perceived organizational response efficacy by accounting for 4.1% of the model fit in perceived organizational response efficacy scores (R^2= 0.041). There is not as great of an effect between perceived threat susceptibility and perceived organizational response efficacy to COIVD-19 as hypothesized, but, as hypothesized, perceived threat susceptibility did predict a decrease in perceived organizational response efficacy.

In multiple regression analysis with organizational response efficacy as the outcome variable, perceived threat susceptibility significantly predicts organizational response efficacy scores $t(189) = -2.948$, $p = .004$, and for every increase in perceived threat susceptibility scores by one unit, there is a .265 decrease in organizational response efficacy scores (B = -0.265). Perceived threat susceptibility also accounts for 21.6% of model fit (R^2 = .216) in the multiple regression analysis with organizational response efficacy as the outcome variable. Perceived threat susceptibility as the second input

variable together with communication has a statistically significant positive predictive effect in the multiple regression model with organizational response efficacy as the outcome variable $F(2, 188) = 25.855$, $MSE = .770$, $p < .001$.

Discussion

During COVID-19, nurses often experienced greater risks in performing their routine professional duties, and this study sought to describe their effect on this population. Nurses with increases in reported life satisfaction, self-efficacy, and communication predict higher levels of job satisfaction. Alone, higher levels of intolerance to uncertainty among nurses predict lower levels of job satisfaction. Additionally, nurses who better communicate with colleagues and perceived themselves as less susceptible to COVID-19 see the organizational response to the novel coronavirus pandemic as more efficacious.

Satisfaction.

Life satisfaction and job satisfaction are closely related variables, but whereas one attempts to portray perceptions of home life in statistical measurements, the other captures the satisfaction that employees feel at work. Very different variables may affect nurses' professional and personal life satisfaction, so capturing both images is essential to uncover the whole picture conceptually. Nurses with personal life satisfaction, by way of resource caravans, are more likely to bring their satisfaction to the workplace to the benefit of the attitudes of those around them (Hobfoll et al., 2018). Job satisfaction is also conceptually related to burnout.

According to the Job-Demands Resources theory, a work-life imbalance can be a significant contributor to burnout, but a positive social climate and interpersonal

interactions can be protective against burnout (Broetje et al., 2020). JD-R pursues the thought that burnout, consisting of exhaustion and disengagement, mediates the effects that job demands and job resources have on life satisfaction (Demerouti et al., 2000). Life satisfaction has been shown to be positively and reciprocally related to job satisfaction (Judge & Watanabe, 1993). Additionally, job satisfaction has been shown to be a consequence and not a contributing factor to burnout (Wolpin, Burke & Greenglass, 1991). Factors in the literature that affect job satisfaction are the vitality of organizational culture (Tzeng et al., 2002), workload, management style, role ambiguity (Hayes et al., 2010), and in one international meta-analysis, perceived job stress was found to be the only predictive factor of job satisfaction (Zangaro & Soeken, 2007).

Job dissatisfaction leads to a higher level of psychologic symptoms (Norbeck, 1985) such as disengagement from work and one's patients (Demerouti et al., 2010), a callous cynical perspective known as depersonalization (Halbesleben & Buckley, 2004), and burnout syndrome which may result in the development of nonspecific symptoms such as frustration, anger, fearfulness, anxiety, anhedonia, and physical symptoms: insomnia, muscle tension, headaches, and GI upset (Mealer et al., 2016). According to the Job-Demand Resources model (Demerouti et al., 2001), the power to alleviate job stress, thus increasing job satisfaction, lie in either lowering job demands *i.e.* workload, staffing, and emotional demands (Demerouti et al., 2000), increasing job resources *i.e.* interpersonal relations, leadership style, decision latitude, job security, task significance (Mosadeghrad, 2013), and/or increasing personal resources such as self-efficacy (Mosadeghrad, 2013; McVicar, 2015).

Job satisfaction benefits nurses and patients alike, so increasing job satisfaction through implementation recommendations based on the several theoretical models that explain its nature should be a goal of nurse managers. Leaders who build community by modeling the way, inspiring a shared vision, and encouraging coworkers communicate an investment in the success of the team and empower others to act or to challenge unfair systems (Kouzes & Posner, 2007; Kouzes, Posner & Biech, 2017). The common goal of caring for COVID-19 patients amplifies the social identity of nurses more than it dampens it (Tajfel & Turner, 1979). Valdez and colleagues (2019) in testing Kanter's organizational support theory find that there exists an inverse direct correlation between burnout and job satisfaction, so alleviating stress can reduce burnout and consequently increase job satisfaction. A constructive organizational culture reduces stress and increases job satisfaction which, in turn, positively predicts in-patient satisfaction (Tzeng et al., 2002). Continuity in organizational structures improves nurses' job satisfaction and thus patient satisfaction through a likely mechanism of committed nursing leadership promoting the self-efficacy of staff within an organization.

Self-Efficacy.

Self-efficacy measures the extent to which one can determine his or her own course of action (Bandura, 1977). Those nurses with low self-efficacy trait scores may sense that they are less capable of handling demanding shifts on the unit while people with higher self-efficacy may persevere with a sense of agency and job satisfaction, gearing their practice toward improved evidence-based outcome recommendations (Caruso, Pittella, Zaghini, Fida, & Sili, 2016). High self-efficacy is linked to a danger control response and positive coping mechanisms while low self-efficacy is linked to a

fear control response and less effective coping mechanisms in the EPPM (Witte, 1994; 1998). Nurses with higher self-efficacy and job satisfaction scores are less likely to be immobilized by structurational divergence, thus they contribute to positive change in the healthcare setting (Nicotera & Mahon, 2012). The foundational theory for understanding the associated components in the literature is the Conservation of Resources Theory (COR) due to its ties to clinical practice, responses to traumatic events, and worker well-being inside and outside of the workplace (Hobfoll et al., 2018).

Based on the Conservation of Resources theory, researchers hypothesized that individuals with more self-efficacy—having greater latitude of self-governance—would be more satisfied on the job. Self-efficacy conceptually guards against the further loss of resources and contributes to a gain of resources which protects against burnout (Hobfoll & Freedy, 1993). Responsibility without decision latitude, a job demand, is transformed by inspirational leadership practices into autonomy and self-efficacy—a job resource that increases workplace engagement (Broetje et al., 2020; Llorens et al., 2007). These concepts are important during the COVID-19 pandemic because of the gross number of policies that are passed down from the leaders and managers in the workplace that often constrict and limit what employees do with their time. With self-efficacy conceptually being a personality trait, people who harbor greater levels of this trait are internally buffered against external constraints placed on them during the pandemic. Organizations, rather than just individuals are expected to be increasingly socially responsible through offering supervisor support for the "work-family interface," training and development, and organizational justice (Hobfoll et al., 2018, p. 117). Importantly, with more self-efficacy being cultivated by the workplace rather than the individual, job satisfaction is

affected more by measures implemented at the workplace than the natural level of this trait in any standing population.

Uncertainty.

While most individuals will encounter many sources of uncertainty in their professional and personal lives, an intolerance to uncertainty results in emotion-based coping, higher anxiety, and lower self-efficacy with an increased perceived threat (Taha et al., 2014). Uncertainty may derive from ambiguity in communication especially pertinent in the team-based aspects of nursing, or uncertainty is resultant from the sheer complexity of the task at hand; the possibility of multiple outcomes (Han, Klein, & Arora, 2011). One's degree of uncertainty intolerance is a dispositional capacity to handle their acknowledged anxiety and control their ensuing stress response which may subsequently lead to burnout (Harwood, 2020). Those individuals with lower tolerance to uncertainty may be more prone to decreases in job satisfaction.

Cheng and Hahm (2019) find that job uncertainty—the extent of volatility, complexity, and unpredictability inherent in the job environment—and job satisfaction has a significant negative correlation, so when there is more uncertainty on the job, employees are less satisfied in that position. This study revealed that intolerance to uncertainty is also negatively correlated to job satisfaction. Uncertainty Management Theory (UMT) posits that an individual may willingly increase their sense of uncertainty when it confers hope to that individual (Babrow et al., 2021). Because information-seeking is a way how individuals manage uncertainty, difficulties may arise when conflicting information is encountered (Raines, 2014) or individuals ineffectively coordinate goals aimed at reconciling their uncertainty (Brashers et al., 2002). Recognize

that uncertainty is not innately maladaptive but only if it is perceived as such; furthermore, the individuals with a low uncertainty tolerance (increased intolerance to uncertainty) are those who benefit most from uncertainty management rather than cognitive reconstruction techniques (Brashers, 2001). Alleviating factors of uncertainty in the study by Cranley et al. (2012) were charismatic leadership and organizational communication which we found to also be a significant predictor of job satisfaction. Babrow (1992, 2001) developed the Problematic Integration Theory to explain how uncertainty is continually constructed and reconstructed through communication.

Communication.

Effective communication was expected to enhance nurse perceptions of how well their organization was combating COVID-19 with policies and the efficient mobilization of their resources, and as it turns out, communication in this study was discovered to significantly predict organizational response efficacy scores. This is perhaps due to the documented effects that effective communication has on the resultant comfort and trust that employees feel within an organization. Nurses operate within the nexus of multiple, overlapping structures within the healthcare organization; each demanding different responsibilities from them (Nicotera et al., 2010). While job satisfaction is was found to result from fluid organizational efforts, burnout can also result from poorly coordinated organizational responses to crises present during the novel coronavirus pandemic (Nicotera et al., 2014). Because the organizations that cooperated during this time in an effort to assuage this viral foe necessarily needed open and accurate communication avenues to do so, communication perceptions by nurses were significantly predictive of the efficacy of their respective organizations' responses to COVID-19.

Interpersonal behaviors, including communication, are gaining ground in how much they affect job stress and job satisfaction, for social relations and one's management style at work are highly communicative processes and antecedents of job resources (McVicar, 2015). As elaborated by JD-R, job resources such as teamwork and communication alleviate the job demands of 'work pressure' and 'emotional burden' (Demerouti et al., 2001; McVicar, 2015). While there is no evidence that teamwork reduces perceptions of job demands placed on individuals, teamwork as a resource is positively associated with engagement in one's work (Montgomery et al., 2015). Open communication assists nurses in not having to pry for information, and accurate communication helps deter potential mistakes among practitioner groups. This phenomenon often happens within "communities of practice" which form between the members of the same job title within the healthcare team (Roberts, 2006). For example, the nursing group and the physician group may not communicate easily which could result in decreased job satisfaction and decreased patient safety (Sasaki et al., 2016; Stein-Parbury & Liaschenko, 2007). Improvements in the openness and the accuracy of communication should be the focus for healthcare organizations.

Perceptions of Threat.

Either nurses perceiving themselves as more susceptible to COVID-19 are more prone to see any organizational response effort as more efficacious, or a nurse is seeing the organization's effort as not enough such that they feel more susceptible to COVID-19. More studies are required to determine if the nurse's susceptibility rating is contributing to how well they view their organization responding or is resultant from the lack of response efficacy from their organization. This study, however, hints that nurses'

existing feelings of susceptibility to contracting COVID-19 colors their perceptions of how well their organization is responding. The nurse who perceives him or herself as susceptible enough necessarily appraises response efficacy through a fear control response (Witte, 1998). Lower perceived threat susceptibility and a higher intolerance to uncertainty may reflect an ability to appraise events in the environment as predictable and beneficent thereby increasing resistance to stress (Antonovsky, 1979).

This present study finds that nurses who feel more susceptible will perceive their organization's response as worse than nurses who do not perceive themselves as susceptible to COVID-19. The goal of cognitive and emotional control responses is to reduce perceived threat if not the threat itself; moreover, depending on the speed by which individual situational appraisals take place, responses to the COVID-19 threat will differ across time as individuals become sensitized or habituated to the events of the pandemic (Popova, 2012).

Considered with the JD-R model, these concepts are important in COVID-19 nurse burnout research because the organizational resources of employed nurses have been decreasing, and only accelerated by COVID-19 infections, will continue unless outside efforts are made to counteract this downward spiral. Also consistent with the JD-R model, the longer this spiral goes on, the fewer resources there will be available to invest and the field of nursing may resort to reactive rather than proactive tactics. Communication breakdown could be particularly costly, as interpersonal losses are a particularly salient component of the aggregate of factors contributing to burnout due to their direct loss and opportunity loss potential (Hobfoll & Freedy, 1993). Without

sufficient resources, proactive coping will no longer be an option, and nurses will be more susceptible to resource degradation.

CONCLUSIONS AND IMPLICATIONS

Conclusions

Job satisfaction, the measure of how much employees either like or dislike their job during the COVID-19 pandemic is predicted firstly and most greatly by life satisfaction, secondly communication openness and accuracy, thirdly self-efficacy, and least by intolerance to uncertainty. Organizational response efficacy, the measure of how well employees perceive an organization to be responding to COVID-19 was predicted positively and most greatly by communication openness and accuracy while perceived threat susceptibility negatively predicted organizational response efficacy. Organizational response efficacy and job satisfaction were found to have a significant moderate positive correlation with one another.

Uncertainty jeopardizes patient safety and nursing care quality by impacting decision-making ability—defined by Kerragin in 1991 as "choosing options to achieve common, clearly communicated objectives and problem resolution" (Soon & AlQudah, 2017, p. 467; El-Demerdash & Obied, 2018). Limiting nurse decision-making capabilities costs the organization by way of mounting resentment, increased job stress, reduced job satisfaction, and reduced organizational commitment; all of which culminate in nurse burnout (Asiri et al., 2016). Job stress, through a process of increasing demands, without a compensatory investment in staff resources will diminish nursing staff (McVicar, 2015). However, job satisfaction issues may respond well to stress management interventions, as raising workplace resources also increases nurse resilience (McVicar, 2015).

Uncertainty and cost-containment pressure health care organizations into rapid change which culminates in cutting spending on essentials such as staffing and spending more on measures to accommodate the threat that COVID-19 poses (Asiri et al., 2016). A devaluation of nursing roles by replacing nurse managers with less qualified individuals further disempowers staff to the point where they become unmotivated, dissatisfied, and disengaged; conversely, empowering staff through investing in an optimal work environment enables best practices and improves patient outcomes and safety (Asiri et al., 2016). Increasing self-efficacy through empowerment minimizes the effects of job uncertainty, which leaves workers with greater job satisfaction and higher job performance (Cheng & Hahm, 2019)

In combating COVID-19's impact on the field of nursing, one should look either to the JD-R model, which expounds on Hobfoll's 1989 COR model, (Demerouti et al., 2001), or to Kanter's 1993 work empowerment theory which speaks to how empowerment by way of open and accurate communication of information, opportunities for growth, and investment of resources will reduce burnout levels and improve job satisfaction among employees (Valdez et al., 2019). As Danaci and Koç (2019) reported, those nurses with lower burnout and increased job satisfaction better initiate individualized patient care which increases the quality of life and enables the patients to better care for themselves upon discharge.

Leadership style shapes how nurses experience job demands placed on them and resources provided to them (McKenna & Jeske, 2020). Ethical leaders inspire individuals to behave ethically and positively by influentially using communication, modeling, rewards, and punishment (Brown & Treviño, 2006). Ethical leadership has a positive role

in predicting nurses' decision authority and work engagement that come with job satisfaction while negatively predicting exhaustion and turnover intention which result from burnout (McKenna & Jeske, 2020). Ethical leadership promotes employee well-being by providing role clarification and emotional support (Kalshoven & Boon, 2012). If issues that would be considered a psychological breach of contract occur, then negative impacts are reduced if job candidates were provided with an accurate idea of role-clarifying, person-organization fit upon hire (Kiazad et al., 2014).

Implications for Nursing

Pertinent to our results, we suggest that nursing leaders and managers work to develop a collaborative future vision for the organization and share information openly and accurately in an effort to reduce uncertainty, limit how susceptible employees feel, and improve employee perceptions of organizational response efficacy in order to increase job satisfaction and patient outcomes. Leaders should also openly support employees and equip them with a voice in the organization—perhaps by including and encouraging nurses to join a coalition board—in an effort to increase decision latitude and self-efficacy. Employer role conflict arises between being the provider of support and the superior's antagonistic role of driving performance, and Au and Ahmed (2016) recommend for employers to use their support to promote a greater work-life enrichment while allowing them to choose other, more efficacious methods of handling work-life conflict. One such method may utilize a bottom-up, collaborative approach that reorients healthcare delivery using nurse, physician, and patient input (Panagopoulou, Montgomery, & Tsiga, 2015).

All stressors are not created equal, nor are they to be handled equally. Attuning leadership and management responses to the spectrum of stressors allows for resource depleting conflicts to be minimized and resource gaining enrichments to be maximized (Au & Ahmed, 2016). Since piecemeal attempts are unsuccessful in reforming social clefts where power differentials exist, leadership should work toward committing completely to reinforcing the cohesion of the unit such that positive changes in patient care may be enacted.

Low self-efficacy individuals may be devoid of social resources and subject to an inability to cope (Kobasa & Puccetti, 1983; Thoits, 1994). Through COR, empowering employees positively impacts self-efficacy and its resultant benefits in the workplace. In a time of increasing resource losses, efforts conferring resource gains are beneficial to employees (Hobfoll, 2001). Managers should use routine feedback on nurses' achievements to increase self-efficacy and job satisfaction. Nursing managers taking into account the area or unit that a nurse wants to work in is essential for job satisfaction and motivation among nurses. A change in workplace ethos is often necessary to solve an underlying process more so than any amount of resilience training would accomplish (McVicar, 2015). Nurse leaders are more likely to attain their goals through meaning-making and empathy—by proposing actions in the context of the themes "prioritize people, practice effectively, preserve the safety and promote professionalism and trust" (James & Bennett, 2020, p. 33). Those leaders who empower their employees to improve job satisfaction, enable them to be leaders in turn (Keisu et al., 2017). Establishing a team-based rather than hierarchical model of care delivery would grant nurses greater participation in decision-making (Chiu et al., 2009). These actions are more important in

the time of a national crisis such as the COVID-19 pandemic when routines are disrupted, the atmosphere is more volatile, and change leaves employees feeling more uncertain.

To support efficiency amidst the complexities of the ICU, effective teamwork enabled through open and accurate communication alongside collaborative problem solving has been shown to produce better patient care and facilitate the job satisfaction of clinicians (Blegen, 1993). Relatedly, transparency and communication openness is foundational to establishing trust within a health care organization and communicating risk such that measures to ameliorate a threat may be enacted (Driedger, Maier & Jardine, 2018). Seminars or other in-services about the importance of and techniques for perfecting communication should be offered by nursing leadership. Additionally, messages from organizations that convey the virus as a combatant do not emphasize human passivity, and from this focal point, organizations may increase employee self-efficacy by conveying the COVID-19 virus as a sentient foe (McGlone et al., 2013).

Limitations

This study did not control for demographic variables such as age, gender, race, experience, or education; although, using multilevel regression models rather than correlation alone may somewhat alleviate this limitation. We had a majority skew towards white individuals and women—which is consistent with the field of nursing. This study did not use observational data collection methods, only self-report evaluations were used to gather data. This study was only cross-sectional in nature, so while we attempted to get an accurate picture of the nursing situation in the nation during COVID-19, recognize that this is only a small snapshot. This thesis, being a cross-sectional

analysis is unable to detect whether or not the burnout felt by these nurses is chronic or attributed to acute organizational changes.

Recommendations for Future Research

Studies using direct observations should be conducted in order to reduce the inherent bias of self-report used in the present study. Further studies into how these variables may or may not have mediating or moderating effects are warranted to further understand the interplay between them. Longitudinal studies using data from before, during, and after the COVID-19 pandemic are required to obtain a more encompassing picture of the state of the nursing profession because of COVID-19. Affective processes predominate at the beginning of an emergent condition, but more research is needed to discover when the affective response becomes the cognitive one (Fischhoff et al., 2017). Having gathered survey data in October 2020, the gross mindset of the respondents color the data set and its interpretations since feelings rather than reason would have more influence on responses and decision-making (Slovic, Finucane, Peters, & MacGregor, 2002).

This study only measured intolerance to uncertainty; moreover, studied measuring the amount of uncertainty along with participant intolerance to uncertainty can greater determine the magnitude of the effect of this variable. Confirmatory studies are needed to answer whether or not perceived susceptibility is a result of or antecedent to organizational response efficacy. Experimental studies to test trait-based variables and perceptions of organizational responses would more fully uncover the potential direct causal relationships between how employees view actions that organizations take in times of a crisis.

APPENDIX A: DEMOGRAPHICS

Table 6. Demographic Distributions

	N = Responses		Frequency	Percent
Age Group	191	18-24	25	13.1
		25-34	57	29.8
		35-44	49	25.7
		45-54	38	19.9
		55-64	17	8.9
		65 and older	5	2.6
Gender	191	Male	16	8.4
		Female	175	91.6
Race	191	White	162	84.8
		Black or African American	10	5.2
		American Indian or Alaska Native	1	0.5
		Asian	6	3.1
		Native Hawaiian or Pacific Islander	0	0
		Other	12	6.3
Marital Status	191	Single never married	47	24.6
		Married	115	60.2
		Widowed	2	1.0
		Separated	3	1.6
		Divorced	24	12.6
Region of Country	191	Midwest	42	22.0
		Northeast	21	11.0
		Southeast	97	50.8
		Southwest	11	5.8
		West	15	7.9
		Other	5	2.6
Covid Care Hours worked	191	0-10	71	37.2
		10-20	17	8.9
		20-30	23	12.0
		30-40	36	18.8
		40+	44	23.0

Education	191	Licensed Vocational Nurse (LVN), Licensed Practical Nurse (LPN)	16	8.4
		Registered Nurse (RN)	165	86.4
		Advanced Practice Nurse (NP, CRNA, CNS, CNM)	10	5.2

Table 1. Demographic Distributions (continued)

APPENDIX B: IRB APPROVAL LETTER

Office *of*
Research Integrity

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: IRB-20-239

PROJECT TITLE: Perceived Nurse Burnout during COVID-19 Pandemic

SCHOOL/PROGRAM: School of PRNP, School of COMM

RESEARCHER(S): Davis Woodson
Kathryn Anthony

IRB COMMITTEE ACTION: Approved
CATEGORY: Expedited
7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: August 21, 2020

Donald Sacco Jr.

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

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