

CLINICIAN DISTRESS TRAJECTORIES WHEN CARING FOR SERIOUSLY ILL HOSPITALIZED
PATIENTS: A MIXED-METHODS STUDY

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ABSTRACT

CLINICIAN DISTRESS TRAJECTORIES WHEN CARING FOR SERIOUSLY ILL HOSPITALIZED PATIENTS: A MIXED-METHODS STUDY

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Over 33 million people are hospitalized every year in the US, many of whom are seriously ill and experience substantial distress. Clinicians caring for these complex patients also experience distress while simultaneously juggling competing clinical demands. Clinician distress is underrecognized and rarely identified in real-time, however it may impact serious illness care and patient outcomes. The overall purpose of this prospective cohort study was to describe and identify clinician distress trajectories in general medicine hospital clinicians, i.e. physicians and advanced practice providers (APPs) caring for hospitalized seriously ill patients—defined as patients with a high-risk of short-term mortality—and examine how these trajectories affect palliative care delivery.

Manuscript 1 employed dimensional analysis to understand the nature of clinician distress. Manuscripts 2 and 3 used data prospectively collected in 2023 with a total of 184 hospital encounters (clinicians, n=68, matched with seriously ill patients, n=151). In Manuscript 2, longitudinal cluster analysis resulted in four distress typologies: low (n=33), moderate (n=47), high (n=34), and variable (n=28). Clinicians also experience symptoms: fatigue (59.3%), stress (57.4%), worry (47.2%), insomnia (33.3%), anger (13.9%), sadness (9.3%), and pain (4.6%). Univariate logistic regression modeling, APPs were significantly more likely (OR=6.159, p=0.00255) than physicians to be in a higher distress typology. Clinicians with fatigue (OR=3.54, p=0.049), insomnia (OR=5.08, p=0.015), worry (OR=4.65, p=0.009), stress (OR=4.20, p=0.031), sadness (OR=21.0, p=0.018) were more likely in a higher distress typology.

Manuscript 3 used qualitative interviews with clinicians (n=25) from each typology to comprehensively understand the experience of distress and integrate data. Qualitative themes of distress experience and sources of distress were compared within and between unique typologies. Mixed analysis

confirmed typologies with increasing mean distress thermometer scores and clinician higher emotional symptom burden.

Findings advance the understanding of in-the-moment psychological distress for hospital clinicians caring for those with serious illness. Not all clinicians experience distress in the same way; however, findings may help personalize interventions for distress based on the four distinct typologies. Immediate implications for healthcare systems in the current post-pandemic era are to acknowledge and quantify clinician distress, and to develop innovative ways to provide support to distressed clinicians.

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Chapter One: INTRODUCTION TO THE STUDY

CLINICIAN DISTRESS TRAJECTORIES WHEN CARING FOR SERIOUSLY ILL HOSPITALIZED PATIENTS: A MIXED-METHODS STUDY

Background

Nearly 40% of the approximately 33.6 million Americans hospitalized each year (AHA, 2024) suffer from chronic serious illness (Buttorff, Ruder, & Bauman, 2017). Those with chronic serious illness are the sickest of the sick; many with multiple co-morbidities requiring complex care including intensive care unit (ICU) stays (Buttorff et al., 2017; Teno et al., 2018) and costing the healthcare system almost one trillion dollars annually (AHA, 2024; Buttorff et al., 2017; CAPC, 2019; Tikkanen & Abrams, Jan 2020). Patients with serious illness and their families experience substantial physical, psychological, social, and spiritual distress during the course of illness and hospitalizations (Crunkilton & Rubins, 2009; Fava et al., 2012; Grotmol et al., 2017; Grotmol et al., 2019; Henson et al., 2020; Johansen, Cvancarova, & Ruland, 2018; Kozlov et al., 2019; Mitchell et al., 2011; Pratt, 2009; Seow et al., 2021; Tarbi, Gramling, Bradway, Broden, & Meghani, 2021; Tarbi, Gramling, Bradway, & Meghani, 2021). In the 21st century, hospital care has adapted to the growing acuity of care by theoretically transforming to a more whole-person centered lens—that is a safer environment, focused on preventing unnecessary infections, improving communication, family and caregiver education, and enhancing patient satisfaction (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Aiken et al., 2012; Barnes, Rearden, & McHugh, 2016; Bernacki et al., 2019; Bernacki & Block, 2014; Brooks Carthon et al., 2019; Cimiotti, Aiken, Sloane, & Wu, 2012; Kelley, Kraft-Todd, Schapira, Kossowsky, & Riess, 2014; Kutney-Lee et al., 2015).

However, when caring for seriously ill hospitalized patients, the primary clinical team also faces stressors that can threaten patient-centered care, such as managing highly complex care plans, providing psychosocial support to patients and families, navigating interprofessional relationships, and juggling patient-family dynamics. These stressors independently or cumulatively can lead to clinician distress. Yet,

there is a critical gap in understanding the clinician distress, how it changes over time, and the impact on patient- and family-centered care in serious illness.

Prior to COVID-19, nearly half of clinicians—nurses, physicians, and pharmacists—reported burnout (Jones, Roe, Loudon, & Tubbs, 2017; McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011; Sajjadi, Norena, Wong, & Dodek, 2017; Shanafelt et al., 2012) and, one out of four critical care nurses had symptoms of post-traumatic stress disorder (The National Academy of Medicine (NAM), 2019). In a national survey during the first phase of COVID-19, clinicians reported feeling acute stress, worry, fatigue, insomnia, and even anger; and nearly 50% report feeling *a lot of stress* and 40% felt *a lot of worry* the previous day (Forrest et al., 2021). Emerging research suggests that clinicians increasingly intend to leave the workforce since the start of the pandemic (Blanco-Donoso et al., 2021; Lou et al., 2021; Matulevicius, Kho, Reisch, & Yin, 2021; Raso, Fitzpatrick, & Masick, 2021) and there are media reports of a mass exodus among healthcare workers (Brown, 2021; Wan, 2021; Yong, 2021). Thus, it is clear that clinician distress is prevalent, persistent, and problematic. There is an evidence gap, however, regarding how clinician distress evolves. Given the acuity and rapid pace of the hospital environment, clinician distress likely varies not only among individuals but also over time. Further, certain types of clinician distress may be more likely to impact patient-centered care and outcomes.

Significance & Gaps

Hospital Care for the Seriously Ill

Hospital clinicians care for over 33.6 million Americans with either acute or acute on chronic illness every year (AHA, 2024). Two out of five hospital patients are seriously ill with one or more co-morbidities (Buttorff et al., 2017). Those with chronic, serious illness are the sickest of the sick; many with multiple co-morbidities requiring complex care including intensive care unit (ICU) stays (Buttorff et al., 2017; Teno et al., 2018). Serious illness has been operationally defined as “a condition that carries a high risk of mortality, negatively impacts quality of life and daily function, and/or is burdensome in

symptoms, treatments, or caregiver stress” (Kelley, 2014, pg. 985); examples include, but are not limited to, heart failure, chronic obstructive pulmonary disease, and end-stage renal disease. These chronic serious illnesses cost the American healthcare system \$950 billion dollars annually (AHA, 2024; Butterff et al., 2017; CAPC, 2019; Tikkanen & Abrams, Jan 2020). For this study, the population is patients with serious illness at a high-risk of short-term mortality, subsequently referred to as “seriously ill patients.”

Gap I: Understanding Clinician Distress.

Who provides care influences patient outcomes (Kelley et al., 2014; Kutney-Lee et al., 2015). Prescribing clinicians—namely physicians and advanced practice providers (APPs) which includes nurse practitioners and physician assistants—caring for seriously ill hospitalized patients have the enormous task of managing complex patients and developing ever-changing care plans whilst also navigating interpersonal and interprofessional relationship from colleagues, consultants, and family caregivers. One or more of these factors may cause clinicians to become distressed, whether momentarily or cumulatively, throughout their time on hospital service. However, there is a critical gap in both recognizing and measuring the full scope of clinician distress and its impact on the care of patients with serious illness and their family members.

For the purpose of this study a definition of distress has been adapted from the National Comprehensive Cancer Network (NCCN, 2021). Clinician distress is defined as a complex unpleasant experience of psychological, emotional, social, spiritual and/or physical nature that impacts one’s ability to perform daily tasks. In 2017, NAM created the *Action Collaborative on Clinician Well-Being and Resilience* given the staggering statistics around burnout amongst clinicians (NAM, 2019). Indeed, more than 50% of physicians suffer from burnout (Sajjadi et al., 2017; Shanafelt et al., 2012). One out of four ICU nurses show symptoms of secondary trauma (NAM, 2019). And almost 40% of palliative care (PC) clinicians—those who attend to the emotional needs of patients everyday—report burnout (Kamal et al., 2019). The National Academy of Medicine and the American Nurses Association (ANA) have recognized that all clinicians need both individual and systems-level interventions to attend to their respective well-

being (ANA, 2017; NAM, 2019), yet there is no standardized way to support clinician distress, and little is known about the existing resources that clinicians may be using to mitigate distress.

Gap II: Clinician Distress Trajectories

There is a scarcity of research on how clinician distress manifests in real time, hinders care, or the likely unique trajectories that occur from the initial distress that may affect patient-reported and PC delivery. The majority of research on clinician distress only captured survey data collected in a cross-sectional manner. However, psychologists have long recognized that emotions are fluid and change throughout the day (Barrett, Mesquita, Ochsner, & Gross, 2007; Lindquist, Wager, Kober, Bliss-Moreau, & Barrett, 2012). Psychological and emotional responses to stressful situations, including workplace stress, can be acute, overt and/or latent.

Still, clinician in-the-moment distress and its impact on patient care is underrecognized and often goes unmeasured. In a 24-hour on-call peer support program for clinicians after medical error (Scott et al., 2009; Tabor, 2011), only one in ten calls were directly related to medical errors; instead, the majority of clinicians called for emotional support (Edrees et al., 2016). During the COVID-19 pandemic, a multi-hospital PC service developed a 24-hour triage line for timely PC consults and inadvertently found that clinicians very often called for their own emotional distress (Ankuda, Woodrell, Meier, Morrison, & Chai, 2020). In many studies, clinician distress is an incidental finding that requires deeper inquiry. What occurs after these clinicians acknowledge their distress to colleagues? One possible trajectory could be that seeking support resolves distress and clinicians experience less distress over the immediate future. On the other hand, clinicians utilizing colleagues for support may experience ebbs and flows of distress influenced by patient events or external stressors. Yet another possible trajectory is gradually escalating levels of clinician distress eventually leading to burnout. As of yet, the pattern and sequelae of clinician distress is not well understood. A mixed methods approach is well-suited to the study of clinician distress in serious illness care as the problems are complex requiring inquiry into both the how and the why (Farquhar, Ewing, & Booth, 2011). Through the collection of both quantitative and qualitative data,

triangulation of findings is strengthened (Creswell & Clark, 2018; Denzin, 2012; Tashakkori & Teddlie, 2010).

Gap III: The Relationship Between Clinician Distress & Patient-Centered Care

Patient- and family-centered care is a philosophy of care focused on the patient and family as important stakeholders in the patient's overall health and well-being. Patient-centered care is both a model and method of care, first developed in 1984 (Levenstein, McCracken, McWhinney, Stewart, & Brown, 1986; McCracken, Stewart, Brown, & McWhinney, 1983; Stewart, 2001). Patient-centered care is associated with improved physical function, better emotional health, patient satisfaction, clinician satisfaction (Evans, Kiellerup, Stanley, Burrows, & Sweet, 1987; Kaplan, Greenfield, & Ware, 1989; Stewart et al., 2000; Stewart, 1995). In oncology literature perceptions of patient-centeredness was improved by therapeutic communication, trust in medical team, empathic clinicians, patient satisfaction with information delivery, and managing uncertainty (Hack, Degner, & Parker, 2005; Kowalski et al., 2009; Mallinger, Griggs, & Shields, 2005; McCormack et al., 2011; McWilliam, Brown, & Stewart, 2000).

The PC literature has demonstrated that improved communication in the ICU is associated with better patient- and family-centered care (D. B. White et al., 2018). Gray literature provides examples of clinician distress while caring for complicated patients (Baruch, 2020; Loren, 2018) or redefining personal boundaries during end-of-life care (Thomas, 2007; Wales, 2019). These accounts are all important narratives from the perspective of the clinician and how their ability to communicate and empathize with patients influences their sense of patient-centered care delivery. During the COVID-19 pandemic, clinicians in real-time reflected on the overwhelming strains of managing incredibly sick patients while facing their own psychological or existential distress (Dintino, Raja, & Cafaro, 2020; Lamas, 2020; Martin, MacQuarrie, & Pan, 2020; Miller, 2020; Riordan, 2020). Yet, to our knowledge, the link between clinician distress and patient-centered care remains theoretical.

Definition of Key Terms

Clinician distress. Clinician distress will be defined as a complex unpleasant experience of psychological, emotional, social, spiritual and/or physical nature that impacts one's ability to perform daily tasks (adapted from NCCN, 2021).

Patient-centered care. Patient-centered care is defined as holistic and collaborative person-centered care with a therapeutic clinician-patient relationship (Stewart, Meredith, Ryan, & Brown, 2004).

Serious illness. Serious illness has been defined as “a condition that carries a high risk of mortality, negatively impacts quality of life and daily function, and/or is burdensome in symptoms, treatments, or caregiver stress” (Kelley, 2014, pg. 985). For this study, the population is patients with serious illness at a high-risk of short-term mortality, subsequently referred to as “seriously ill patients.”

Palliative care. Palliative care (PC) is defined specialized medical, nursing and holistic care for people living with serious illness (CAPC, 2019). PC can be provided concurrently with disease-directed therapies and focuses on pain and symptom management, and improving quality of life during any stage of serious illness (CAPC, 2019).

Statement of the Problem

This study is important because clinician distress is a significant and underrecognized issue that impacts the delivery of person-centered care. This is one of the first studies to examine this phenomenon in the context of serious illness and will provide an evidence base for clinician and patient care needs in the context of hospital-based systems. Previous inquiry has not explored the changing course of clinician distress, nor the impact of clinician distress on patient-centered care and PC delivery. Through multiple data collection methods, the phenomenon of clinician distress and its potential impact on patient-centered care will be triangulated through integrative analysis. The proposed study aims to address these critical gaps.

Purpose of the Study

The overall purpose of this prospective cohort study is to describe and identify clinician distress trajectories in general medicine hospital clinicians, including physicians and APPs, caring for seriously ill patients and examine how these trajectories affect patient-reported and PC delivery.

Research Questions

1. What are the clinician distress trajectories of hospital clinicians caring for seriously ill patients over time? What are the unique clinician distress typologies based on these trajectories? Are there individual clinician and system level factors that influence clinician distress typologies?
2. How do clinicians describe the emotional experience of distress in clinicians while caring for hospitalized seriously ill patients?
 - a. How do individual experiences of distress help to explain clinician distress typologies?

Specific Aims & Hypotheses

Specific Aim 1 (SA1). Quantify and describe clinician distress trajectories based on their level of distress over time. The approach employed collecting serial mobile ecological momentary assessment (mEMA) from at least 141 clinicians during the course of two consecutive days (three assessments per shift) analyzed using latent cluster analysis to identify distinct clinician distress typologies.

Specific Aim 2 (SA2). Generate a comprehensive understanding of sources and variability of clinician distress and its potential implications for patient-centered care. We purposively sampled a random subset of clinicians (aim of approximately 5-10 per typology) from each typology identified in SA1 to conduct in-depth interviews using a semi-structured interview guide.

Specific Aim 2a (Mixed Aim). Using typologies identified in SA1, compare distress themes within and between the levels of clinician distress typologies.

Clinician and patient participants will be recruited from a multi-hospital regional health system (see “Study Site” section below). This foundational work of clinician distress typologies aims to foster an independent program of research focusing on early interventions for clinician distress that aim to improve patient-centered care and patient outcomes. This research is grounded in palliative nursing and the science of compassion as we address the emotional challenges that clinicians face in their day-to-day life within hospital systems of care that ultimately impact the delivery of patient-centered care and the patient-clinician therapeutic relationship.

Conceptual Framework

This proposal is theoretically based on the Patient-Centered Clinical Method which is both a method and a model used for clinical, educational, and research purposes (Brown, Stewart, Ryan, 2001; Ryan, Brown, Tremblay, & Stewart, 2019; Stewart, 2001). The Patient-Centered Clinical Method was developed by the Patient-Doctor Communication Group at the University of Western Ontario in 1995 (Stewart, 1995) and revised in 2019 (Ryan et al., 2019). There are four components to this method: (1) exploring health, disease, and the illness experience, (2) understanding the whole person, (3) finding common ground, and (4) enhancing the patient-clinician relationship (Ryan et al., 2019). The components are “intricately interwoven” in the skilled clinician who employs patient-centered practice in clinical care (Moira Stewart et al., 2004, pg. 6). Factor 1 (exploration) and 3 (common ground) represent the presenting problem, diagnosis and patient-clinician co-management; together known as the *health care process* (Ryan et al., 2019). Factor 2 (understanding the whole person) represents the interaction and relationship as viewed by patient (Ryan et al., 2019). The last component Factor 4 (enhancing relationship) concerns the patient-clinician relationship development over time (Ryan et al., 2019). We adapted a conceptual framework (see **Figure 1.1**) for this study using the Patient-Centered Clinical Method as a theoretical guide along with the empirical work of Piers et al. (2011) which focused on understanding clinicians’ perceptions of inappropriateness of care in the intensive care unit. This conceptual framework captures the importance of individual, whole patient, and clinician characteristics

as well as system-level factors. SA1, the quantitative aim, will be analyzed through cluster analysis methods (shown in red on **Figure 1.1**). The individual patient characteristics, clinician characteristics—including professional and sociodemographic—as well as systems-level factors influence clinician well-being, which in turn theoretically influence patients' perceptions of patient-centered care. SA2, the qualitative aim, in which we will elicit clinician's well-being and distress experiences and theoretical connection to patient-centered care is shown in green. SA2a—the mixed aim—will be explored within the whole conceptual framework including the Patient-Centered Clinical Method tenets of (1) exploring the illness experience, (2) understanding the whole person, (3) finding common ground, and (4) enhancing the patient-clinician relationship. As depicted in the model, it is recognized that patient-centered care impacts quality of care and vice versa. Theoretically, clinician distress may contribute to a diminished sense of holistic care and may lead to decreased quality of care with clinician burnout and intent to leave the job. However, these variables (in gray on **Figure 1.1**) will be tested in subsequent research stemming from this dissertation. The goal for this study is to first focus on identifying unique typologies of clinician distress and begin to describe associated patient characteristics.

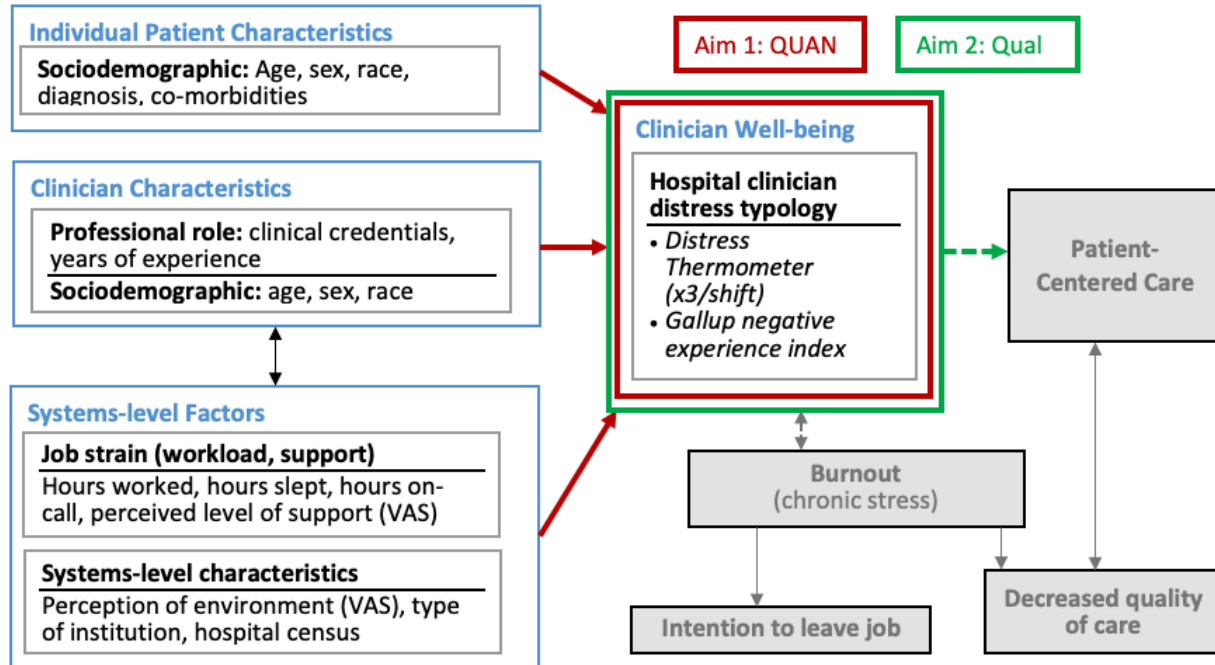


Figure 1.1. Conceptual Framework.

Preliminary Studies: Clinician Distress & Related Concepts.

As foundational work for this proposal, the researcher conducted a dimensional analysis of hospital clinicians caring for those with serious illness to uncover the constructed meaning of clinician distress in the literature (Foxwell, Meghani, & Ulrich, 2021); see *Chapter 2*). This dimensional analysis aimed to fracture complex phenomena to their smallest parts, to understand the dimensions of perspective, context, conditions, process and consequences, and finally to reconstruct the concept with a new understanding (Kools, McCarthy, Durham, & Robrecht, 1996; Schatzman, 1991). Through this analysis, new dimensions of clinician distress emerged grounded in the perspective of perceptions. This is pertinent to the theoretical framework employed here, because the researcher must recognize that each participant has their own unique perspective and may experience one or more vicarious emotions from a triggering event. The findings of this dimensional analysis revealed that circumstance of clinician distress occurs within the process of *the inability to feel and act according to one's values due to a precipitating event*, which is driven by the condition of either (1) *the recognition of conflict*, (2) *the recognition of emotion*, or (3) *the recognition of a mismatch between expectations and what is happening* and results in the

consequence of *clinician distress*. The condition, process, and consequence of the phenomenon are conceptually bounded within the context of *a sense of should* or the feeling that *something is awry*. All the dimensions of clinician distress in serious illness care are understood through the perspective of clinician *perceptions*. Understanding clinician distress as a process developed by the clinician's individual perceptions and influenced by one's values, morals and emotions provides new insight to the phenomenon of clinician distress.

Innovation

This work is novel in four ways. First, an investigation of clinician distress trajectories to better understand how clinician distress evolves over time is novel as previous work has only been cross-sectional. The resulting distress trajectories will provide foundational work for future inquiry into the implications of clinician distress in other specialty fields (i.e., critical care, oncology, PC) and potential intervention development and testing. Second, immediate clinical implications from this work could help transform serious illness care by improving patient-clinician therapeutic relationships. Third, the study team is an interdisciplinary group of academic and clinical stakeholders with the ability to assist in the translation of research into clinical practice guidelines for serious illness care. Fourth, the combination of quantitative and qualitative approaches will bring needed insights that go beyond what could be learned from using one method alone. And finally, the use of technology (mEMA automated text survey) to capture in-the-moment distress will enhance feasibility and help us understand clinician distress and its implications at the point of care.

Overview of Methods

Design

The proposed study employs a mixed method (QUAN→qual) explanatory sequential design (see **Figure 1.2**). In mixed methods tradition, an explanatory sequential design begins with the collection and analysis quantitative data followed by the collection and analysis of qualitative data that is informed by

the quantitative phase; then findings from both strands are integrated and compared for concordance or discordance (Creswell & Clark, 2018; Tashakkori & Teddlie, 2010). First, in SA1 clinician distress

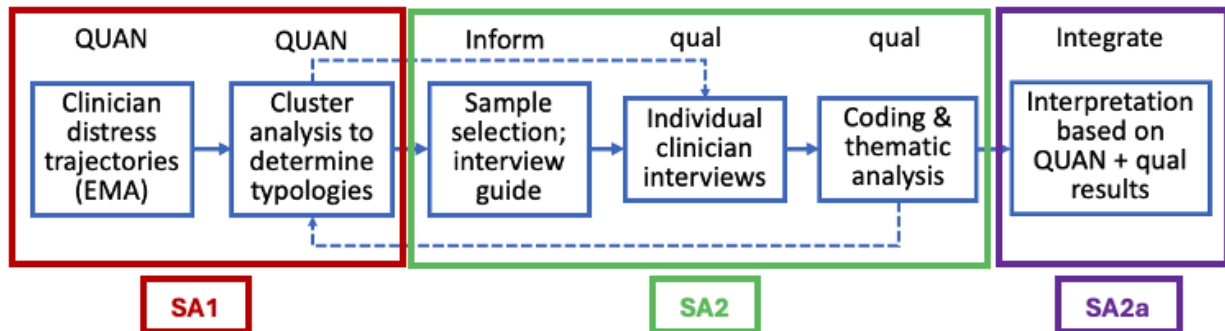


Figure 1.2. Design and Procedures Visual Model.

trajectories were collected via mEMA over two consecutive days; then unique typologies of clinician distress were identified through latent class cluster analysis of serial mEMA. In SA2 we explored the sources and variability of clinician distress and its potential implications for patient-centered care through in-depth interviews with clinicians from each typology (identified in SA1). Mobile ecological momentary assessment data gathered from SA1 informed the qualitative arm where clinicians provided context and stories to mEMA data that expanded the understanding of the quantitative data by providing thick description of distressing events. Finally, in SA2a, quantitative (typologies) and qualitative (clinician distress themes) data were integrated using thematic matrix analysis to further elucidate how qualitative themes are distributed across the levels of distress typologies. See **Table 1.1** for key design aspects and rationale.

Table 1.1. Aspects of Design & Rationale.

Setting = 3 Acute Care Hospitals
With a cumulative total of 1500 beds, these 3 hospitals serve a large, diverse population.
Patient Population = General Medicine
High acuity population with more predictable course and discharge disposition than ICU.
Clinician Population = MD, NP, PA

Prescribing clinicians, including advanced practice nurses, will have similar doses (time) of care spent with patients. Bedside nurses are excluded because of variability of time spent with patient.
Enrollment Timing = Hospital Day 2 & 3
To decrease confounders, Palliative Connect calculates mortality score beginning on day 2 as opposed to on the day of admission.
EMA Timing = 2 Consecutive Days
Distress trajectories are likely to change throughout the day. Days are consecutive to increase confidence in individual clinician.

Study Site

Clinician and patient participants will be recruited from a multi-hospital regional health system (one large urban academic medical center, one urban community hospital, and an urban level I trauma center). The Hospital of the University of Pennsylvania (HUP) is a large academic medical center with a census of 750 (excluding maternity). Pennsylvania Hospital (PAH) is an urban community hospital with over 400 beds (excluding maternity). Penn Presbyterian Medical Center (PPMC), the region’s trauma center, has over 350 patient beds (excluding maternity). Each hospital has at least one general medicine unit and has had an interdisciplinary PC team seeing patients since 2012. At HUP, the PC team receives on average over 200 consults per month, while the other entities receive 50-70 new consults per month. The volume of PC consults is important to note as patients referred to PC have serious illness. In terms of sample feasibility, Penn Medicine employs hundreds of clinicians, making this multi-site health system ideal for a feasible clinician sample.

Sampling Strategy and Population

For quantitative aim (SA1) and to identify clinicians who are caring for seriously ill patients, a clinical prediction model for 6-month mortality risk developed to identify hospitalized patients with serious illness across Penn Medicine, was used to select both clinicians and patients. At each hospital, the prediction model automatically runs at 12:01AM daily and is in use as a mechanism for studying triggered PC interventions. The researcher has experience with the prediction model database as a screening and recruitment tool and sought access to the platform as part of the Institutional Review Board Approval. We used the mortality risk model developed and validated at the study hospitals to identify

patients with >50% predicted risk of death within 6 months (Courtright et al., 2019; Mohan et al., 2021). The applicant sent a text invitation for mEMA (see *Mobile Ecological Momentary Assessment* section below) to clinicians providing care for eligible patients for the current shift. Notably, each clinician has a smart phone provided through Penn Medicine. In the electronic health record (EHR), staff assign themselves daily to a patient’s care team and therefore clinicians can be readily identified. Clinician inclusion criteria was hospital clinicians—physicians (MD, attending and resident) and APPs (nurse practitioners and physician’s assistants)—caring for patients on any general medicine unit. These units were selected because they are high acuity units with a more predictable clinical course than ICU settings, length of stay (LOS; mean: 5 days), and discharge disposition. Clinician participants were included if English proficient, willing to participate, and caring for an eligible patient. The clinician-participant sample above informed the recruitment of a patient-participant group. For all participating clinicians, patient data was chart-extracted and not collected directly from patients (see **Figure 1.3** for timing of data collection for clinicians over the course of patient hospital day 2 & 3; DT: Distress Thermometer). Patient charts will be reviewed for demographics and pertinent clinical variables (see Table 1.2 for detailed measures).

For the qualitative aim (SA2), purposeful sampling with maximum variation of typologies was

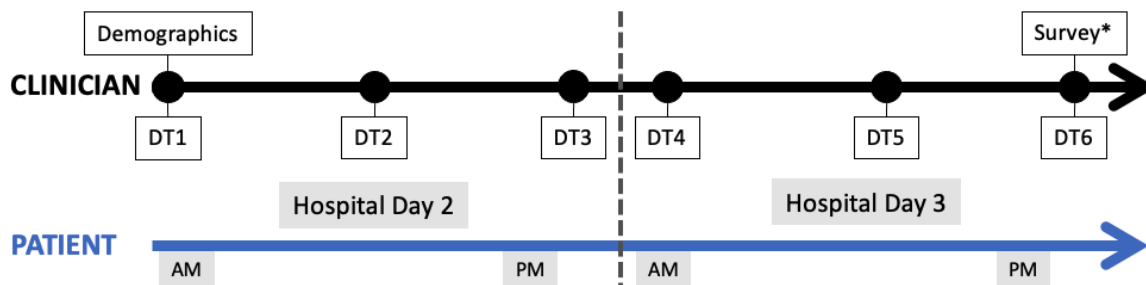


Figure 1.3. Timing of Data Collection (DT: Distress Thermometer).

used to recruit clinician-participants (from SA1 pool sample to minimize threats to validity) interviewed for rich, deep exploration (Creswell & Clark, 2018; Neergaard, Olesen, Andersen, & Sondergaard, 2009; Sandelowski, 2000a, 2000b). Participants were chosen based on their ability to speak to the phenomenon

and from different hospitals, gender and race/ethnicity, and who agreed to follow-up interviews (Appleton, 2006; Vaismoradi, Turunen, & Bondas, 2013). Years of professional experience varied to achieve credibility and collect richer data of diverse perspectives (Graneheim & Lundman, 2004; Wu, Thompson, Aroian, McQuaid, & Deatruck, 2016). To accurately represent the cross-cultural phenomenon of distress across a diversity of sociodemographic perspectives, we recruited both clinician and patient participants from all genders and race/ethnicity groups (Black/African American, Latino/Hispanic, Asian and White/Non-Hispanic). Interviews took place within two weeks of clinicians' last mEMA response to mitigate recall bias.

Sample Size and Power Analysis

For the quantitative aim (SA1) we conducted sample size estimation using One-Way Repeated Measures module in PASS 2021 v21.0.2. We used a recent study (Graham-Wisener, Dempster, Sadler, McCann, & McCorry, 2021) to obtain descriptive estimates for use of the Distress Thermometer (DT). The authors reported a means score of 5.4 (std = 2.91). We assumed a six time points (six mEMA prompts) study and assumed an autoregressive correlation [AR(1)] of 0.50 for repeated measures from the same subject. To obtain 80% power with type I error 5% for a 15% change in distress score over time [5.4 vs 4.59] using multivariate Hotelling-Lawley Trace Test, we need 134 subjects. Assuming a 5% attrition at the end of study we need 141 clinicians. For the qualitative aim (SA2), the sample size goal was 20-30 participant, that is approximately 10 participants per typology which is appropriate to address this aim (Moser & Korstjens, 2018). The qualitative sample size was continuously revisited throughout the data collection and analysis phase to ensure information value, maximum variation, and saturation (Malterud, Siersma, & Guassora, 2016; Neergaard et al., 2009).

Mobile Ecologic Momentary Assessments

Survey collection through mEMA allows real-time assessment of individuals' experiences to minimize recall bias (Shiffman, Stone, & Hufford, 2008). Mobile ecological momentary assessment allows participants to self-report symptoms with the goal of efficient measurement of real-time symptoms

with high level accuracy (Shiffman et al., 2008; Steptoe, Deaton, & Stone, 2015), mEMA has been used prolifically in pain and symptom (specifically mood) assessment research (Asselbergs et al., 2016; Burke et al., 2017; Forrest et al., 2021; X. Li & Hedeker, 2012; Lin, Burke, Schlenk, & Yeh, 2019; Meghani & Knafl, 2016). Previously, mEMA was used successfully via e-mail in a national sample of 14,600 clinicians to serially assess clinicians' symptoms during the COVID-19 pandemic (Forrest et al., 2021). In their analysis of EMA results, Forrest et al. (2021) utilized pooled prevalence of symptoms to compare work settings. However, this proposed study considers the complexity of serial mEMAs and proposes cluster analysis techniques to better understand clinician symptoms over time, as opposed to at one time or as an average. For this study, the mobile application Ilumivu was used for participant convenience. The Ilumivu app is a mobile phone-based, HIPAA-compliant technology that has been used extensively in academic research ("Ilumivu," n.d.). Previous studies where clinician participants were surveyed via mEMA have response rates from 84-95% (Rutledge et al., 2009; Toscano et al., 2020). Clinician participants were enrolled via secure text or email with instructions for installing the mEMA app. After initial demographic survey collection with first mEMA, clinicians were sent text with visual analog scale (VAS) of DT three times per day over two consecutive days (see **Figure 1.3** for flow). At the end of the shift clinicians were asked further questions about workload, job strain and emotional experience. Clinician participants received a reminder after 24 hours if they did not reply to the initial request.

Measures

Measures with psychometrics are listed in **Table 1.2**. Demographic data included age, sex, gender, race, ethnicity for all participants. Clinicians were also asked about credentials and years of experience. Patient demographics included EHR-abstracted diagnosis, severity of illness, and co-morbidities. Additional patient-level data were extracted from EHR including documentation of goals of care, PC consult referral, ICU use, and hospital LOS.

Table 1.2. Constructs, Variables, Measures.

Construct	Variables	Measures
Dependent – Clinician Distress Typology		
Clinician Distress Typology	Main Outcome: Clinician Distress Typology	Clinician Distress Typology will be identified via latent class cluster analysis to determine unique clusters.
Secondary patient outcomes	Documentation of goals of care*	Dichotomous: yes or no
	PC consult referral*	Dichotomous: yes or no
	ICU use*	Number of ICU days during hospital stay
	Hospital length of stay*	Total number of days spent in hospital
Independent – Clinician Distress		
Clinician Distress Trajectory	Clinician Distress	Distress Thermometer collected over time (3 times per day on 2 consecutive days): 11-point VAS (0-10)
Co-variates & Confounders		
Emotional experience	Insomnia, Physical pain, Anxiety, Sadness, Anger, Stress, Fatigue	Gallup Negative Experience Index: 7- item; Dichotomous: yes or no
Concern	Most pressing concern	1-item, free text (“What currently concerns you the most?”)
Environmental Factors	Job Strain	Continuous, 3-item free text (number of hours worked in last shift, number of hours slept last night, number of hours on-call if applicable)
	Workload	Continuous (number of patients on service)
	Perception of climate	Continuous: VAS (rate perception of work environment—poor to outstanding)
	Perceived support	Continuous: VAS
	Type of institution	Categorical: academic medical center, community hospital
	Hospital Census	Number of hospital beds
Demographic factors – Patient	Age*	Continuous (years)
	Sex*	Categorical: Gender (self-identified)
	Race/ethnicity*	Categorical: White, Black, Hispanic, Asian, other
	Diagnosis*	Categorical
	Severity of Illness*	Mortality score based on PC Connect
	Charlson comorbidity index*	Nominal: number of co-morbid diagnoses in electronic health record
Demographic factors – Clinician	Age	Continuous (years)
	Sex	Categorical: Gender (self-identified)
	Race/ethnicity	Categorical: White, Black, Hispanic, Asian, other
	Credentials	Categorical: MD, NP, PA
	Years experience	Continuous (years) in current role
<p><i>Key: *Chart-abstracted; VAS=visual analog scale; ICU=intensive care unit; MD=physician; NP=nurse practitioner; PA=physician assistant; PC=palliative care</i></p>		

We used the Distress Thermometer (DT), which is an 11-point visual analog scale (VAS) previously employed and validated in numerous studies (Bai et al., 2020; Donovan, Grassi, McGinty, & Jacobsen, 2014; Haverman et al., 2013; Jacobsen et al., 2005; Ma et al., 2014; Thekkumpurath, Venkateswaran, Kumar, Newsham, & Bennett, 2009; Wocial & Weaver, 2013) to screen for distress across different populations. Global measures are parsimonious, however, across a number of studies that have been found to have similar psychometric properties when compared to more detailed measures for the phenomenon under study (Anusic & Schimmack, 2016; Goldberg, 1993; Hudson, Anusic, Lucas, & Donnellan, 2020; Lesage & Berjot, 2011; Lucas, 2007; Lucas & Donnellan, 2007; Schneider & Schimmack, 2009). Similarly, DT has demonstrated convergent validity with other commonly used and psychometrically validated tools such as the Hospital Anxiety and Depression Scale (Haverman et al., 2013; Holly & Sharp, 2012; Jacobsen et al., 2005; NCCN, 2021), Depression Anxiety Stress Scale-21 (Bai et al., 2020; NCCN, 2021), and the Perceived Stress Scale (Lesage, Berjot, & Deschamps, 2012). Furthermore, there is evidence that VAS provide better data for analysis with parametric statistics (Bishop & Herron, 2015) and this was a more efficient measure of distress level for busy clinicians. Operationally, the DT is an 11-point VAS with zero at the bottom of a thermometer signifying no distress and 10 at the top of the thermometer indicating severe distress (Wocial & Weaver, 2013). The mEMA survey was created with a visual slider on DT scale.

The Gallup negative experience index (Gallup, 2019) is a self-report tool measuring real-time symptoms and will be used similar to previous studies (Forrest et al., 2021). Questions were asked for one-day recall of negative affective daily life with seven yes/no questions of psychological and emotional symptoms (i.e., insomnia, pain, worry, sadness, anger, stress, fatigue). Multiple “yes” answers indicate high level of symptom in last 24 hours. Additionally, a 1-item free text question was added to assess participant’s most pressing concern at the time of assessment (i.e. patient care, workload, concern outside of work, recent medical error etc.); to inform qualitative interview guide. Additional systems-level measures of environmental factors (job strain, workload, perception of climate, perceived support) was

collected one-time after all mEMA data is collected (see “Survey*” in **Figure 1.3** and description in **Table 1.2**).

Qualitative data collection (SA2) data occurred through either in-person and video conference (i.e., Zoom) interviews per preference of participant. Clinician-participants were interviewed using a semi-structured approach, which allowed for an in-depth exploration of the concepts (Appleton, 2006; Hewitt, 2007; Neergaard et al., 2009; Sandelowski, 2000b). The interview guide consisted of open-ended questions to learn about personal experiences and gain an insider perspective (Hsieh & Shannon, 2005; Milne & Oberle, 2005). General information on their mEMA responses, particularly their DT trajectories, was shared with participants during interviews to probe and gain a deeper understanding of situations and context of distress. Additionally, participants were asked about trends in distress, internal and external factors (i.e., emotional responses, interpersonal conflicts, errors, near misses, etc.). Probes attempted to gather more information about sources (patient, personal, etc.) and specific triggers for distress. Interviews were recorded and transcribed verbatim to increase reliability (Appleton, 2006).

Rigor

The use of mEMA combined with timely qualitative interviews hopes to decrease the risk of recall bias in the dulling or confounding of distressing situations. Recall bias is a threat in the context of interpreting distress as participants are often asked to recall distress over a period of time and therefore are measuring cumulative distress. This study proposed to measure real-time distress at multiple time points. Principles of quantitative research rigor were incorporated throughout the study in meeting with mentors and statisticians. Qualitative interviews were used to explore stories of distressing situations prompted by the results of text-based survey elicitation. To ensure rigor for qualitative data, standards of rigor such as trustworthiness, quality control of the data, and reflexivity were employed. Through the mixed methods approach, qualitative interviews had the dual purpose of uncovering deep meanings of quantitatively reported levels of distress and serve as member checking. Further, triangulation during the coding process through independent coding of research team to analyze and then compare findings to

ensure consistency in coding categories and themes (Moser & Korstjens, 2018). A detailed audit trail and the use of exemplar quotes with descriptions of context allows readers to determine transferability (Graneheim & Lundman, 2004).

Limitations, Assumptions & Proposed Solutions

Participants were recruited through the Penn Medicine Health System for convenience and feasibility of doctoral study. The included hospitals are urban in nature and follow similar policies and procedures and we expect to find that levels of distress may differ across hospitals, recognizing that there may be differential proportions of certain typologies at one hospital versus another. We recognize that ideally, we would have clustered by hospital, by unit, by discipline; however, given the scope of a PhD dissertation, we have assumed a two-level nestedness. If we recognize clustering, this will provide evidence and data to be built upon and studied in future projects.

One possible sampling bias is that participants who are experiencing distress would be more likely to participate in the study. To limit this bias, we invited all indexed clinicians caring for patients identified by the 6-month mortality risk model. On the other hand, clinicians experiencing high distress may be less likely to participate due to added burden. We also ensured ethnic and racial diversity of the participant sample (see **Appendix I: Human Subjects**). Second, hospital clinicians are busy and may feel that a longitudinal study is burdensome. Thus, to decrease this burden, the mEMA was developed as streamlined, efficient, and convenient app-based survey with notifications via smart phone that may be completed quickly over the course of two days. The number of mEMA survey questions has been limited to only those necessary with demographic data collected in the beginning and longer surveys at the end of day two to be completed within two weeks to decrease recall bias. Additionally, the DT collected by mEMA during the clinician's busy day was a simple one-question visual slider to decrease burden. Thirdly, given the short (over two days) follow-up period, we did not expect attrition to be a significant problem. Fourth, we recognized that by using a convenience sample our results are only generalizable to the sample that we recruited and not to the general population. Finally, we did expect some missing data

due to the nature of the participant's schedule, however, the mixed-effect model we have employed imputes missing data in the longitudinal clustering analysis.

Chapter Two: MANUSCRIPT #1

CLINICIAN DISTRESS IN SERIOUSLY ILL PATIENT CARE: A DIMENSIONAL ANALYSIS

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Contribution: Anessa Foxwell led the development, analysis, writing and editing of this manuscript.

ABSTRACT

Background: Caring for patients with serious illness may severely strain clinicians causing distress and probable poor patient outcomes. Unfortunately, clinician distress and its impact historically has received little attention.

Research purpose: The purpose of this paper was to investigate the nature of clinician distress.

Research design: Qualitative inductive dimensional analysis.

Participants and research context: After review of 577 articles from health sciences databases, a total of 33 articles were eligible for analysis.

Ethical considerations: To provide person- and family-centered care, clinicians must gain a sense of self-awareness on their own emotional responses when caring for those with serious illness. This is consistent with nursing's Code of Ethics in recognizing not only the needs of the patient but also the needs of the clinician in promoting individual health and well-being.

Findings: A narrative of clinician distress in the hospital clinician in the United States emerged from the analysis. This included clinicians' perceptions and *sense of should* or the feeling that *something is awry* in the clinical situation. The explanatory matrix consequence of *clinician distress* occurred under the conditions including: *the recognition of conflict; the recognition of emotion; or the recognition of a mismatch; followed by a process of an inability to feel and act according to one's values due to a*

precipitating event.

Discussion: This study adds three unique contributions to the concept of clinician distress by: (1) including the emotional aspects of caring for seriously ill patients, (2) providing a new framework for understanding clinician distress within the clinician's own perceptions, and (3) looking at action outside of a purely moral lens by dimensionalizing data, thereby pulling apart what has been socially constructed.

Conclusion: For clinicians, learning to recognize one's perceptions and emotional reactions is the first step in mitigating distress. There is a critical need to understand the full scope of clinician distress and its impact on the quality of patient-centered care in serious illness.

CLINICIAN DISTRESS IN SERIOUSLY ILL PATIENT CARE: A DIMENSIONAL ANALYSIS

Over 36 million Americans are hospitalized yearly (AHA, 2019). Two out of five patients hospitalized are seriously ill with one or more co-morbidities (Buttorff et al., 2017). Approximately 22% of these individuals with serious illness report that hospital staff are not responsive to their needs and roughly the same percentage state they receive conflicting information (CAPC, 2019). Moreover, discussions surrounding patient preferences and goals related to end-of-life care for seriously ill patients is often delayed (Bernacki & Block, 2014; Mack et al., 2012; Temel et al., 2010). There are several reasons that may account for this delay. When caring for seriously ill hospitalized patients, the primary clinical team often struggles with managing complex care, fielding recommendations from multiple consultants, navigating interprofessional relationships, juggling patient-family dynamics, as well as layers of contributing psychosocial issues. Any number of these issues and stressors may interplay to cause clinician distress, in turn affecting patient outcomes.

Some argue that distress occurs when a clinician struggles with competing interests, citing needs of the patient, the institution, the insurer, the electronic medical record, and meeting productivity metrics (Dean, Talbot, & Dean, 2019; Dean, Talbot, & Caplan, 2020). Yet, missing from these competing interests is recognition of the clinicians' own needs, in particular their own emotional well-being.

Clinicians, grounded in a mission to serve, may neglect their own emotions and safety because of their perceived professional and moral obligations to patients and families under their care.

A major role of the healthcare clinician – nurses, physicians, and advanced practice providers – is to recognize distress in patients and even caregivers. Healthcare clinicians sit with patients and their families when they shed tears of joy and sorrow. However, less emphasis has been placed on the self-recognition of strong emotional responses in clinicians caring for seriously ill persons that may lead to different types of distress. In fact, in the day-to-day business of healthcare and caring for patients, nurses and physicians may be encouraged to remain neutral, yielding emotional dissonance (Brighton et al., 2019; Dzeng et al., 2016; Funk, Peters, & Roger, 2018; Van Zyl & Noonan, 2018). Thus, although concepts such as moral distress, burnout, and post-traumatic stress disorder have received critical interest (see Table 2.1 for these concepts and definitions), the broader concept of clinician distress and its impact on patients has historically received little attention. There is a critical gap in understanding the full scope of clinician distress – emotional, physical, social, and spiritual – that ultimately affects the quality of patient and family-centered care in serious illness.

The COVID-19 pandemic has highlighted the high levels of distress that clinicians are experiencing throughout the nation. Even prior to COVID-19, nearly half of clinicians and trainees – nurses, physicians, medical students and pharmacists—reported burnout (Dyrbye et al., 2010; Jones et al., 2017; McHugh et al., 2011; Sajjadi et al., 2017; Shanafelt et al., 2012) and one out of four critical care nurses had symptoms of post-traumatic stress disorder (NAM, 2019). However, burnout is generally hypothesized to be a terminal manifestation of distress. Suicide risk among clinicians is also a significant concern. And while moral distress has been shown to influence a clinician’s intention to leave (Sajjadi et al., 2017; Whitehead, Herbertson, Hamric, Epstein, & Fisher, 2015); distress caused by ethical or moral conflict is only one type of emotional distress that clinicians experience. Other types of distress may include physical, psychological, emotional, spiritual, and existential. The continuing worry about the

emotional health and well-being of clinicians within healthcare systems requires a better understanding of the experience of distress for hospital clinicians caring for the sickest of the sick patients.

Table 2.1. Relevant Concepts and Definitions.

Concept	Definition
Moral distress	“one or more negative self-directed emotions or attitudes that arise in response to one’s perceived involvement in a situation that one perceives to be morally undesirable” (Campbell, Ulrich, & Grady, 2016)
Moral injury	“perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations” (Litz et al., 2014)
PTSD in nurses	maladaptive experience of stress after a traumatic event during direct patient care resulting in recollections, avoidance, and hyperarousal (Mealer & Jones, 2013)
Vicarious traumatization	when a clinician working with trauma patients experiences a mirroring of “the biopsychosocial effects exhibited by victims of trauma” repeatedly (Tabor, 2011)
Burnout	“a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job” with three components: emotional exhaustion, depersonalization, and a sense of ineffectiveness at work (Maslach & Leiter, 2016)
Emotional exhaustion	“feelings of being overextended and depleted of one’s emotional and physical resources” (Maslach, Schaufeli, & Leiter, 2001)
Compassion fatigue	“the final result of a progressive and cumulative process that evolves from compassion stress after a period of unrelieved compassion discomfort, which is caused by prolonged, continuous, and intense contact with patients, the use of self, and exposure to stress” (Coetzee & Klopper, 2010)
Clinician distress	a continuum that begins with a dilemma and progresses through psychological distress – or moral injury – and only rarely to burnout (adapted from (Dean et al., 2019))

PTSD = post-traumatic stress disorder

Clinician distress has been explored using a variety of concepts (**Table 2.1**). Moral distress, for example, was first attributed to nurses almost forty years ago (Campbell et al., 2016; Jameton, 2017), recognizing the organizational constraints that impact a clinician’s ability to meet their patient care obligations. Thus, there is a need to examine distress, in general, more broadly to capture its unique components as well as consider alternative explanations of the concept towards identifying workable interventions.

Purpose

The purpose of this paper is to investigate the nature of the phenomenon of clinician distress. The population of interest is American hospital clinicians caring for those with serious illness. Serious illness

is defined as “a condition that carries a high risk of mortality, negatively impacts quality of life and daily function, and/or is burdensome in symptoms, treatments, or caregiver stress” (Kelley, 2014, pg. 985). Examples of serious illness include, but are not limited to, cancer, heart failure, chronic obstructive pulmonary disease, chronic kidney disease. Hospice and palliative care specialists were excluded because these clinicians are generally trained and socialized in the role of dealing with complex serious illness. Additionally, most hospice and palliative care teams have built-in debriefing avenues or staff supports (Back, Steihauser, Kamal, & Jackson, 2016; Edmonds, Yeung, Onderdonk, Mitchell, & Thornberry, 2015; Jonas & Bogetz, 2016; Kearney, Weininger, Vachon, Harrison, & Mount, 2009; Mills, Wand, & Fraser, 2018; Morris, Kearns, Moment, Lee, & Delima Thomas, 2019; Orellana-Rios et al., 2018).

Methods

Dimensional Analysis. With philosophical underpinnings in symbolic interactionism, dimensional analysis allows the researcher to remove concepts from their social constructs and explore their dimensions, thereby distilling the essence of a phenomenon (Kools et al., 1996; Schatzman, 1991). Symbolic interactionism has three assumptions: (1) people act in the context of how they define meaning, (2) people learn meaning through social interaction with others, and (3) meaning changes through iterative interpretations (Benzies & Allen, 2001; Handberg, Thorne, Midtgaard, Nielsen, & Lomborg, 2015). Within symbolic interactionism, individuals have difficulty separating the meaning from the context that has been co-constructed through social interactions (Handberg et al., 2015).

The goal of dimensional analysis and dimensionalizing is to fracture a complex problem to its smallest parts including “attributes, interconnections, context, process, and implications” and then reconstruct the concept with a new and clearer understanding (Schatzman, 1991). As is true with naturalistic inquiry, the phases of analysis occur iteratively and include dimensionalizing during open, axial and theoretical qualitative coding to answer the ultimate question *what all is involved* in the phenomenon (Schatzman, 1991).

The second tool of dimensional analysis, the explanatory matrix, graphically organizes salient dimensions from axial and theoretical coding to narratively describe the phenomena of interest (Kools et al., 1996). Matrix dimensions include perspective, context, condition, processes, and consequences; all of which will be defined under the respective dimension section.

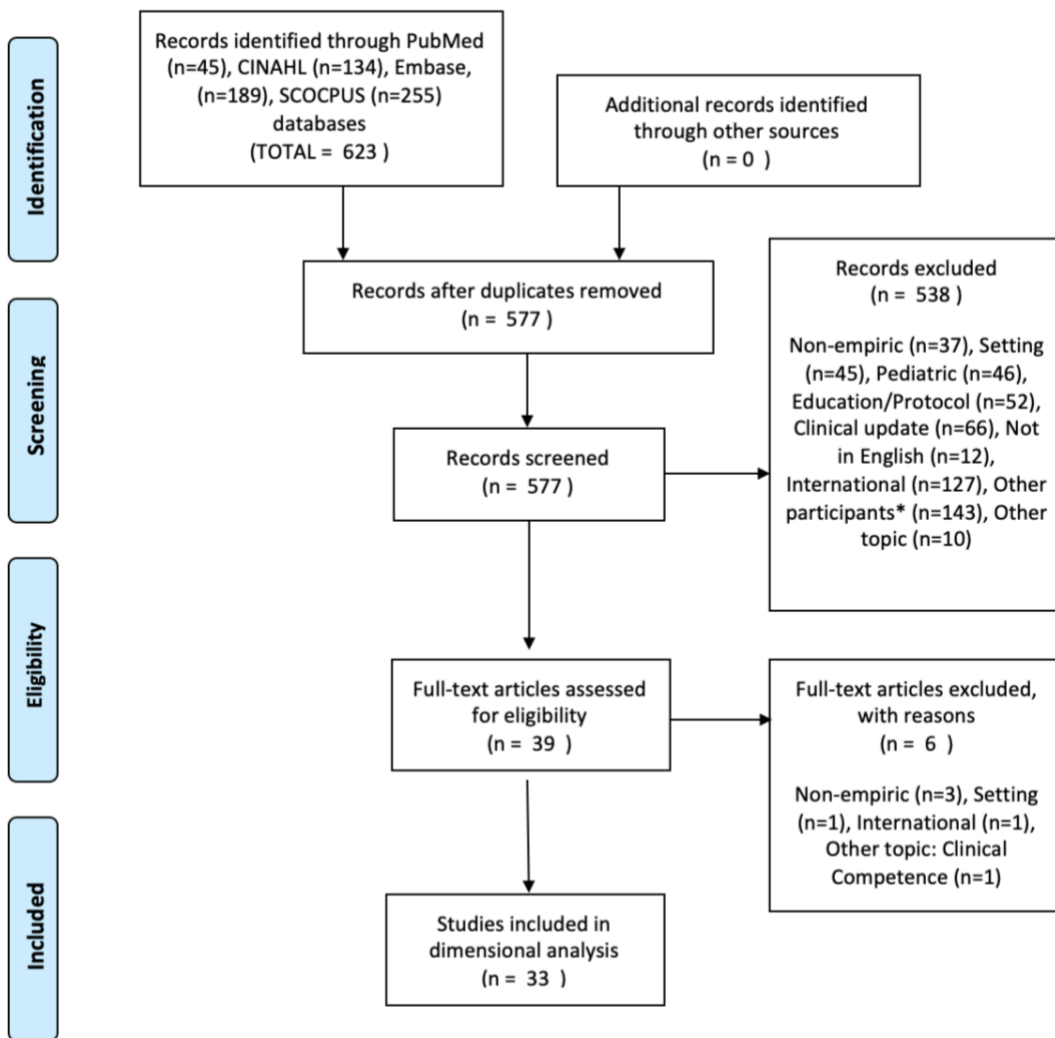
Traditionally, dimensional analysis has been used to analyze qualitative data such as participant interviews and field observations. However, researchers have recently applied the method with a concept analysis framework to explore phenomena present in research literature (Evered, 2020; Morgan, 2020). Through the application of dimensional analysis to existing literature, adjacent concepts will help inform the description of the previously undefined concept of clinician distress.

Data Selection. Health sciences databases (PubMed, CINAHL, Embase and SCOPUS) from medicine, nursing, psychology and other related fields were explored to comprehensively address the research question. Keywords included ‘clinician distress’ or ‘moral distress’ or ‘moral injury’ or ‘psychological distress’ or ‘occupational stress.’ MeSH terms were used, such as ‘palliative care’ or ‘serious illness’ and ‘nurse’s role’ or ‘physician’s role’ or ‘nurse’s psychology.’ Articles were limited to those published on or after the year 2000 based on the founding year of the Center to Advance Palliative Care which marked the beginning of hospital-based serious illness research (CAPC, 2019). Comprehensive inclusion and exclusion criteria can be found in **Table 2.2**. This search resulted in 577 articles after duplicates were removed. During abstract review, the author excluded 538 articles (see **Figure 2.1**). Then six additional articles were removed during full-text review; yielding 33 articles for analysis (20 quantitative, one mixed method and 12 qualitative studies).

Table 2.2. Data Inclusion & Exclusion Criteria for Empiric Research.

Aim: Examine the nature of clinician distress experienced among hospital clinicians caring for adults with serious illness in the United States.		
Category	Inclusion	Exclusion
<i>Article</i>	Empirical research published	Conference abstracts, dissertations, books, foreword,
<i>Type</i>	in a peer-reviewed journal	interview, commentary, editorials
<i>Year</i>	2000-Present	Before 2000

<i>Geography</i>	United States	Research conducted outside of the United States
<i>Language</i>	English	Non-English
<i>Type of Clinician</i>	Hospital-based clinician caring for patients with serious illness	Hospice and palliative care clinicians, Pediatrics, Veterinarian
<i>Focus</i>	Clinicians caring for adults	Patients/caregivers distress, Student distress
<i>Setting</i>	Hospital	Ambulatory clinic, community, hospice
<i>Other</i>		Protocol or instrument development, clinical updates, technology, communication competence



*Other participants includes patient-focused (32), family focused (47), hospice/palliative care providers (39), students (9), veterinarians (16)

Figure 2.1. PRISMA Diagram for dimensional analysis of empiric research of clinician distress since 2000.

Data Analysis. All 33 empirical articles were imported in full-text to QSR’s International’s NVivo 1.3 software (QRS Ltd, 2018) for data storage and open coding. Open coding involves identification of the smallest possible meaning unit to fracture concepts from their context (Kools et al., 1996). Codes were chosen from the perspective of the clinician to address the research question. For dimensional analysis, the analytic process begins with inductive open coding of the data and then

becomes an iterative process of developing axial codes until a critical mass of dimensions is reached (Kools et al., 1996; Schatzman, 1991). Axial codes represent emerging theoretical codes that “possess some explanatory power” (Kools et al., 1996). Thus, to uncover the depths of what is involved in clinician distress, the process of iteratively open and axially coding data until salient dimensions surface to tell the story of the phenomenon under study.

Ethical Considerations

In nursing, most clinicians have a meaning and purpose to save, to cure, to comfort, to make better, to help and/or to do no harm, among other professional goals. If any one of these is the clinicians’ meaning and purpose, then they may experience distress without achievement of these goals. In order to provide person- and family-centered care, clinicians must gain a sense of self-awareness of their own emotional responses when caring for those with serious illness. Indeed, this is consistent with nursing’s Code of Ethics in recognizing not only the needs of the patient but also the needs of the clinician promoting individual health and well-being.

The Explanatory Matrix

In dimensional analysis the explanatory matrix is both the analytic framework and the product of the analysis (Kools et al., 1996; Schatzman, 1991). The matrix tells a story of the concept from a perspective, in some context, under certain conditions and specified processes with consequences (Schatzman, 1991). Through analysis, a narrative of clinician distress in the hospital clinician in the United States emerged (see **Figure 2.2** with legend illustrating narrative). The following story emerged:

The perspective of *perceptions* grounds the entire matrix of clinician distress, which occurs in the context of *a sense of should* or the feeling that *something is awry*. The conditions of the matrix are one of the following: (1) *the recognition of conflict*, (2) *the recognition of emotion*, or (3) *the recognition of a mismatch between expectations and what is happening*. Under one or more of these conditions, there is a process of an *inability to feel and act according to one’s values due to a precipitating event* leading to

the consequence of *clinician distress*.

The quotes/codes cited in the following sections are data referents.

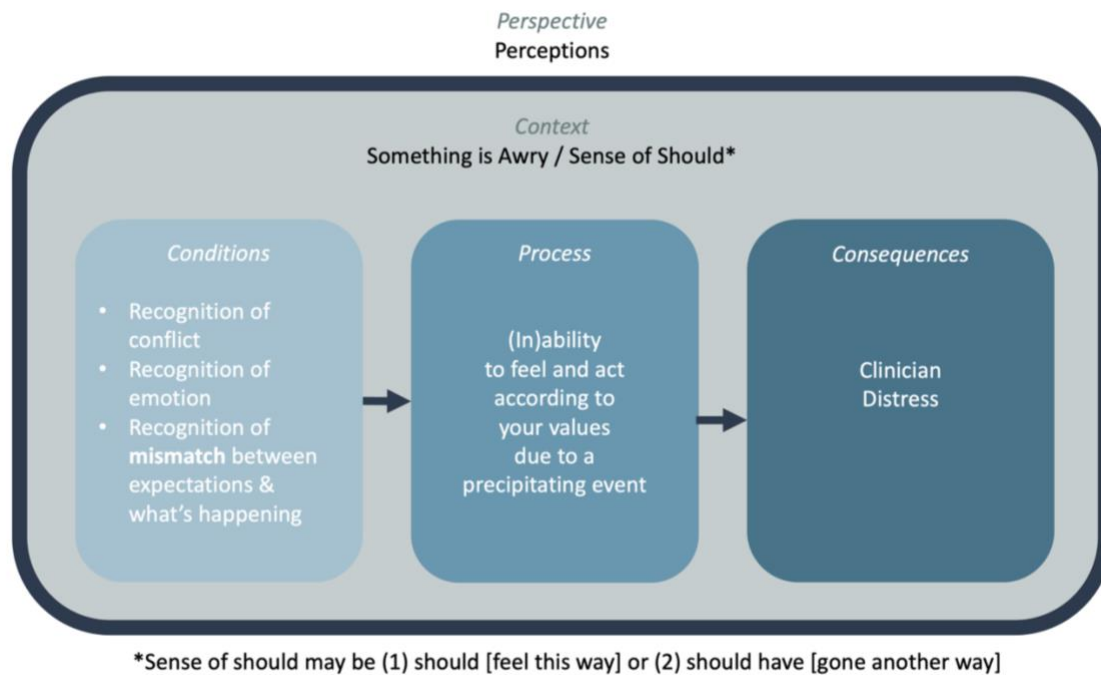


Figure 2.2. Explanatory Matrix of Clinician Distress.

Perspective. In dimensional analysis, the perspective is the central dimension of the matrix and holds the most explanatory power (Kools et al., 1996). The central dimension of clinician distress emerged as the clinician’s *perceptions* of serious illness care. *Perceptions*, or the way one perceives something, influences how one generally approaches situations. A clinician can form their *perceptions* based on knowledge, feelings, and past experiences. They may *perceive* an internal conflict (i.e. feeling, personal sentiment), an external conflict (i.e. interprofessional, patient/family), imbalance (i.e. power struggle) or mismatch (i.e. patient pursuit of *perceived* inappropriately aggressive care). For instance, a clinician *perceives* that a patient should stop “torturing” themselves and choose comfort-focused care because the clinician believes that comfort-focused care is in the patient’s best interest (Jenkins, 2015). If the patient chooses to continue to pursue aggressive therapies and the clinician perceives this will create more suffering, the clinician may experience distress. In another example, the clinician *perceives* that

stoicism is important to their role, so they delay crying after a patient's death until their shift ends (Hinderer, 2012).

Role may be defined by the clinician's self-perception of their professional and work-related obligations, including workload demands, sense of empowerment, and guidelines with their medical establishment; whereas direct patient care may be shaped by their perceptions on the value of maintaining hope and diminishing pain and suffering" (Altaker, Howie-Esquivel, & Cataldo, 2018; Bressler, Hanna, & Smith, 2017; Gooding, Quinn, Martin, Charrow, & Katz, 2016; Ladin et al., 2018).

There are many examples of a clinician's *perceptions* of options for continuing treatment in the face of serious illness. This includes perceptions surrounding futility, nonbeneficial interventions, and the absence of other available options" (Bressler et al., 2017; Browning & Cruz, 2018; Jenkins, 2015). Additionally, some clinicians perceive shifts in power that might affect treatment choices for seriously ill patients, such as the "doctor perceives the family has power" where traditional paradigms of power are challenged (Houston et al., 2013). Clinicians also have *perceptions* of their competency; and, "perceived adequacy of training" has been associated with comfort with grief (Geller, Rushton, Francomano, Kolodner, & Bernhardt, 2010). Finally, clinicians also speak of a "nuanced perception" wherein the decision to discuss certain treatment options changes based on patient preference for engagement in conversation (Ladin et al., 2018).

Context. The next dimension, context, explains the bounds within which the phenomenon under consideration exists (Kools et al., 1996). The context also defines what is and what is not within the phenomenon and therefore differentiates it from other existing phenomena (Kools et al., 1996). Clinician distress occurs within the context of a *sense of should* and/or the feeling that *something is awry*. Here, the clinician has self-applied, institutional, and/or cultural expectations of how they *should* feel and act in situations. Distress occurs in the context of misaligned expectations of feelings (i.e. "I *shouldn't* feel this way") and action (i.e. "It *should* have gone a different way"). In the data, clinicians often described *should* related to end-of-life care and decision-making: this "choice should" be, the family "should" make

a decision for comfort care, the patient “should have been treated better” if only they chose comfort care (Bressler et al., 2017; Hinderer, 2012; Ladin et al., 2018). Or moreover, that a person *should* die a certain way as evidenced by the following data referents: “shouldn’t be full code;” “should be left to die in peace;” there is a “correct way to die;” and we must “make them understand” why a treatment will not help (Bressler et al., 2017; Jenkins, 2015; Zimmermann, 2012).

As opposed to a *sense of should*, the context of *something is awry* emerged as a perceived incongruence. While *something is awry* and mismatch are similar, the difference is that *something is awry* can be thought of as a gut feeling. This nuance was found in the literature through qualitative codes such as “incongruence,” “unrealistic,” “inconsistent,” “vacillation” and “unbalanced view” (Bressler et al., 2017; Hinderer, 2012; Jenkins, 2015; Lief et al., 2018). For instance, *something is awry* when the clinician says, “we need to make them understand,” but the clinician may not yet be able to see that there is a mismatch between what the clinician wants and what the patient wants for themselves (Bressler et al., 2017). *Something is awry* is a gray area as not every clinician will experience the imbalance at the same time and in the same way.

Conditions. The next three dimensions – conditions, process, and consequences – all shape the actions or interactions within the phenomenon (Kools et al., 1996). The conditions, based on the perspective within the context, describe when and how the phenomenon occurs (Kools et al., 1996). Within the explanatory matrix, after a clinician perceives that *something is awry*, they then *recognize either (1) an emotion, (2) a conflict, or (3) a mismatch between their expectations and what is happening*. Clinicians experience a gamut of emotions that can lead to distress: anger, anxiety, despair, frustration, sadness, worry and feeling overwhelmed. Feeling sad at the decline or death of a patient can result in distress if that emotion is not properly attended to (Geller et al., 2010; Gooding et al., 2016; Hinderer, 2012; Jenkins, 2015). Feelings of unfulfillment in one’s role can also lead to emotional outbursts and distress, if one does not allow those feelings to result in an action to develop new skills or seek out other professional opportunities for fulfillment (Bressler et al., 2017).

Feelings are generally internal struggles; conflict, on the other hand, may be internal or external. Internal conflict can be recognized through a feeling, or a sense of moral uncertainty on what to do in a given situation. Indeed, Campbell, Ulrich and Grady (2016) state that “one who has moral distress must perceive her involvement in a morally undesirable situation to be itself morally undesirable” creating a host of self-directed negative emotions or attitudes. “Internal conflict,” acting in “two seemingly conflicting ways,” “conflicts of values,” and “inner conflict” occurred in relation to the provision of care for seriously ill patients (Berkman, Ahronheim, & Vitale, 2019; Bressler et al., 2017; Hinderer, 2012). Internal conflicts may contribute to external conflict in clinicians’ relationships with other providers such as team, interprovider, and/or clinician to clinician conflict” (Amoroso & Chalela, 2019; Browning & Cruz, 2018; Yerramilli et al., 2019). Additionally, “conflicting societal and cultural values” can cause both internal and external conflicts (Allen et al., 2013). And finally, clinicians sometimes experience conflicts between their own personal values and beliefs and their patients and families, especially when discussing end-of-life treatment decisions (Bressler et al., 2017; Traudt, Liaschenko, & Peden-McAlpine, 2016; Yerramilli et al., 2019).

Mismatch between expectations and what is happening can occur in multiple clinical scenarios. First, there can be a mismatch of goals. Here, we might see the mismatch between what the patient is saying and what they are doing; and, of what the clinician thinks should be happening and what is actually happening. Second, there may be a mismatch of interpersonal perceptions among key stakeholders (e.g. patient-clinician, patient-family, clinician-clinician, family-clinician, and clinician-supervisor). Sometimes it may be difficult to separate the emotion from the conflict. For instance, nurses expressed “frustration” when what they wanted for a patient did not match what the family wanted (Bressler et al., 2017).

Processes. In dimensional analysis, the processes dimension is a result of the conditions (Kools et al., 1996). When one or more of the conditions above are met, then a clinician has the ability or *inability to feel and act according to their values*. Inability, in many ways, is a perception in and of itself. The

inability to feel is portrayed in the many emotions that clinicians experience – meaning that while clinicians may feel one way, they are unable to express those emotions fully. On the other hand, the inability to act deals with specified actions. It could be argued that if you have the ability to feel and act according to your values, then you are less likely to experience distress in the moment, although this needs to be tested. Values may be either professional or personal values depending on the clinical situation. For instance, a clinician may sense a conflict or mismatch, but chooses to focus getting through the workday and accomplishing the tasks necessary. Therefore, this clinician may push past negative emotions or choose to ignore them entirely. Others may actively avoid conflict and there also may be an internal or external blocking of feeling and acting.

Another key piece to the process is a *precipitating event* or tipping point. The clinician may be forced to deal with the emotion or act against their values for a multitude of reasons. Something happens – be it a confrontation, difficult conversation, or family meeting – which causes the clinician to face their emotion, action or conflict. The conditions may not lead to the process if not for the precipitating events causing the clinician to face the situation and their own emotive reaction. The precipitating event is different for everyone because it is based in the dimensions of one's own *perceptions*. This is the reason that one clinician may be distressed after a conflict, but others are not. The precipitating event may be informal or formal. Informal precipitating events may include, for example: entering the patient's room and they are curt with you; asking for help from a co-worker who rolls her eyes at you when you ask for help; or a colleague dismisses your concerns about a clinical concern. Formal precipitating events could occur at a contentious family meeting or a clinician's performance evaluation. The precipitating event can only be considered significant within the clinician's own *perceptions* of significance.

Consequences. The final dimension, consequence, is the outcome of the processes (Kools et al., 1996). In this last phase of the analysis, *clinical distress* occurs as a result of *perceiving a sense of should* or that *something is awry* and then *recognizing an emotion, a conflict, or unmet expectations* that leads to

the *inability to feel and act according to one's values due to a precipitating event*. A clinician experiences distress based on their own *perceptions* of serious illness care.

Discussion

This dimensional analysis offers a unique and nontraditional methodological lens for examining the concept of clinician distress. The proposed dimensions expand the taxonomy and share parallels with the broadened definition of moral distress proposed by Campbell et al. (2016). And, it presents a rich description of the concept of clinician distress through symbolic interactionism. Similar to the definition of moral distress (Campbell et al., 2016; Ulrich & Grady, 2018), clinicians' perceptions of a situation are central to the distress reaction. This conception, however, focuses on a situation that is perceived to be morally undesirable. Another parallel can be found in the context of the inability to act; where this dimensional analysis differs is in the addition of the clinician's inability to feel authentically according to their value system. What emerged from the data was a strong predilection for clinicians need to attend to both feelings and actions. Actions remain key to existing definitions of moral distress that can lead to psychological and emotional disturbances; feelings veered more towards a psychological or emotional response, which may or may not be tied to morals. While there is a large body of literature documenting the frequency and impact of moral distress; less is known about the broader emotional perils of caring for seriously ill patients. Moral distress has been shown to be higher in cases of prolonged life support with low likelihood of recovery and lack of consensus regarding treatment plans for seriously ill patients with life-threatening disease (Browning & Cruz, 2018; Houston et al., 2013; Lief et al., 2018; Pavlish, Brown-Saltzman, Fine, & Jakel, 2015; White & Meeker, 2019; Whitehead et al., 2015; Wolf, White, Epstein, & Enfield, 2019). When faced with an ethical dilemma, several authors report that clinicians often experience frustration, guilt, and feeling overwhelmed (Pavlish, Brown-Saltzman, Hersh, Shirk, & Nudelman, 2011; Raines, 2000; Ulrich et al., 2007). While these emotions may occur because of moral uncertainties, dilemmas or conflicts, this dimensional analysis adds that clinicians, as sentient humans, may experience an emotion before feeling distressed. Further, a negative emotional reaction may or may

not be directly related to a moral action. For instance, clinicians who experience distress due to the fear of unknowingly infecting their family with a deadly disease may be solely based on the importance of keeping their family safe, rather than on a perceived moral conundrum (Drucker, 2020; Foxwell, 2020; Kuo, 2020). Similarly, feeling sad that a patient has died or may die regardless of interventions is not necessarily tied to morality (Hinderer, 2012).

It also has been shown that contributing factors to moral distress include individual, unit, and systems level issues (Epstein, Whitehead, Prompahakul, Thacker, & Hamric, 2019; Hamric & Epstein, 2017; Maffoni, Argentero, Giorgi, Hynes, & Giardini, 2019); accordingly, this dimensional analysis similarly shows that clinicians may become distressed due to both personal and institutional attributes. Here, an individual's previous encounter with a patient situation or a personal experience with illness may trigger distress (Bressler et al., 2017; Geller et al., 2010; Hinderer, 2012; Jenkins, 2015; Ladin et al., 2018). There is some evidence in the moral distress literature on what has been called the "crescendo effect" that occurs following repeated episodes of morally distress situations. Here, acute moral distress can decrease when an issue is resolved only to increase again when faced with a similar situation and the clinician still harbors painful feeling (Epstein & Hamric, 2009). We do not know if caring for those with serious, life-limiting illness creates this crescendo effect. However, death of a patient has been shown to provoke emotional reactions in clinicians (Geller et al., 2010; Hinderer, 2012; Strote et al., 2011). Further, systems-level factors can influence the way in which a clinician is able to respond to their own distress (Ladin et al., 2018; NAM, 2019; White & Meeker, 2019). Supportive environments are believed to be associated with less distress due to comradery, a sense of community, and time to reflect with colleagues (Strote et al., 2011; Traudt et al., 2016; White & Meeker, 2019); while entrenched cultures of avoidance may have negative impacts on clinicians' coping abilities (McFarland, 2019; Pavlish et al., 2015).

Additionally, similar to moral distress, negative impacts of emotional distress can lead to avoidance of both emotions and patients, decline in empathy, emotional dissonance, feeling powerless, and leaving one's position (Hinderer, 2012; Jenkins, 2015; McFarland, 2019; McFarland, Malone, &

Roth, 2017; Pavlish et al., 2015; Whitehead et al., 2015). When distressed, internal medicine residents spent less time with patients and had decreased empathy during an oncology rotation (McFarland, 2019; McFarland et al., 2017).

There is limited evidence on interventions for clinician distress. Emerging evidence shows that colleagues may offer support to staff via ethics team, palliative care team, or moral distress consult service (Chooljian et al., 2016; Hamric & Epstein, 2017; Wolf et al., 2019). Outside of work, humanistic experiences, such as the participation in a museum education program may provide alternative lenses to contextualize suffering and dying (Gooding et al., 2016). Similarly, the practice of narrative medicine offers new perspectives on compassionate care, meeting a patient where they are, and potentially growing personally and professionally as a clinician (Barber & Moreno-Leguizamon, 2017; Murphy, Franz, & Schlaerth, 2018). Moreover, deriving meaning and purpose from work has been associated with more comfort with grief and loss, as well as less burnout among clinicians (Geller et al., 2010; Holland & Neimeyer, 2005).

This study adds three new contributions to the concept of clinician distress and: (1) includes the emotional aspects of caring for patients with serious illness, (2) provides a new framework for understanding clinician distress within the clinician's own perceptions of care, and (3) looks at action outside of a purely moral or ethical lens by dimensionalizing data, thereby pulling apart what has been socially constructed.

Limitations

This analysis should be interpreted in the context of the following limitations. Our search strategies may have favored moral distress given the common terminology and overlap with general or emotional distress. With a goal to uncover alternative meanings by fracturing data, a dimensional analysis approach aims to remedy this. Furthermore, the research focused on what happens when a clinician becomes distressed and not what happens when a clinician does not become distressed. As such, this dimensional analysis was unable to uncover the protective, innate, or learned behaviors preventing

distress. This presents an opportunity to study the typology of the clinician who mitigates their own distress.

Another limitation that may have impacted this analysis was defining clinicians via a general patient population. Limiting the setting to hospital-based clinicians may have missed important data from other settings, where staff experience distress, such as nursing facilities. More clarification is needed to examine the similarities and differences that might exist within and between different professional groups. One population that may offer further insight is within hospice and palliative care where clinicians receive training and support for distressing situations. More conceptual and empirical work is also needed to tease apart similar concepts (i.e. ethical distress) that capture clinician distress.

Implications

Clinician distress is an ever-prevalent and pressing issue in healthcare. This concern has heightened during the novel coronavirus where pandemic healthcare professionals are even more strained. These findings have direct clinical implications for healthcare professionals experiencing unprecedented burden of responsibilities with strained resources. Building on previous work calling for a broader definition and understanding of clinician distress (Campbell et al., 2016; Dean et al., 2020; Ulrich & Grady, 2018), this empirical analysis provides alternative dimensions, such as conditions and context, for distress. For clinicians, learning to recognize one's perceptions and emotional reactions earlier may be the first step in mitigating distress. Further, the clinician distress explanatory matrix provides an opportunity to understand the impact of emotions in the clinical arena.

Future research should investigate how to support a clinician's ability to both act and feel according to one's values. Additional research to determine current support strategies and potential existing sources of support may offer possible interventions to alleviate distress among clinicians caring for those with serious illness. There is also a critical need to understand the full scope of the impact on clinician distress on the quality of patient and family-centered care in serious illness.

Table 2.3. Table of Evidence [Appendix I from published manuscript].

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
Allen et al. (2013)	What is the level and differences of moral distress among healthcare professionals working in the adult and pediatric areas of community and rural hospital settings of a health system?	Cross-sectional, descriptive, comparative study	Physicians, Nurses, Social Workers, Respiratory Therapists (n = 323)	7-hospital institution (1 pediatric) in Southeastern US	All disciplines experience moral distress, higher levels in those considering leaving position.
Altaker et al. (2018)	What are the relationships among ICU nurses' moral distress, perceived psychological empowerment, ethical climate of the ICU, and access to palliative care?	Cross-sectional, descriptive, regression analysis	Critical care nurses (n = 238)	Nationwide survey	Poor ethical climate, lack of access to palliative care teams, and nurse empowerment are associated with increased moral distress.
Amoroso and Chalela (2019)	What is the perception of the provision of futile care among NSICU clinicians?	Cross-sectional, descriptive	Physicians, Nurse Practitioners, Nurses (n = 66)	Neuroscience Intensive Care Unit clinicians	1/3 of clinicians consider Neuro-ICU care futile with only moderate interrater correlation.
Bender et al. (2019)	What is the level of provider and nurse moral distress when using a comfort care order set? Do attitudes about timing of initiating comfort care for hospitalized patients differ?	Cross-sectional survey comparing nurses and providers	n = 205 nurses n = 124 providers (MD, NP, PA)	2 large academic hospitals	Most (>60%) believe that comfort care was started too late in a patient's course. Nurses experienced higher levels of moral distress than providers when caring for patients using a comfort care order set.
Berkman et al. (2019)	Under what circumstances do speech language pathologists recommend comfort feeds for patients with advanced dementia at risk of aspiration?	Qualitative grounded theory-like analysis of single narrative question	Speech Language Pathologists (n = 731)	Nationwide survey with one open-ended question	When making recommendations, SLP weigh risk and benefits and face potential moral distress.

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
Bressler et al. (2017)	What are the specific challenges of nurses caring for critically ill, elderly, Orthodox Jewish patients?	Qualitative content analysis	Focus group of ICU nurses (n=27)	Hospital in Brooklyn with high concentration of Orthodox Jewish patients	Main finding was an incongruence of perspectives, nurse with patient or family or colleague. Other themes were common to all nurses or common to nurses caring for EOL patients.
Browning and Cruz (2018)	Can a social worked group debriefing decrease moral distress among ICU nurses?	Pre/post-test experimental design with a control group	ICU nurses (n=43)	Reflective Debriefing intervention, monthly for 6 months in urban hospital	ICU nurses experienced moral distress most often when faced with providing nonbeneficial care. After debriefing, ICU nurses learned how and felt empowered to confront colleague and encourage providing more accurate prognoses.
Bybee (2018)	What is understood about vicarious posttraumatic growth among healthcare providers working in end-of-life care?	Literature review	21 studies	Vicarious posttraumatic growth was first defined in trauma patients	Most studies measured posttraumatic growth as opposed to secondary or vicarious posttraumatic growth.
Chooljian et al. (2016)	Are hospital ethic consultations capable of providing emotional support to staff alone?	Case study	Long-term patient requested withdrawal of life support	VA hospital	An ethics consultation was placed in the absence of an ethical dilemma to provide emotional support and anticipatory grief to staff prior to the withdrawal of life support for a long-term patient. Authors believe that ethics services may be well-suited to provide emotional support to staff given training, especially if team includes discipline of social work.

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
Geller et al. (2010)	How comfortable are genetics professionals with grief and loss? Is comfort level associated with training, years of experience and/or clinician distress?	Cross-sectional survey	Nurses, genetic counselors, medical geneticists (n=172)	Nationwide – from specialty organization member list	29% of participants felt inadequately prepared to address end of life care issues. Discomfort with grief and loss was strongly correlated with clinician distress. Perceived competence, tolerance for ambiguity, derived meaning and purpose from work, and significant personal loss predicted comfort with grief and loss at work.
Gooding et al. (2016)	What are the perspectives of stakeholders and participants in a museum-medicine partnership for medical residents?	Case analysis; thematic analysis of program evaluations	1 st year medical residents; 4 perspectives: residency program director, curriculum director, museum educator, resident learner	Boston museum and residency program partnership; 5 reflective exercises in a museum day trip	Positive aspects of partnership are described. Themes from program evaluation were: commitment to self-care, connecting with patients, practicing mindfulness.
Hinderer (2012)	What is the lived experience of the critical care nurse who encounters patient death?	Qualitative phenomenology descriptive design	6 critical care nurses	Purposive sample, 15 mean years of experience	Several themes emerged as a result of this study: coping, personal distress, emotional disconnect, and inevitable death.
Holland and Neimeyer (2005)	Is there an association between clinicians working with death and daily spiritual practices or level of training?	Cross-sectional (End-of-life Care Questionnaire & Daily Spiritual Experience Scale)	N=80 (51% nurses, 19% chaplains, other: psychotherapists, social workers, physicians, volunteers)	Recruited from EOL conference in Memphis, Tennessee	Clinicians with a daily spiritual practice were less likely to experience burnout.

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
Houston et al. (2013)	What are the differences in intensity and frequency of moral distress among various healthcare disciplines? Are disciplines affected by moral distress differently when faced with the same clinical situation?	Modified MDS to include discipline specific scenarios	RN, MD, pharmacists, nutritionists, SW, chaplains, PT/OT, respiratory therapists (n=2271)	Baylor Health Care System (27 hospitals)	Moral distress occurs across disciplines, although nurses had the highest moral distress scores.
Jenkins (2015)	“Under what conditions do internal medicine residents limit or terminate treatment without respecting patient wishes?”	Ethnography	700 hours of observation of 45 internal medicine residents	Community hospital in Northeastern US	Residents may overlook patient wishes due to unique training restraints, such as hierarchical structure, misunderstandings, misbalance of beneficence and patient autonomy.
Ladin et al. (2018)	When and how do nephrologists discuss palliative options with older patients with kidney failure?	Qualitative thematic and narrative analysis	MD (n=35 nephrologists)	At 18 centers throughout US	Themes found to influence MD decision to discuss conservative management: struggling to define MD role, avoiding EOL discussion, facing institutional barriers, viewing CM as “no care” and moral distress. Also, found a group of early adopters of discussion which seems to relieve distress.
Lief et al. (2018)	What patient/family attributes are associated with emotional distress in ICU nurses while caring for end-of-life patients?	Cross-sectional; chart extraction and semi-structured interview with rating questions	ICU RN (n=100) caring for 195 deceased patients	2 academic medical centers in NE US	Emotional distress was not associated with specific diagnosis, medical intervention or palliative care involvement. Nurse emotional distress was significantly associated with patient suffering, quality of death, perceived loss of dignity. More than 1/3 of nurses reported family’s unrealistic expectations and fears contributed to their own emotional distress.

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
McFarland (2019)	Is there a difference in time spent with patients for residents at the start and the end of an oncology rotation?	Quasi-experimental self-administered pre/post test	Internal medicine residents (n=64) before and after oncology rotation	Urban academic medical center	For internal medicine residents, direct patient care time decreased during oncology rotation. 47% of residents reported spending less than one minute per patient per day at the end of the rotation. Feeling mistreated by superiors and lack of support at home predicted less direct patient care time.
McFarland et al. (2017)	Is there an association between resident empathy, distress, death exposure and sense of meaning?	Quasi-experimental self-administered pre/post test	Internal medicine residents (n=56) before and after oncology rotation	Urban academic medical center	Residents had an acute drop in empathy during inpatient oncology rotation. Distress was elevated before and after rotation, but did not significantly change. Drop in empathy may be associated with high distress and exposure to death.
Mobley, Rady, Verheijde, Patel, and Larson (2007)	Is there an association between years of practice in ICU and moral distress for critical care nurses?	Prospective cross-sectional survey	ICU RN (n=44)	ICU in tertiary care hospital	>7 years practice & >4 years in ICU was associated with high levels of moral distress.
Pavlish et al. (2015)	What are the circumstances that occur around ethically challenging situations in oncology?	Ethnography with focus groups and key informant interviews	6 focus groups with 30 oncology nurses; 12 key informant interviews with ethicists, oncologists, nurse administrators	Recruited nurses from a California chapter of ONS. Key informants were recruited.	There is a culture of avoidance amongst many healthcare providers who wait until a precipitating crisis occurs to address ethical concerns. Themes within cultures of avoidance: complexity of ethical issues, conflicting views of "good" care, fear of damaging patient, family, and/or professional relationships, system characteristics that promote avoidance.

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
Pavlish et al. (2011)	“What are common characteristics of ethical experiences? What are common risk factors in ethical situations? What are early indicators of ethical conflicts?”	Qualitative descriptive using critical incident technique	RN (n=70)	Nurse registrants for an annual Ethics of Caring Conference in the Los Angeles area were invited	Ethical issues are commonly experienced in end-of-life care when nurses are concerned about unnecessary patient suffering and breeches in patient autonomy. Nurses felt powerless when facing ethical dilemmas.
Periyakoil, Neri, and Kraemer (2015)	What are the perceived barriers for physicians when discussing end-of-life issues with diverse patients? Are these barriers influenced by physician age, gender, ethnicity or subspecialty?	Mixed methods	MD (n=1040) with developmental cohort (n=29)	2 academic medical centers in California	More than 85% of physicians find end-of-life conversations to be very challenges, especially with patients who were of different ethical background than themselves. Some barriers included: language, spirituality, unfamiliarity with cultural values, health literacy and mistrust.
Sirilla, Thompson, Yamokoski, Risser, and Chipps (2017)	Does moral distress differ according to demographics or type of clinical setting among nurses at one academic medical center?	Cross-sectional survey design	Nurses (n=329)	Academic medical center with 6 hospitals	Highest moral distress scores were found in nurses working in critical care, perioperative and procedural areas. Nurses who had considered quitting had higher moral distress scores than those who had previously quit.
Steiner, Patton, Prutkin, and Kirkpatrick (2018)	What is involved in the decision making to deactivate an implantable cardioverter defibrillator device?	Case study	One patient case presented followed by ethical examination	Seattle hospital	Deactivation of ICD, while ethical and legal, is a complicated decision for patients which requires prospective goals of care discussions to elicit patient/family values.

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
Strote et al. (2011)	What are the effects of patient death and subsequent coping mechanisms on emergency department attending physicians?	Cross sectional survey	MDs practicing in Emergency Medicine (n=145)	4 hospitals with residency programs (1 in each of the following regions: South, Northwest, Mountain & Southwest)	66% of MD had at least one patient die per month. Coping mechanisms included talking to colleagues (78%), talking to family/friends (69%), and continuing to work (61%). 64% rarely or never debriefed after patient death. Common reactions after patient death were both physical (insomnia, fatigue) and emotional (sadness, disappointment).
Traudt et al. (2016)	What is the experience of the critical care nurse who is comfortable with end-of-life care and withdrawal of life support?	Narrative analysis	Critical care nurses (n=19)	Academic medical center from 4 ICUs (neurological, medical, cardiovascular, and cardiothoracic surgical) in Midwest	When working with patients' families and the decision to withdrawal life support for a loved one, experienced ICU nurses used moral agency, imagination and their moral community for support; particular practices included self-awareness, advocacy, empathy, ascertaining what the patient would want, envisioning and facilitating possibilities for a good death, supporting relationships, managing conflict, and doing moral communicative work.
D. M. White and Meeker (2019)	How does patient death impact hospital-based nurses personally and how do they handle such events?	Qualitative descriptive	Nurses (n=26)	Recruited through university listserv	Nurses experienced moral distress when continuing aggressive therapies for patients with grim prognosis. They reflected on navigating competing demands, when care felt inadequate and seeking support from colleagues and leadership.

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
Whitehead et al. (2015)	What is the level of moral distress in one health system among all healthcare providers? Are their significant root causes or relationships between moral distress, ethical climate, intention to leave, and education?	Descriptive, comparative design	N=754 (489 nurses, 156 MD, 109 other (PT, OT, pharmacist, chaplain, dietician, SW, RT, Speech, administration))	Rural academic medical center in Virginia	Direct care providers, including nurses had significantly higher moral distress than indirect care providers. Those who worked in ICU had significantly higher levels of moral distress than non-ICU clinicians. Previous end-of-life education and clinicians who were considering leaving was associated with greater moral distress. The most common causes of moral distress were witnessing suffering and seeing patients receive subpar care due to poor communication.
Wolf et al. (2019)	Is there an association between moral distress, palliative care knowledge, and palliative care consultation among critical care nurses?	Quantitative, descriptive	ICU nurses (n=167)	Academic medical center in Virginia with 7 ICUs	Most critical care nurses feel that palliative care competencies are very important. Infrequent use of palliative care was associated with higher moral distress in ICU nurses.
Yerramilli et al. (2019)	What are the ethical issues encountered by radiation oncology consultation services offering palliative radiation?	Prospective cross-sectional survey	Clinicians (n=15 NP, MD (attending and resident) completed 140 patient surveys)	3 hospitals in the Boston area	In this study, ethical issues occurred in 1 in 10 referrals for consideration of palliative radiation. Common ethical issues included: interprofessional conflict, clinician-family conflict, clinician distress or feeling unable to do what the clinician believed to be in the patient's best interest.

Article & Year	Research Question	Design	Sample	Setting/ Context	Main Findings
Yoon, Hunt, Ravella, Jun, and Curlin (2017)	Does burnout and sense of calling differ by subspecialty exposure to end-of-life care?	Cross-sectional; survey with Likert-scale questions	MD (n=1156): control group ("general") from internal medicine, family medicine, cardiology, and nephrology ; comparison group ("EOL") from hospice and palliative care, geriatrics, oncology, and pulmonary/ critical care	National survey stratified random sample of 2016 practicing US physicians aged 65 years or younger obtained from the American Medical Association database	23% of physicians reported burnout. 72% report working in a clinical setting that favor patient-centered care as opposed to profit-centered. Burnout was higher for physicians working in profit-centered environment as compared to patient-centered. No significant association between burnout and a perceived sense of calling. MDs who reported emotional exhaustion often or always after a patient death were more likely to experience burnout. EOL specialties were more likely to report a calling to care for those at the EOL, than general MDs.
Zimmermann (2012)	How is the term death acceptance presented in the palliative care literature?	Discourse analysis (Foucauldian framework)	40 journal articles	Medline search between 1970-2001	Palliative care staff view death acceptance as a precondition for effective practice, while patients and families may need assistance in reaching death acceptance. There is a Foucauldian power exerted on the narrative of death acceptance, in which clinicians expect patients to die in a certain way.

A CLUSTER ANALYSIS OF CLINICIAN DISTRESS TRAJECTORIES WHEN CARING FOR
SERIOUSLY ILL HOSPITALIZED PATIENTS

ABSTRACT

Background: Over 33 million Americans are hospitalized every year; many of whom are seriously ill with one or more co-morbidities. Clinicians, including physicians and advanced practice providers (APPs) care for these complex patients while also juggling competing clinical demands. But clinicians are distressed, which has the potential to impact the quality of healthcare delivery at the moment of care and in the future. To date there is limited empirical inquiry examining the longitudinal trajectory of clinician distress and its potential impact on healthcare quality.

Research purpose: This study aims to describe unique clinician distress trajectories in general medicine hospital clinicians caring for seriously ill patients based on their level of distress over time through mobile ecological momentary assessments (mEMAs). This study is innovative as mEMA captures clinicians' level of distress in real-time, thus enabling a more accurate understanding of clinician distress trajectories.

Research design & methods: Latent class cluster analysis of prospective serial mEMAs from 184 hospital encounters was performed for hospital clinicians (n=68) caring for seriously ill patients (n=151). Exploratory analysis of patient and clinician variables was then performed using bivariate and univariate logistic regression.

Findings: Clinicians fell into four typology clusters: low distress (23.2%), moderate distress (33.1%), variable distress (19.7%) and high distress (23.9%). Credentials (APP vs. physician; $\chi^2=9.11$, $p=0.0025$) and clinician emotional experience ($\chi^2=11.29$, $p=0.0008$) were significantly associated with clustering by typology. Compared to physicians, APPs were six times more like to being in a higher distress typology (OR=6.16, $p=0.003$). Clinicians who had an increase in the number of emotions had an increased likelihood of being in a higher distress typology (OR=1.90, $p=0.001$). And mid-career clinicians were

more likely to be distressed than either early or late career. Patient and clinician demographics were not otherwise significantly related to clusters.

Conclusion: Clinicians experience distress throughout their workday. This study identifies unique distress trajectories and specific characteristics that should be leveraged by systems when designing interventions and support resources for hospital clinicians.

Introduction & Background

Hospital clinicians care for over 33 million Americans with either acute or acute on chronic illness every year (AHA, 2024). Two out of five hospital patients are seriously ill with one or more co-morbidities (Buttorff et al., 2017). Those with chronic, serious illness are the sickest of the sick; many with multiple co-morbidities requiring complex care including intensive care unit (ICU) stays (Buttorff et al., 2017; Teno et al., 2018). Who provides care influences patient outcomes (Kelley et al., 2014; Kutney-Lee et al., 2015). Prescribing clinicians—namely physicians and advanced practice providers (APPs) which includes nurse practitioners (NPs) and physician assistants (PAs)—caring for seriously ill hospitalized patients have the overwhelming task of managing complex patients and developing ever-changing care plans whilst also navigating interpersonal and interprofessional relationship from colleagues, consultants, and family caregivers. One or more of these factors may cause clinicians to become distressed, whether momentarily or cumulatively throughout their time on hospital service. However, there is a critical gap in both recognizing and measuring the full scope of clinician distress, its trajectories, and its impact on the care of patients with serious illness and their family members.

For the purpose of this study a definition of distress has been adapted from the National Comprehensive Cancer Network (NCCN, 2021). Clinician distress was defined as a complex unpleasant experience of psychological, emotional, social, spiritual and/or physical nature that impacts one's ability to perform daily tasks. In 2017, the National Academy of Medicine (NAM) created the *Action Collaborative on Clinician Well-Being and Resilience* given the staggering statistics around burnout

amongst clinicians (NAM, 2019). Indeed, more than 50% of physicians suffer from burnout (Sajjadi et al., 2017; Shanafelt et al., 2012). One out of four ICU nurses show symptoms of secondary trauma (NAM, 2019). And almost 40% of palliative care (PC) clinicians—those who attend to the emotional needs of patients everyday—report burnout (Kamal et al., 2019). NAM and the American Nurses Association (ANA) have recognized that all clinicians need both individual and systems-level interventions to attend to their respective well-being (ANA, 2017; NAM, 2019), yet there is no standardized way to support clinician distress, and little is known about the variability of individual clinician distress.

Further, there is a scarcity of research on how clinician distress manifests in real time, hinders care, or the likely unique trajectories that occur from the initial distress. The majority of research on clinician distress only captured survey data collected in a cross-sectional manner. However, psychologists have long recognized that emotions are fluid and change throughout the day (Barrett et al., 2007; Lindquist et al., 2012). Still, clinician contemporaneous distress and its impact on patient care is underrecognized and often goes unmeasured. In many studies, clinician distress is an incidental finding that requires deeper inquiry (Ankuda et al., 2020; Edrees et al., 2016). As of yet, the pattern and sequelae of clinician distress is not well understood.

Study Design

In this prospective longitudinal study, clinician distress trajectories were collected via mobile ecologic momentary assessment (mEMA) over two consecutive days while caring for at least one hospitalized seriously ill patient. Unique typologies of clinician distress were then identified through latent class cluster analysis of serial mEMA. This study was approved by University of Pennsylvania Institutional Review Board (#852340).

Sample Size & Power Analysis

Sample size estimation was conducted using One-Way Repeated Measures module in PASS 2021 v21.0.2. A recent study (Graham-Wisener et al., 2021) was used to obtain descriptive estimates for use of the Distress Thermometer (DT) (a visual analog scale ranging from 0 to 10) with means score of 5.4 (std

= 2.91). We assumed a six time points (6 mEMA prompts) study and assumed an autoregressive correlation [AR(1)] of 0.50 for repeated measures from the same subject. To obtain 80% power with type I error 5% for a 15% change in distress score over time [5.4 vs 4.59] using multivariate Hotelling-Lawley Trace Test, we need 134 participants. Assuming a 5% attrition at the end of study we need 141 clinicians.

Sampling & Recruitment

Clinicians were recruited from a multi-hospital regional health system in the northeastern region of the United States with three urban hospitals. Clinicians caring for serious illness patients were identified using a clinical prediction model for 6-month mortality risk developed within this health system and used as a mechanism for studying triggered PC interventions (Courtright et al., 2019). The mortality risk model was developed and validated at the study hospitals to predict the probability of death within 6 months of hospital admission (Courtright et al., 2019; Mohan et al., 2021). Patients on general medicine units with a predicted 6-month mortality risk $\geq 50\%$ were included; patients in high acuity setting such as intensive care units were excluded. Clinicians were invited via electronic health record (EHR) secure messages if they were caring for an eligible patient, that is when they were signed in as covering or primary provider within the EHR. Clinicians were defined as physicians (MD, attending or trainee) and APPs (which included NPs and PAs). Clinicians were instructed to (1) download the free mEMA smart phone application (app; “mEMA-Sense”)(“Illumivu,” n.d.) as each clinician has their own health system issued smart phone, (2) enter a unique access code, (3) and complete surveys over the course of two days.

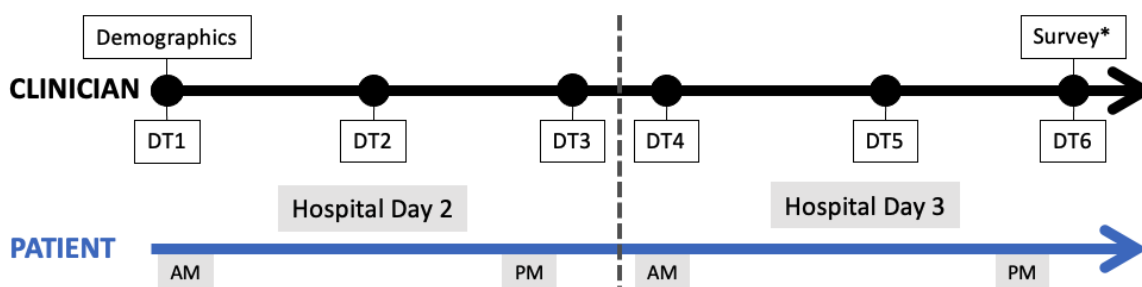


Figure 3.1. Timing of Data Collection.

Figure 3.1 Legend: Legend: Patient is identified on hospital day 2, then the clinician is invited to participate. First clinicians completed a demographic survey upon enrollment. Then, clinicians completed six unique distress thermometer (DT) scale over 2 days. Finally, at the end of hospital

day 3, the clinician completed other survey* including emotional experience index, and job strain, perception of support. Patient data is chart-extracted demographics (age, race, sex), admission diagnosis, primary serious illness, Charlson Comorbidity Index, documentation of goals of care, presence of palliative care consult referral, hospital length of stay and intensive care use.

Patient data was exclusively chart-extracted. **Figure 3.1** displays timing of data collection over the course of 2 days.

Pilot Study. In order to test the feasibility of the surveys and mEMA-Sense app ("*Ilumivu*," n.d.), surveys were built within the app and clinicians were recruited for testing in May 2023. Clinicians were recruited for this pilot who primarily worked in palliative care specialty consultative roles as they would not qualify for the study based on inclusion criteria. In total, 25 participants were recruited, 17 agreed to participate and 11 pilot participants completed at least one survey. Pilot participants gave valuable feedback on the question format, user guide and timing of survey (i.e. demand versus scheduled). During this time, a daily generated list in the EHR was built in collaboration with a data scientist based on the 6-month mortality prediction model algorithm. This algorithm list was thoroughly reviewed daily over a one-month (May 23, 2023 – June 24, 2023) to ensure there were enough patients who would be eligible for the study. During this month there were 281 patients in total identified (range 0 – 28 per day).

Recruitment. Clinicians were recruited between June 26, 2023 and September 14, 2023 (see **Figure 3.2** for sampling). In total 819 patients were identified as eligible via the 6-month mortality prediction model during this time frame. Patients were excluded if critically ill (n=261), resulting in a total of 558 eligible patients with 1120 eligible clinicians. Clinicians may be caring for more than one patient identified; similarly, each patient typically had two covering providers including an attending physician and either an APP or resident physician. As such, a total of 184 hospital encounters includes a clinician (n=68) matched with a seriously ill hospitalized patient (n=151). **Figure 3.2** also describes the number of missing surveys at the end of enrollment.

Measures. The Distress Thermometer (DT) is an 11-point visual analog scale (VAS) previously employed and validated in numerous studies (Bai et al., 2020; Donovan, Nelson, & Scheinfeld, 2017; Haverman et al., 2013; Jacobsen et al., 2005; Ma et al., 2014; Thekkumpurath et al., 2009; Wocial &

Weaver, 2013) to screen for distress across different populations. Global measures are parsimonious, however, across a number of studies that have been found to have similar psychometric properties when compared to more detailed measures for the phenomenon under study (Anusic & Schimmack, 2016; Goldberg, 1993; Hudson et al., 2020 & Donnellan, 2020; Lesage & Berjot, 2011; Lucas, 2007; Lucas & Donnellan, 2007; Schneider & Schimmack, 2009). Similarly, DT has demonstrated convergent validity with other commonly used and psychometrically validated tools such as the Hospital Anxiety and Depression Scale (Haverman et al., 2013; Holly & Sharp, 2012; Jacobsen et al., 2005; NCCN, 2021), Depression Anxiety Stress Scale-21 (Bai et al., 2020; NCCN, 2021), and the Perceived Stress Scale (Lesage et al., 2012).

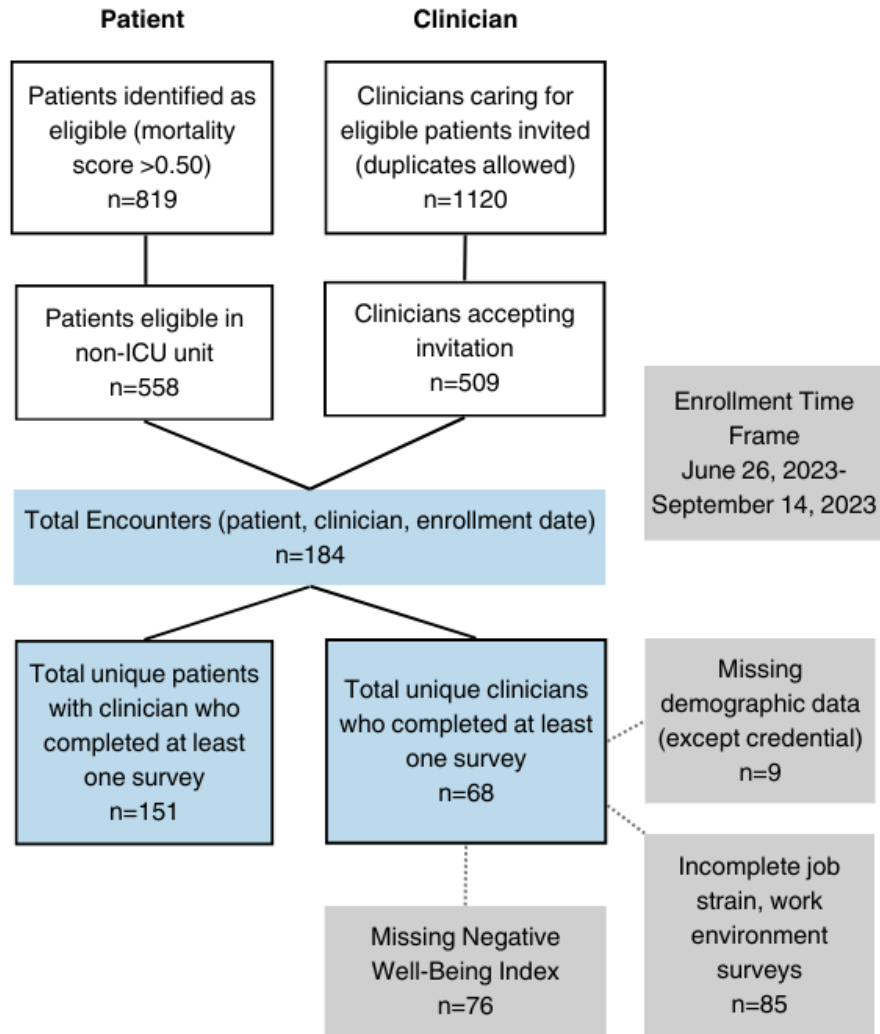


Figure 3.2 Recruitment & Data Framing

The Gallup negative experience index (Gallup, 2019) is a self-report tool measuring real-time symptoms and will be used similar to previous studies (Forrest et al., 2021). Questions were asked for one-day recall of negative affective daily life with seven yes/no questions of psychological and emotional symptoms (i.e., insomnia, pain, worry, sadness, anger, stress, fatigue). Multiple “yes” answers indicate high level of symptom in last 24 hours. Additional systems-level measures of environmental factors (job strain, workload, perception of climate, perceived support) was collected one-time after all mEMA data was collected.

The Charlson Comorbidity Index predicts 10-year survival in patients with multiple comorbidities including 19 weighted conditions, as score ≥ 5 is associated with an 85% risk of 1-year mortality (Charlson, Pompei, Ales, & MacKenzie, 1987).

Methods. Longitudinal cluster analysis was conducted in R software (v2023.12.0+369; R Core Team, 2021) using K-means clustering for longitudinal time-series data (Genolini et al., 2016; Genolini & Falissard, 2011). This software uses Calinski-Harabasz Index which provides a score for fit based on the quality of the clusters with particular attention to compactness and separation of clusters (Liu et al., 2013). Multiple cluster analyses were run to determine best fit based on statistics (Akaike information criterion (AIC), AIC-corrected (AICc), Bayesian information criterion (BIC) and Calinski-Harabasz Index (CHI)) as well as input from qualitative analyses (described in subsequent manuscripts). Typically, smaller fit statistics are better fit; however, for time series clustering we took into account the fit statistics, the size of each cluster and the trajectories themselves based on previous research and data collected during this study.

Data Analysis

The primary measure for this study, “clinician distress” is longitudinal as recorded for each clinician through six mEMAs. The goal of this study is to cluster clinicians based upon distress typologies, using a novel approach, “kmlShape,” specifically proposed to cluster longitudinal data (Genolini et al., 2016; Genolini & Falissard, 2011). This approach allowed researchers to partition data into clusters based on trajectories. Application of this approach allowed us to group clinicians whose trajectories have similar forms but shifted positions in time. We used Akaike information criterion (AIC), AIC-corrected (AICc), Bayesian information criterion (BIC) and Calinski-Harabasz Index CHI to determine the optimal number of clusters and rely on clinical relevance while determining the number of clusters.

The design of this study also allowed for a potential exploratory analysis based on other clinician variables and chart-abstracted secondary outcomes. Thus, exploratory secondary analysis examined the

clinician and patient characteristics associated with the primary outcome, namely typologies derived from trajectories. For bivariate and multivariate regression, clinician demographic covariates (i.e., clinician’s credentials, years of clinical experience, age, race, gender) were used. Due to short span of data collection (three assessments per shift over two consecutive days) we anticipated attrition, “kmlShape” imputes missing data using multiple imputation approach. **Figure 3.3** shows attrition over time for each of the six distress DT scales. Total hospital encounters, where a clinician completed at least one DT was 184, while the number of complete responses was 105. Given power analysis, final clusters were based on sample with at least four DT responses (n=142).

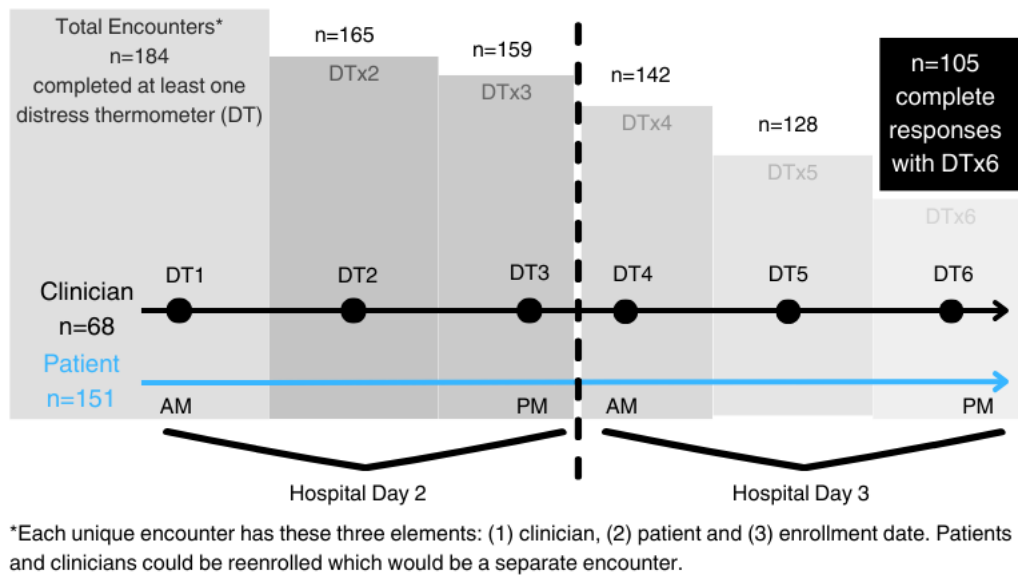


Figure 3.3 Longitudinal Sampling.

In these models we accounted for the correlation between observations from the same clinician. The clinician demographic predictors are clinician age (continuous), clinician race (two categories with White as reference vs non-White), clinician sex (two categories with male as reference), credentials (two categories with MD as reference), years of experience (three categories with early career as reference), seven symptoms from the Gallup survey (binary with “no” as reference), and the total number of Gallup items answered “yes” (continuous). The patient variable predictors are patient age (continuous), patient

race (two categories with White as reference vs non-White), patient sex (two categories with male as reference), admission diagnosis (three categories with “acute symptoms or disease exacerbation” as the reference group), primary serious illness (three categories with hematologic malignancies as the reference group). Associations with distress trajectory typologies were examined independently.

Findings

Clinician Demographic Data. Clinicians were primarily middle age (37.9 years, with a range from 27 to 67 years-old), female (59.3%), White (78%) (see **Table 3.1**). The sample included more physicians (60.3%) than APPs (39.7%). Clinicians had an average of 8.4 years’ experience (range 0-31 years). Most (40.7%) enrolled clinicians were early career (0-5 years’ experience; 10.2% of which were novice clinicians with less than one year experience), then mid-career (32.2%), followed by late career (27.1%).

Table 3.1. Clinician Demographics & Professional Variables.

Variable		Total (n=68)*
Clinician Age	N	59
	Mean (STD)	37.9 years (9.33)
	Range	27-67 years
Clinician Sex	Male	24 (40.7%)
	Female	35 (59.3%)
Clinician Race	White	46 (78.0%)
	Black	2 (3.4%)
	Asian	11 (18.6%)
Credentials	MD	41 (60.3%)
	Nurse Practitioner (NP)	16 (23.5%)
	Physician’s Assistant (PA)	11 (16.2%)
Years Experience	N	59
	Mean (STD)	8.4 years (7.47)
	Range	0-31 years
Years Experience Categories	Novice (Less than 1 year)	6 (10.2%)
	Early Career (1-5 years)	18 (30.5%)
	Mid Career (6-10 years)	19 (32.2%)
	Late Career (11+ years)	16 (27.1%)
<i>*Nine clinicians did not complete demographic data; however, credentials were known for all clinicians</i>		

According to population data, 43.8% physicians are female, 88.7% NPs are female, and 67.7% PAs are female (Hooker & Christian, 2023). Mean age for physicians is 45.1 years, NP mean age is 43.3 years and PA mean age is 39 years (Hooker & Christian, 2023). This sample is similar to physician national race for

Asian (17.1%) and Black (5%) physicians; however nationally physicians are 56.2% White (AAMC, 2019). Race for APPs is also comparable, NPs are primarily White (77.8%), Black (13.5%), and Asian (7.3%); and PAs are primarily White (84.2%), Black (4.8%), and Asian (6.4%) according to Bureau of Labor Statistics (BLS) data (BLS, n.d.).

Patient Demographic Data. Patients average age was 65.4 years (see **Table 3.2**). The majority of patient enrolled were male (53.6%), White (61.6%). In this Northeastern city, census data from 2022, reports 34.5% residents are White, 39.5% are Black, 7.9% are Asian (US Census, 2022).

Table 3.2. Patient Demographics.

Variable		Total (n=151)
Patient Age	Mean (sd)	65.4 years (13.00)
	Range	24-92 years
Patient Sex	Male	81 (53.6%)
	Female	70 (46.4%)
Patient Race/Ethnicity	White	93 (61.6%)
	Black	44 (29.1%)
	Hispanic	3 (2.0%)
	Asian	2 (1.3%)
	Other	5 (3.3%)
	Unknown	3 (2.0%)
	Other/Hispanic	1 (0.7%)
Admission Diagnosis Group	Acute symptoms or disease exacerbation	44 (64.7%)
	Infectious	15 (22.1%)
	Cancer-directed therapies	9 (13.2%)
Primary Serious Illness Group	Hematologic malignancies	19 (27.9%)
	Solid tumor malignancies	34 (50.0%)
	Non-cancer chronic illness	15 (22.1%)

Primary reasons for hospital admission were acute symptoms or disease exacerbation (64.7%) including but not limited to uncontrolled pain, nausea, diarrhea, dyspnea, change in mental status, disease progression, tumor lysis syndrome, heart failure exacerbation, chronic obstructive pulmonary disease exacerbation, acute kidney injury, acute liver injury, and lab abnormalities. Secondly, 22.1% of patients were admitted for infectious suspicions including fever, suspected or confirmed sepsis, rash, urinary tract infection, cytokine release syndrome, and pneumonia. And 13.2% of patients were admitted for cancer-directed therapies; this could be for acute diagnosis such as induction therapy for newly diagnosed acute

myeloid leukemia, or planned admission for cellular therapies (stem cell transplant, novel CAR-T therapy), immunotherapies, or clinical trial initiation. The majority of patients has a primary serious illness of a solid tumor malignancy (50%), followed by hematologic malignancy (27.9%) then non-cancer chronic illness (22.1% including cardiopulmonary disease, end-stage renal disease or hepatologic issue).

Primary Outcome: Clinician Distress Typology. Longitudinal cluster analysis was conducted in R software (v2023.12.0+369; R Core Team, 2021) using K-means clustering for longitudinal time-series data (Genolini et al., 2016; Genolini & Falissard, 2011) to determine distress cluster typologies.

Figure 3.4A shows the typologies based on complete responses (each encounter had six DTs).

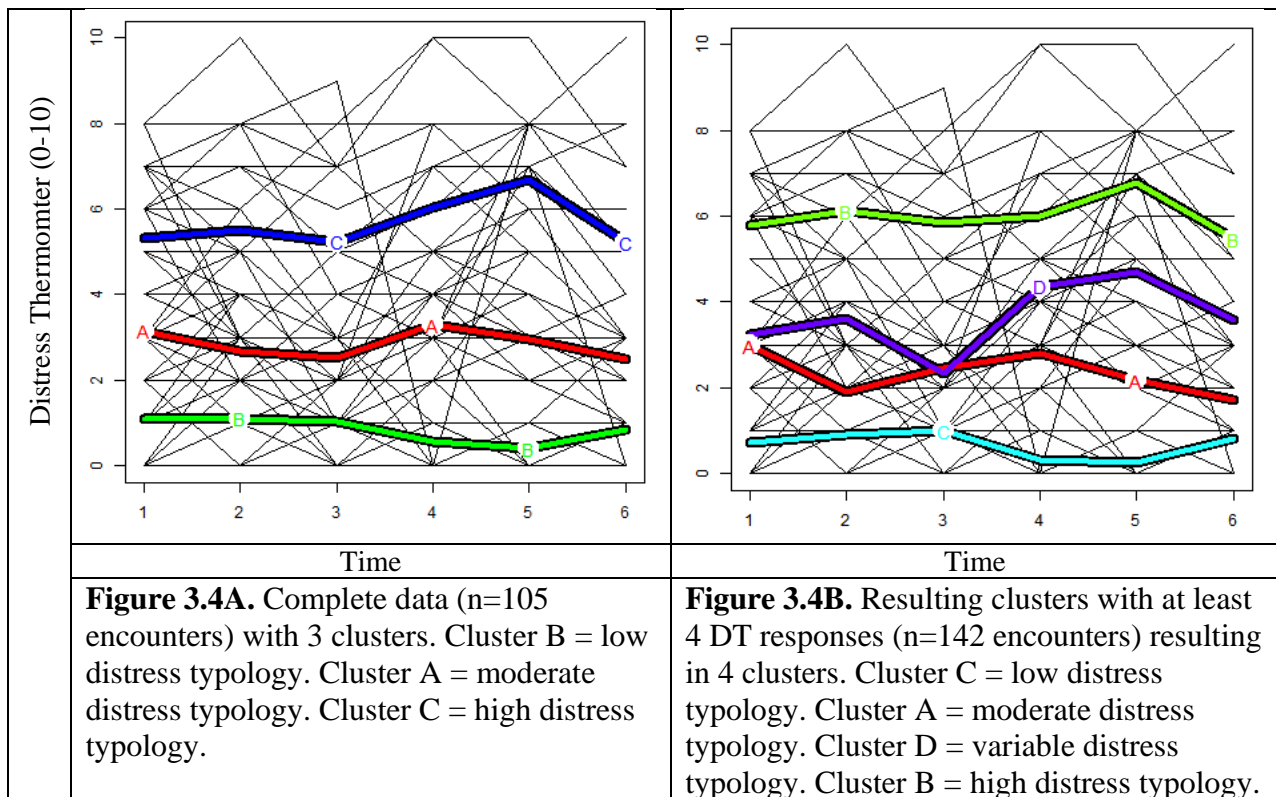


Figure 3.4. Cluster Analysis.

Percentages for each typology is as follows: low distress typology (29.6%), moderate distress typology (43.4%), and high distress typology (27.0%) (AIC = -3333.0, AICc = -3338.5, BIC = -3391.3, CHI = 127.9).

Figure 3.4B shows the typologies with at least four DT responses, where DT5 and DT6 were imputed when missing. Results include the following clinician distress trajectories: low distress typology

(23.2%), moderate distress typology (33.1%), variable distress typology (19.7%) and high distress typology (23.9%) (AIC = -3113.9, AICc = -3125.1, BIC = -3187.8, CHI = 96.3).

Secondary Outcome: Clinician Emotional Experience. Clinician emotional experience was captured through the Gallup Negative Experience Index (referred to as Gallup; (Gallup, 2019) which is a self-report tool measuring real-time symptoms asking for one-day recall of psychological and emotional symptoms. Multiple “yes” answers indicate a high level of symptoms in the last 24 hours; total score was calculated on a scale of 0-7 and used in modeling. Nearly two out of five clinicians complained of fatigue (59.3%) and stress (57.4%) a lot of the day yesterday (**Table 3.3**).

Table 3.3. Clinician Emotional Experience.

Gallup Negative Experience Item	Response	N (%) Total = 108*
Sleep	No	72 (66.7%)
	Yes	36 (33.3%)
Pain	No	103 (95.4%)
	Yes	5 (4.6%)
Worry	No	57 (52.8%)
	Yes	51 (47.2%)
Sad	No	98 (90.7%)
	Yes	10 (9.3%)
Anger	No	93 (86.1%)
	Yes	15 (13.9%)
Stress	No	46 (42.6%)
	Yes	62 (57.4%)
Fatigue	No	44 (40.7%)
	Yes	64 (59.3%)

*76 participants did complete this survey

Almost half of clinicians reported worrying a lot of the day yesterday (47.2%). One in three clinicians had trouble sleeping the night before. Additionally, clinicians reported feeling angry (13.9%), sad (9.3%) or in pain (4.6%) most of the day yesterday.

Secondary Patient Outcomes. Patients included in the study had a 70% mean risk of 6-month mortality (**Table 3.4**) and an average Charlson Comorbidity Index score of 7.8 indicating multiple chronic serious illness with high risk of mortality. Average hospital length of stay was 10.2 days and average ICU length of stay was 1.3 days.

Table 3.4. Secondary Patient Outcomes.

Patient Variable	Total N = 151	
Palliative Connect Score	Mean	0.7
	Range (0, 1)	
	Standard deviation	0.12
Charlson Comorbidity Index	Mean	7.8
	Range (2, 15)	
	Standard deviation	2.80
Length of Stay (LOS, days)	Mean	10.2
	Range (2, 65)	
	Standard deviation	10.93
ICU LOS (days)	Mean	1.3
	Range (0, 51)	
	Standard deviation	6.88

After hospital discharge, secondary palliative care outcomes were collected which included presence of a palliative care consult during hospital admission of interest and presence of goals of care documentation (**Table 3.5**). A high number of patients had palliative care consults ordered during admission (23.1%). Almost half of the patients had goals of care documentation, either in the Advanced Care Planning tab in the EHR or in a palliative care clinical chart note.

Table 3.5. Secondary Patient Palliative Care Outcomes.

Palliative Care Outcome	Response	N (%)
		Total = 182
Palliative Care (PC) Consult	No	140 (76.9%)
	Yes	42 (23.1%)
Presence of Goals of Care Documentation	No	101 (55.5%)
	Yes	77 (42.3%)
	Yes in PC Note	4 (2.2%)

Exploratory Analysis by Clusters. Bivariate logistic regression models were calculated to explore the relationship between clinician distress typology cluster and clinician and patient variables (**Table 3.6**). In the 3-cluster model, clinician credentials ($\chi^2=16.83$), clinician years of experience ($\chi^2=17.65$), and clinician age ($\chi^2=5.53$) were all statistically significant by cluster, that is higher level of distress was associated with credentials, years experience and clinician age. In the 4-cluster model, the only statistically significant clinician variable was credentials ($\chi^2=9.11$).

Table 3.6. Exploratory Analysis for Clusters.

Clinician Variable	3-Cluster Models		4-Cluster Models	
	χ^2	p-value	χ^2	p-value
Clinician Variable				
Credentials (dichotomous)	16.83	<.0001	9.11	0.0025
Years Experience	17.65	0.0005	2.16	0.3388
Age	5.53	0.0187	0.78	0.3760
Race	0.32	0.5728	0.04	0.8349
Sex	0.34	0.5573	0.09	0.7642
Patient Variable				
Age	0.24	0.6247	0.56	0.4546
Race	0.55	0.4564	0.42	0.5175
Sex	0.34	0.5608	0.10	0.7490
Diagnosis	0.59	0.7462	0.27	0.8737
Primary Serious Illness	1.49	0.4749	0.98	0.6112
Clinician Emotional Experience				
Insomnia	22.24	<.0001	5.87	0.0154
Pain	0.27	0.6042	0.93	0.3347
Worry	18.48	<.0001	6.90	0.0086
Sadness	5.37	0.0204	5.59	0.0181
Anger	2.34	0.1257	1.89	0.1689
Stress	17.23	<.0001	4.63	0.0316
Fatigue	13.52	0.0002	3.86	0.0495
Total Gallup Score	29.30	<.0001	11.29	0.0008

In terms of patient variables, there were no statistically significant associations based on patient demographics or patient diagnoses. Additionally, clinician emotional experience (as measured by Gallup) was statistically significant based on clustering for multiple symptoms for both clusters: insomnia ($\chi^2=22.24$ with 3 clusters and $\chi^2=5.87$ with 4 clusters), worry ($\chi^2=18.48$ with 3 clusters and $\chi^2=6.90$ with 4 clusters), sadness ($\chi^2=5.37$ with 3 clusters and $\chi^2=5.59$ with 4 clusters), stress ($\chi^2=17.23$ with 3 clusters and $\chi^2=4.63$ with 4 clusters), and fatigue ($\chi^2=13.52$ with 3 clusters and $\chi^2=3.86$ with 4 clusters). If the clinician answered “yes” to those symptoms, they were more likely to be in a higher distress typology. Total composite Gallup score (multiple “yes” responses) was also statistically significant for each cluster ($\chi^2=29.30$ with 3 clusters and $\chi^2=11.29$ with 4 clusters).

Table 3.6 presents the univariate ordinal logistic generalized estimating equation (GEE) models with both 3-clusters and 4-clusters as the dependent variable (**Table 3.7**).

Table 3.7. Models for Clusters.

3-Cluster Models, N=159	4-Cluster Models, N=142
-------------------------	-------------------------

	OR (95% CI)	p-value	OR (95% CI)	p-value
Clinician Variable (Ref)				
Credentials (APP)	3.75 (1.20-11.74)	0.023	6.16 (1.89-20.1)	0.003
Years Experience (early vs mid)	1.12 (0.29-4.40)	0.868	1.80 (0.50-6.52)	0.370
Years Experience (early vs late)	0.50 (0.12-2.11)	0.348	0.63 (0.14-2.88)	0.549
Clinician Age*	0.95 (0.86-1.04)	0.248	0.96 (0.86-1.06)	0.376
Clinician Race (White)	1.21 (0.33-4.48)	0.773	1.13 (0.35-3.69)	0.835
Clinician Sex (male)	1.20 (0.35-4.12)	0.777	1.21 (0.35-4.19)	0.764
Patient Variable				
Patient Age*	1.01 (0.98-1.03)	0.609	1.01 (0.99-1.03)	0.455
Patient Race (White)	1.26 (0.65-2.43)	0.489	1.26 (0.63-2.52)	0.518
Patient Sex (male)	1.19 (0.66-2.14)	0.560	1.11 (0.59-2.10)	0.749
Admission Diagnosis: Infectious (acute symptoms)	1.12 (0.54-2.31)	0.764	1.10 (0.55-2.20)	0.790
Admission Diagnosis: Cancer-directed therapies (acute symptoms)	0.76 (0.23-2.55)	0.662	0.80 (0.21-3.15)	0.754
Primary Serious Illness: heme-malignancies (solid tumor)	0.60 (0.17-2.18)	0.440	0.60 (0.16-2.20)	0.440
Primary Serious Illness: heme-malignancies (non-cancer)	0.36 (0.07-1.87)	0.225	0.42 (0.07-2.58)	0.346
Clinician Emotional Experience				
Insomnia (no)	10.0 (2.45-41.2)	0.001	5.08 (1.37-18.9)	0.015
Pain (no)	1.65 (0.19-14.1)	0.649	2.73 (0.35-21.0)	0.335
Worry (no)	6.65 (1.96-22.5)	0.002	4.65 (1.48-14.7)	0.009
Sadness (no)	3.98 (0.57-27.8)	0.164	21.0 (1.68-262)	0.018
Anger (no)	1.88 (0.59-6.00)	0.289	2.83 (0.64-12.4)	0.169
Stress (no)	6.57 (1.46-29.6)	0.014	4.20 (1.14-15.5)	0.031
Fatigue (no)	4.85 (1.22-19.3)	0.025	3.54 (1.00-12.5)	0.049
Total Gallup Score*	1.95 (1.26-3.02)	0.003	1.90 (1.31-2.76)	0.001
*Continuous; Ref = Reference Group; APP = advanced practice provider				

The two sets of models do not differ greatly from a statistical standpoint. For instance, an APP is more likely to be on a higher distress typology than an MD (OR = 6.16 with 4 typologies and OR = 3.75 with 3 typologies). So, an APP's odds of being in higher typologies are six times a physician's odds of being in higher typologies. That is, an APP's odds of being in moderate, high or variable typologies versus low distress typology; being in high or variable typologies versus low or moderate typologies; or being in the high typology versus all other typologies, all increased by a factor of 6.1592.

And the increase of number of emotions ("Total Gallup Score") will increase the likelihood of being on a higher distress typology (OR = 1.8993 with 4 typologies and OR = 1.9522 with 3 typologies). However, the confidence intervals are wide for certain variables, indicating that the OR have lower precision. For instance, the composite Gallup score is more reliable than the individual items for

emotional experience. To explain further, for the composite score for negative experience, if a clinician had an additional negative experience item, their odds of moving to higher typologies increased by a factor of 1.8993. That is, their odds of being in moderate, variable, or high typologies versus low distress typology; being in variable or high typologies versus low or moderate typologies; or being in the high distress typology versus all other typologies, all increased by a factor of 1.8993.

Patient variable and clinician demographics were not statistically significant. Although clinician years of experience was not statistically significant, importantly for clinicians in mid-career group, they are more likely to be in a higher typology (OR=1.8) than those in early career in the 4-cluster model. Contrarily, clinicians in the late career group were less likely to be in a higher typology (OR=0.6) than those in the mid-career group.

Discussion

Clinician distress is a major problem in healthcare that is not well understood until there are downstream effects, such as impact on patient care and clinicians leave the healthcare profession. To our knowledge, this is the first study to examine psychological distress trajectories of hospital clinicians. There has been previous research looking at distress and depressive symptom trajectories in patients and caregivers which encourages clinicians to assess symptoms over time to provide more tailored interventions (Foster et al., 2019; Heeke, Franzen, Hofmann, Knaevelsrud, & Lenferink, 2022; Kuo, Sun, & Tang, 2017; Lacourt, Koncz, Tullos, & Tripathy, 2023; Linder & Hooke, 2019). Previous research on clinician distress primarily examines moral distress in a cross-sectional manner (Allen et al., 2013; Altaker et al., 2018; Bender et al., 2019; Mobley et al., 2007; Sirilla et al., 2017; Whitehead et al., 2015; Wolf et al., 2019). By expanding the definition of clinician distress, beyond only moral conundrums of care, this study adds to the knowledge of psychological and emotional distress that clinicians experience throughout the day. Further, clustering clinician distress into unique typologies deepens the understanding of being a hospital clinician. An unexpected cluster surfacing from this study is the variable distress

typology. This group has not been discussed previously in the literature and does not follow an expected course throughout the day.

Clinicians in higher distress typologies had more symptoms—emotional and physical. Previous research confirms that psychological distress is associated with higher emotional burden in patients (Erdogan Yuce, Doner, & Muz, 2021; Grotmol et al., 2019; Morrison et al., 2017; Sadowska et al., 2023). Physicians who report emotional exhaustion after a patient death may be more likely to experience burnout (Yoon et al., 2017). Research in moral distress points to negative emotions triggering distress, however there is little research on the physical symptoms associated with clinician distress (Campbell et al., 2016; Foxwell, Meghani, & Ulrich, 2021; Patch et al., 2023; Rushton, Kaszniak, & Halifax, 2013). During the COVID-19 pandemic, there was increased awareness of the emotional and physical symptoms that clinicians experienced (Forrest et al., 2021; Lai et al., 2020; Lake et al., 2022; Pappa et al., 2020; Rossi et al., 2020). The prevalence of symptoms we found is similar to a large study (n=14,600 clinicians from the HERO Registry) during the first phase of COVID-19, with two notable differences; here clinicians were more worried (47.2%) as compared to 38% in HERO; and less physical pain in this sample (4.6%) when compared to HERO (19%) (Forrest et al., 2021). More research is needed to understand the breadth of symptoms that clinicians experience.

The patient sample from this study had a high risk of mortality, higher usage of specialty palliative care than the general hospital population, and had significant comorbidities. A high number of patients had palliative care consults ordered during admission (23.1%) as compared to site and national average. The Center to Advance Palliative Care (CAPC) reports national benchmark of hospital-based PC penetration of approximately 5% of total census (CAPC, 2017). At the study sites, there was an average range of 4.7-7.5% of palliative care consults ordered among all hospital admissions during this study. Other research on high acuity patients in the ICU shows nurses experience higher levels of moral distress when palliative care was not consulted (Wolf et al., 2019). For instances, critical care nurses experience “personal distress” when caring for dying patients in the ICU (Hinderer, 2012). Another study found that

emotional distress was not associated with a specific diagnosis or presence of palliative care consult for ICU nurses (Lief et al., 2018). In fact, certain system characteristics may promote a culture of avoidance rather than address ethically complex patient situations (Pavlish et al., 2015).

Another significant finding from this study is that APPs were more highly distressed than physicians. Previous research typically combines APPs and physicians; finding that nurses experienced higher levels of moral distress than APPs and physicians (Bender et al., 2019; Whitehead et al., 2015). Other research examining moral distress found that nurses experience higher levels of moral distress than other disciplines; yet APPs were not included (Houston et al., 2013). Still other research combines NPs with registered nurses (Johnson-Coyle et al., 2016), causing further role confusion in understanding the unique role of advanced practice nurses. One study of NPs alone found that emergency department NPs had less moral distress than MDs when compared to previous research (Trautmann, Epstein, Rovnyak, & Snyder, 2015); which is inconsistent with the current study.

Another important finding was that the mid-career group (those with 6-10 years of experience) were more likely to be in a higher distress typology than both the early career and late career group. Although not statistically significant, this finding may have practical or clinical implications. Studies have shown that critical care nurses with greater than four years of experience had higher levels of moral distress (Moblely et al., 2007).

Implications

There are major implications from this study for clinician well-being on an individual, institutional, healthcare system, research, and policy level. From an individual perspective, clinicians, researchers, and leaders need to change the way they think about clinician well-being and distress. There is no universal prevention for clinician distress, nor is there a universal way to promote clinician well-being as evidenced by the variety of distress trajectories and typologies demonstrated in this study.

From an institutional and healthcare system perspective, it is important to recognize that clinician distress is not necessarily related to caring for a particular seriously ill patient. At a system level, there is

an opportunity to target interventions in doses based on distress typology. Moreover, APPs may require tailored support for clinician distress based on the findings. More research is needed to understand the sources of distress and support to facilitate targeted intervention development.

Research implications are numerous. This study needs to be replicated in a boarder population to confirm or expand the number of typologies. Further exploration with qualitative inquiry would help to understand the nuances of the experience of clinician distress. Future research should explore potential interventions that could be employed by clinicians earlier to recognize emotional reactions.

On a policy level, reviewing and reevaluating APP staffing ratios could help mitigate some of the distress experience. Previous work establishing nursing staff ratios has proven that higher levels of moral distress and burnout when nurses are overworked (Aiken et al., 2002; Aiken et al., 2023; Lasater et al., 2021). Professional organizations should lobby for policy to address clinician distress and prevent downstream effects like burnout and turnover. The National Academy of Medicine (2019) recognizes that clinician well-being is a priority; NAM and other organizations need to support policy to address clinician distress including psychological care and resources.

Strengths & Limitations

This study has numerous strengths. Specifically, this is a longitudinal prospective study capturing change in distress over time. The sample size was adequate and spread across typologies. Prior to recruitment there was concern for selection bias, that is, that more distressed clinicians would opt-in to the survey. However, this was not the case given that the low and moderate distress typologies were adequate. Additionally, examining the emotional and physical symptoms in real-time is a novel early intervention that has rarely been used before.

This study should be interpreted in the context of certain limitations. First, this study was performed within one healthcare system. Clinicians in other systems and in other geographical areas may have different experiences of distress. Second, in the context of this longitudinal study some participants did not complete all surveys over the course of the study. Despite this challenge, we were able to achieve

adequate sample size based on preliminary power analysis. Thirdly, we anticipated that clinicians may be re-enrolled and may be caring for multiple seriously ill patients. While we welcomed clinicians to reenroll, this limited the analysis of specific patient-clinician dyads.

Conclusions

Hospital clinicians are distressed and experience multiple emotional and physical symptoms. By understanding the unique typologies of clinician distress, hospital leadership and researchers alike can partner to create short-term and long-term interventions based on expected distress trajectory. One in two clinicians are tired, stressed, and worried most of the time. Focusing on those more likely to be in a higher distress typology—APPs and mid-career clinicians—practical and scalable support and resources may help decrease distress, promote clinician well-being and mitigate burnout to benefit clinicians themselves, the patients and families for whom they care, and the institutions where they work.

A MIXED METHODS INTEGRATION OF CLINICIAN DISTRESS TYPOLOGIES IN THOSE
CARING FOR SERIOUSLY ILL PATIENTS WITHIN THE HOSPITAL SETTING

ABSTRACT

Background: Hospital clinicians in the US care for almost 34 million patients each year; 40% of whom are seriously ill with one or more co-morbidities. General medicine hospital clinicians—which includes physicians (at all training levels), nurse practitioners, and physician assistants—try to provide expert care for these patients with serious illness while also attending to family needs, interdisciplinary and interpersonal relationships, and the clinician’s own well-being. Clinicians, themselves, are increasingly experiencing psychological distress, which ultimately can impact the delivery of patient-centered care. Yet, the sources of clinician psychological distress are often unmeasured and consistently underrecognized.

Research purpose: This study aims to: (1) generate an understanding of the experience of clinician distress and its potential implications for patient-centered hospital care through qualitative semi-structured interviews, (2) elucidate how qualitative themes are distributed across the levels of clinician distress clusters/typologies previous defined.

Research design & methods: A mixed methods (QUAN→qual) explanatory sequential. Qualitative data augments the identification of distress typologies by providing context and a richer understanding of the clinicians’ experience of distress while caring for seriously ill hospitalized patients.

Findings & Conclusion: Qualitative themes examined the experience of distress by typology. Across typologies common themes included sources of distress, symptoms of distress, interpersonal variability of distress, implications of distress. Mixed analysis confirmed typologies with inductive themes and mean distress thermometer score (DT1) as well as clinician emotional experience mean (Gallup) score: (i) low distress typology theme of “*equanimity...but not like a robot*” (DT1, 0.73; Gallup 0.53); (ii) moderate

distress typology theme of “*tightrope*” (DT1, 2.98; Gallup, 2.05), (iii) variable distress typology “*comfortable in the chaos*” (DT1, 3.25; Gallup, 2.19), and (iv) high distress typology inductive code of “*weight/waiting*” (DT1, 5.79; Gallup, 3.55). Perception of support and work climate was inversely related to distress typology. Mixed analysis expanded the depth and breadth of emotions experienced by clinicians caring for hospitalized seriously ill patients. This study is a preliminary step in comprehending clinician psychological distress and has important implications for healthcare systems developing workplace resources for support.

Introduction

The National Academy of Medicine and the American Nurses Association have recognized that all clinicians need both individual and systems-level interventions to attend to their respective well-being (ANA, 2017; NAM, 2019), yet there is no standardized way to support clinician distress, and little is known about the existing resources that clinicians may be using to mitigate distress. There is a scarcity of research on how clinician distress manifests in real time, hinders care, or the likely unique trajectories that occur from the initial distress that may affect patient outcomes. Most of the research on clinician distress only captured survey data collected in a cross-sectional manner. However, psychologists have long recognized that emotions are fluid and change throughout the day (Barrett et al., 2007; Lindquist et al., 2012). In many studies, clinician distress is an incidental finding that requires deeper inquiry.

Gray literature provides examples of clinician distress while caring for complicated patients (Baruch, 2020; Loren, 2018) or redefining personal boundaries during end-of-life care (Thomas, 2007; Wales, 2019). During the COVID-19 pandemic, clinicians in real-time reflected on the overwhelming strains of managing incredibly sick patients while facing their own psychological or existential distress (Dintino et al., 2020; Lamas, 2020; Martin et al., 2020; Miller, 2020; Riordan, 2020). These accounts are all important narratives from the perspective of the clinician and how their ability to communicate and empathize with patients influences their sense of patient-centered care delivery. Yet, what occurs after

these clinicians acknowledge their distress is unknown. Quantitative work serving as the first arm of this study begins to establish a pattern and sequelae of clinician distress. A mixed methods approach is well-suited to look more closely at these patterns of clinician distress in serious illness care as the problems are complex requiring inquiry into both the how and the why (Farquhar et al., 2011). Through the collection of both quantitative and qualitative data, triangulation of findings will be strengthened (Creswell & Clark, 2018; Denzin, 2012; Tashakkori & Teddlie, 2010).

Study Design

A mixed methods (QUAN→qual) explanatory sequential study was completed. The quantitative design and findings are discussed in previous manuscript where clinician distress typologies were identified via cluster analysis. These typologies inform the design for the qualitative and mixed study described here. The experience of distress, sources and variability of clinician distress and its potential implications are explored through in-depth interviews (SA2) with clinicians from each typology: (i) low distress typology, (ii) moderate distress typology, (iii) variable distress typology, and (iv) high distress typology. A semi-structured interview guide was developed and guided by the research question: “What is the experience of clinician distress?” (see **Appendix II: Semi-Structured Interview Guide**) Mobile ecologic momentary assessment (mEMA) data gathered from SA1 informed the qualitative arm where clinicians provided context and stories to mEMA data that expanded the understanding of the quantitative data by providing thick description of distressing events. Quantitative (typologies) and qualitative (clinician distress themes analyzed by qualitative descriptive methods) data were integrated using thematic matrix analysis to further elucidate how qualitative themes are distributed across the levels of distress typologies. This study was approved by University of Pennsylvania Institutional Review Board (#852340).

Sample & Data Collection

Recruitment. Clinicians who are caring for seriously ill patients were identified via a clinical prediction model for 6-month mortality risk developed to identify hospitalized patients with serious

illness, defined as >50% predicted risk of death within 6 months (Courtright et al., 2019; Mohan et al., 2021). The hospitalized patient was identified on hospital day 2 based on mortality score, then the clinician is invited to participate. Clinicians completed a demographic survey upon enrollment. Demographic data included age, sex, gender, race, ethnicity for all participants. Clinicians were also asked about credentials and years of experience. Then, clinicians completed six unique distress thermometer (DT) scale over 2 days. Additional surveys (described below) were completed at the end of hospital day 3. Total hospital encounters (n=184) included unique clinicians (n=68) and unique patients (n=151).

For qualitative recruitment, a question was built-in to the final mEMA survey asking if the participant would be interested in a follow-up interview. Interested clinicians were contacted via e-mail, text, or secure chat to schedule interview. In total 36 participants were contacted, and 25 participants completed interviews between July 18, 2023, and October 28, 2023. A Distress Protocol (see **Appendix III: Distress Protocol**) was developed based on previous work in case of emotional distress during interviews (Draucker, Martsof, & Poole, 2009).

Measures. The Distress Thermometer (DT) is an 11-point visual analog scale (VAS) previously employed and validated in numerous studies (Bai et al., 2020; K. A. Donovan et al., 2014 & Jacobsen, 2014; Haverman et al., 2013; Jacobsen et al., 2005; Ma et al., 2014; Thekkumpurath et al., 2009 Newsham, & Bennett, 2009; Wocial & Weaver, 2013) to screen for distress across different populations. DT has demonstrated convergent validity with other commonly used and psychometrically validated tools such as the Hospital Anxiety and Depression Scale (Haverman et al., 2013; Holly & Sharp, 2012; Jacobsen et al., 2005; NCCN, 2021), Depression Anxiety Stress Scale-21 (Bai et al., 2020; NCCN, 2021), and the Perceived Stress Scale (Lesage et al., 2012 2012).

Patient demographics included EHR-abstracted diagnosis, severity of illness, and co-morbidities. Additional patient-level data were extracted from EHR including documentation of goals of care, presence of palliative care consult referral, hospital length of stay and intensive care use. Finally, at the

end of hospital day 3, the clinician completed other surveys including emotional experience index (via Gallup negative experience index) and system-level measure of environmental factors. The Gallup negative experience index (Gallup, 2019) is a self-report tool measuring real-time symptoms and will be used similar to previous studies (Forrest et al., 2021). Questions were asked for one-day recall of negative affective daily life with seven yes/no questions of psychological and emotional symptoms (i.e., insomnia, pain, worry, sadness, anger, stress, fatigue). Multiple “yes” answers indicate high level of symptom in last 24 hours. Additional systems-level measures of environmental factors (job strain, workload, perception of climate, perceived support) all on an 11-point scale of poor (0) to outstanding (10) was collected one-time after all mEMA data was collected.

Data Analysis

Qualitative Data Analysis. Transcripts were de-identified and stored in NVivo software (Lumivero, 2024) on a secure server at the University of Pennsylvania. Transcripts were analyzed through a deductive and inductive process. Initially, all transcripts were cleaned and reviewed. A case summary was created for each transcript using major concepts from the interview guide as well as the individual mEMA chart (all DT scores during enrollment) shared during the interview. Transcripts were then analyzed through an iterative process by qualitative descriptive methods (Elo et al., 2014; Korstjens & Moser, 2017; Sandelowski, 2000b). A codebook was created based on concepts derived from the interview guide and imported into NVivo (v14.23.4; Lumivero, 2024). Transcripts were flagged by distress typology and coded through this deductive approach. Concurrently inductive codes were created by establishing suitable meaning units in first level coding, then abstract the meaning units into emergent categories, followed by second level coding (Graneheim & Lundman, 2004; Hsieh & Shannon, 2005). Categories were then grouped further into themes that evolved throughout the analytic process. Credibility and confirmability will be established by triangulating findings and reviewing categories and themes with mentorship team (Colorafi & Evans, 2016; Elo et al., 2014; Korstjens & Moser, 2018). To maintain validity, there was minimal transformation of the qualitative data (Creswell & Clark, 2018).

Mixed Data Analysis. Qualitative data was analyzed as above. The primary measure for the original quantitative study was “clinician distress” which was longitudinal as recorded for each clinician through six mEMAs. The goal was to cluster clinicians based upon distress typologies, using a novel approach, “kmlShape,” specifically proposed to cluster longitudinal data (Genolini et al., 2016; Genolini & Falissard, 2011). This approach allowed researchers to partition data into clusters based on trajectories with 4-resulting typologies. Then, exploratory secondary analysis through bivariate regression (χ^2 , p-value) was conducted for clinician characteristics, patient characteristics, emotional experience (as measured by Gallup), perceptions of support, workload and job strain.

Integrated data analysis occurred by mixing clinician quantitative and qualitative data. To gain insight on the complex phenomenon of clinician distress typologies, qualitatively-identified themes were triangulated with typologies. Quantitative and qualitative data was merged with a triangulation approach for comprehensiveness analysis of the phenomenon (Fetters, Curry, & Creswell, 2013; Younas, Pedersen, & Durante, 2020). Informational matrixes were developed to visually display data and presented in findings (Creswell, Fetters, & Ivankova, 2004; Fetters et al., 2013; Guetterman, Fetters, & Creswell, 2015; Tashakkori & Teddlie, 2010). The goal of integration was to consider how merged results provide a better understanding of clinician distress and impact on patient care. Integration yielded mixed method meta-inferences interpreted as confirmed, discordant, expanded and/or illustrated within joint displays (Creswell & Clark, 2018; Creswell et al., 2004; Fetters et al., 2013; Guetterman et al., 2015; Younas et al., 2020).

Findings

Qualitative Findings. A total of 25 interview transcripts were analyzed which included low distress typology (n=8), moderate distress typology (n=8), variable distress typology (n=5) and high distress typology (n=4). Clinician demographics are listed in **Table 4.1**. Notably, 52% of clinicians were physicians, eight of which were attending physicians and five trainees (both residents and fellows). Advanced practice providers (APPs) included 8 nurse practitioners and 3 physician assistants.

Interviewees were distributed evenly across years of experience and sex. The majority were White (80%). Interviews took an average of approximately 40 mins (minimum of 17:05 minutes and maximum of 69:48 minutes). Most interviews took place via Zoom; one interview took place in person. All interviews were recorded on a secure platform (Zoom and back-up recording on Rev) and transcribed verbatim.

Table 4.1. Demographics.

Variable		Total (n=25)
Clinician Age	Mean (sd)	38.4 years (7.98)
	Range	27-60 years
Clinician Sex	Male	12 (48 %)
	Female	13 (52 %)
Clinician Race	White	20 (80 %)
	Black	1 (4 %)
	Asian	4 (16 %)
Credentials	Physicians (MD)	13 (52 %)
	Advanced Practice Providers (APPs)	12 (48 %)
Years Experience Categories	Early Career (0-5 years)	8 (32%)
	Mid Career (6-10 years)	9 (36%)
	Late Career (11+ years)	8 (32%)
Clinician Site	Large Hospital (>700 beds)	21 (84%)
	Hospital (<450 beds)	4 (16%)
Interview Time	Mean	39.62 mins
	Range	17:05 – 69:48 mins

Using a deductive-inductive qualitative descriptive approach, transcripts were analyzed within typology and across typologies. To describe the experience of distress for each typology, exemplar quotes are presented for the (a) *experience of distress*, (b) *patient sources of distress*, and (c) *personal experience influencing the distress experience* (Table 4.2). Throughout this manuscript, the gender-neutral pronouns *they/them* will be used for additional confidentiality and privacy.

Experience of distress differed depending on the typology, for instance, a clinician in the moderate distress typology said, “*I’ve done this enough where I think I know there’s a low level of distress the entire time, and unless it’s a horrible day, it basically is pretty even keel.*” [140]. This clinician acknowledges a consistent level of distress that they live with while working. A clinician from the variable distress typology said, “*...your day might go great, it might be a disaster. But you know those*

are the options” [403]. This outlook on the day is consistent with the up and down variability of this typology.

The next theme, “sources of distress—patient” focuses on descriptions of specific patients or general aspects of patient care that influence distress. For instance, a clinician from the high distress typology laments:

“I feel generally for me, it's not even solely the medical situation, but I connect a lot emotionally and not even through conversation with them, but just some aspect that I pick up from the patient and maybe sometimes with their vulnerability that draws me into a lot of the patients.” [031]

Table 4.2. Qualitative Themes by Typology.

Typology	Theme With Exemplar Quote [Participant ID]
Low Distress	<p>Experience of distress: “I think more in my own [emotion], letting it reverberate too much. We're kind of there in my mind to be, I guess I refer to this, there's this old text that one of my mentors gave me one time that was about equanimity, and it was like, you're there to be... You're not there really to be giving off emotion. You're there to be a listener and you're there to be a rock for somebody. And in my mind, I feel like that's something I try to channel is I want to be there and be a listener, but I also want to be as rational and levelheaded and to be able to give an informed response that's not based on emotion. So I guess maybe that's just using it in a controlled setting, not to deflect the emotion away, but maybe not to amplify it in a way that's not going to be a constructive.” [050]</p> <p>Source of distress—patient: “So I think the ones where there are complications that sort of really sticks with you. I think we do this a lot in medicine where sometimes easier to do nothing, because if you opted to do something and then something goes wrong and you can say, “Ah, see what we chose was wrong.” Whereas if you do nothing and then something goes wrong, you're like, “Oh, it was going to happen. It was nobody’s fault.” So especially in medicine with so many tools at our disposal, we have a lot of surgeries, and techniques. and tools, and gizmos that it's hard to say no sometimes, when those, it's a gold standard but always go well, I think those are the ones that stick with me because then you have to think about for the next patient and not having the last patient inform that decision too much. We try not to practice anecdotal medicine. So, that one, those two of the more recent patients that stick with me.” [461]</p> <p>Personal experience influencing distress experience: “I've noticed there are some patients that I disclose that I've gone through chemo and some patients that I don't. I mean, I would say actually very few that I disclose. Not because I don't want to talk about it but just because it's not about me. But for some patients, I think that it's helpful for them and also probably helpful for me.” [330]</p>
Moderate Distress	<p>Experience of distress: “It's distressing as a early trainee to not have very many answers. It's one thing when you're a med student and you work on a service, you don't know anything. Your job is just to learn so much that you can, be as helpful as you can be. But then when you don't know, it's a very much a foreign language. Everybody's using terms that don't make any sense...Lots of acronyms. And then lots of complications, or potential complications that you don't even know to foresee or to interpret. And so you are now that person's covering provider, and you have to go to be very comfortable with not knowing anything.” [001; speaking about leukemia service]</p> <p>Source of distress—patient: “I think it's hard because, of course, it's always sad when people die, but when younger patients die, it just feels more tragic.” [429]</p> <p>Personal experience influencing distress experience: “But I try to find something to relate to with everybody. And sometimes it's easier, sometimes it's harder. A lot of times I find myself</p>

Typology	Theme With Exemplar Quote [Participant ID]
	<p>actually talking about my kids, people have kids or grandkids or things. I actually find myself talking about my kids. And a lot of people don't want to do that for a variety of reasons. But that's one way that I relate to people because I feel like I want them to know I'm a sort of normal person outside of being here and have normal kid things and life things that come up. And I think that's how I relate to people in this job. And so I want to, not overly, not too much, but to some degree that's sort of how I want to appear to people. And I think I can do that. For the most part, that's part of my sort-of-like shtick with patients.” [140]</p>
Variable Distress	<p><u>Experience of distress:</u> “I feel like unless something emergent or urgent comes up in the morning, the mornings are usually not as stressful. And I feel like the stressors come up later when you're running between all the different patients trying to update them and their families or procedures are happening, or someone is now becoming sick and needs to transition to comfort care, or we're making decisions about them going to the ICU. I don't remember a specific situation from that month, but I can say this kind of trends day to day. And as the day is coming to an end, you're getting things wrapped up and settled.” [990]</p> <p><u>Source of distress—patient:</u> “And we're dealing with a disease that can sometimes be very difficult to manage in as such that you have very sick patients who if you don't do anything, would die. And if you do something, you might make them even sicker than they are.” [275]</p> <p><u>Personal experience influencing distress experience:</u> “I have such an impact as a healthcare provider. My dad passed away from leukemia in an ICU when I was 21 and I will never forget that people that were part of that, some of the nurses, this one resident, so it's a really vulnerable part of someone's life.” [032]</p>
High Distress	<p><u>Experience of distress:</u> “I think just knowing that you're doing the best for care, for being the best colleague, being the best provider, doing the best that you can, and just letting that go; just gets me through. You could always feel bad, but you can feel bad about yourself for just one minute, but then you have to let it go. You can't dwell on it. You have a lot of people depending on you, and you just have to get through cause you know that there's value in what you do.” [172]</p> <p><u>Source of distress—patient:</u> “One is a mom of a coworker that I worked with who had lymphoma, and she did poorly, and she eventually passed, so that was hard knowing, I guess, her daughter that I worked with. So that was kind of hard and I felt really bad. The mom was, both of them were really nice. The mom was very sweet. They were trying to get to her wedding, but they never made it. She got too sick. So that really hit hard just thinking about my coworker and how she got married, and then her mom wasn't there, so that really stuck with me, and I think about that a lot.” [172]</p> <p><u>Personal experience influencing distress experience:</u> “You know, I think a lot about, coming to mind, and I think came up for some reason, I thought of it last night too, some of the patients with addiction, and I feel, I think partly with my dad with his alcohol addiction and kind of where we were and trying to save him, but where the vulnerability of these people and, you know, often are mismanaged.” [031]</p>

The experience of clinician distress was also influenced by personal experiences. Many participants discussed their own illness journey or that of a close family member. A clinician in the low distress typology describes their cancer history:

“And I think I have the perspective of I had been very sick at one point with cancer and going through chemotherapy, and I think I took that perspective of what did I really appreciate the most about the people that gave me care? And it was like, wow, they really got it right, and it was not an easy situation for them to figure out, but they put in the time to do the mental heavy lifting in that case. And then maybe I kind of project this onto the patients that I take care of, but I would

like to think that doing the same thing for other people, it's the way that I feel like I'm doing a good job keeping track of the details and really putting in the effort to do the job that we're there to do.” [050]

This participant, like others, is inspired to provide exceptional patient care because they experienced that care when they were hospitalized. Personal experience influenced how clinicians approach patients and families, how they interact with colleagues, how they practice as clinicians, and in some cases was a driving source for their profession.

Additional there are eight themes that cut across typologies presented in Table 4.3 with definitions and exemplar quotes.

Table 4.3. Cross-cutting Qualitative Themes: Across Typologies.

Theme	Definition	Exemplar Quote [Participant ID, Typology]
Sources of distress—not direct care	Descriptions of sources of distress that is not directly related to patient care (i.e., systems constraints, administrative tasks, etc.).	<p><i>“...the things that weigh on me the most more almost have to do with various systemic failures that we deal with. I think the parts of my job that make me feel at least the most burned out is more related to not being able to get certain tests and treatments covered, or having to fight through paperwork or do peer-to-peers or just see people who end up having a much worse outcome because they're not able to access care that they need earlier.” [849, low]</i></p> <p><i>“...a lot of the stress of the job is just logistical stuff” [772, mod]</i></p> <p><i>“Sometimes it seems insurmountable. If you write your list of what you have to do for the day or the week, you only get to the first three items.” [275, variable]</i></p>
Sources of distress—other job responsibilities outside of providing inpatient care	Descriptions of sources of distress either from other roles the clinician holds or rationale for variety of responsibilities within role.	<p><i>“So yeah, there's always, that's the other part of my clinical world that doesn't go away when I'm on service and I don't think it should, like at one point there was some thought that we should just cancel clinic when we're on service, which doesn't really work because then you have to fit everyone in later. But I try to find a way to just do it to a lighter degree, but I need afternoons to go talk to families on service, teach the residents.” [140, mod]</i></p> <p><i>“...but I think the reality of being a faculty member as well is that when I'm on service, I'm doing other things as well, for better or for worse. There's other responsibilities that I have and trying to juggle at the same time.” [301, mod]</i></p> <p><i>“It's just the workload is so much more further along, you are in your career because you're wearing so many more hats.” [275, variable]</i></p>
Sources of distress—interdisciplinary	Descriptions of sources of distress from other interdisciplinary	<p><i>“I understand everybody has a busy day, but that that's the one thing I get frustrated on when It's like, I feel like sometimes I come in, and I'm the one who's like doing everything.” [906, low]</i></p>

Theme	Definition	Exemplar Quote [Participant ID, Typology]
	colleagues, either directly or indirectly.	<p><i>"I guess it's also disheartening that as a whole, [hospital] doesn't address that, but I think [hospital]'s very much a patriarchal structure and physicians, especially White male physicians, get away with a lot of that behavior."</i> [031, high]</p> <p><i>"So I actually do think, sometimes, the people that work with me cause me more stress than the patients."</i> [032, variable]</p>
Emotional symptoms of distress	Symptoms where emotions are expressed without outward physical signs (i.e., wanting to cry, perseverating, thinking about what should have been done, etc.).	<p><i>"And so I think some of the sleep deprivation is just, you can't get into bed until you have let that day go. And so I think it's hard to tell the difference between difficulty concentrating and fatigue from not sleeping enough, and from being really stressed."</i> [001, mod]</p> <p><i>"I get energized and activated even though I'm tired and stressed."</i> [806, high]</p> <p><i>"Now I'm on the attitude of they can't hold on to people, then they're not going to fire me. Which isn't good though, right? That's kind of a rock bottom attitude. But I am actually starting to climb out of it, and I'm like, maybe I'll start dressing up every now and again. Maybe not ties, but a button down shirt instead of the scrubs and stuff."</i> [150, variable]</p>
Physical symptoms of distress	Descriptions of physical symptoms as a result of distress.	<p><i>"I tend to get distressed when I'm a fairly scheduled person, even though I'm flexible about it, so I roll with the punches, but I tend to get, I think it's a little bit of muscular tension when I've got a bunch of things to do and they're colliding with each other."</i> [560, low]</p> <p><i>"I bite my nails. I do the, what's the word for? Fidget, I fidget a ton especially, and my wife knows it when I'm fidgeting. She's like, what are you thinking about? And that's sort my tell. Otherwise I'm very calm and nothing's bothering, but I tap my toes, I'll be, and I sort of lose track of track what I'm actually supposed to be doing and I just obviously just get in my own way kind of thing."</i> [144, mod]</p>
Interpersonal variability of distress	Descriptions of variability of distress, within self, or within others. Also describes unique nature of distress.	<p><i>"I think people fall in different places of what it is that's more distressing to them. And so to me, it's not as distressing that people are very sick and they have life limiting illnesses that is less distressing to me than the personality disorders and aggressive behavior. But I have other colleagues who absolutely, they've tried the oncology service or attended on it and they're like, this is not for me. There's too much death and dying. Like I can't do this. I want to take care of people who get better."</i> [267, low]</p> <p><i>"Yeah, for sure. I mean, everyone has their own anxieties and life stressors, but workwise, I tend to be a pretty mellow character, at least compared to other cardiologists. Maybe the bar is a little strangely set, but so even in the most acute settings, I don't tend to get very excitable."</i> [461, low]</p> <p><i>"I think in general what's challenging with distress is it can be so variable, what makes people feel distressed. How people respond to it is very variable in the moment. And then, the coping mechanisms after the fact are very variable. And so, I have noticed, especially now moving into a lead role and something I have to think about is other people's distress and stress. It's like no two people think the same thing and that it's very challenging to make everybody happy, keep all the nerves calm in the same way."</i> [403, variable]</p>

Theme	Definition	Exemplar Quote [Participant ID, Typology]
Implications of distress	Direct or indirect implications of distress, may be short-term and long-term implications on a personal or professional level, affecting patient/family care or affecting clinician themselves. Includes downstream effects.	<p><i>“And that could be as simple as helping my daughter with her homework when I'm feeling stressed. It's like, okay, ‘I'm not dealing with that. I can't do that tonight.’” [461, low]</i></p> <p><i>“I guess the problem on the inpatient also is when patients are doing well, we never see them again. And so there's this selection bias, which is really, I think, difficult, damaging, unhealthy, where we only ever see patients again when they're not doing well. Every once in a while somebody will come in and say “hi,” but not that often.” [330, low]</i></p> <p><i>“Yeah, I would say it is especially because there's been a lot of turnover recently with nurses. After the pandemic I feel like a lot of nurses are new, and so like when you're new, you have a learning curve. So I would say, like, you know, a year or so ago, questions that are nurse, the new nurses are asking now, like the older nurses wouldn't have asked or be able to figure on their own. So that definitely, something that happens a lot with the nurses being novice.” [242, mod]</i></p>
Emotions	Straight description of emotion or range of emotions. Code includes smaller meaning units—emotion word or phrase.	<p><i>“I felt I was able to make a big difference for her, make it as least traumatic as possible. And so it's such a mix of emotions. It's stressful, it's scary, it's sad. But I'm also proud of her. I'm proud of myself. I am satisfied with the fact that I made a difference in her final days” [806, high]</i></p> <p><i>“Overwhelmed. I mean, also some positive emotions. Proud to be doing this job and this is important work, and this job's really meaningful.” [032, variable]</i></p> <p><i>“Yeah, I mean, I think every day brings both positive or negative” [990, variable]</i></p>

Emotions and symptoms will be analyzed further in the mixed analysis. To elucidate the other sources of distress, additional examples will be provided. For the theme *sources of distress—not direct care*, clinicians across typologies highlighted workload, tasks, and systems issues. For example, one clinician said:

“And I think I get stressed when the logistical stuff outweighs how much time I get to spend with patients, because I feel like it's hard to give the optimal care when you're running around just trying to make sure everything's fine.” [772, mod]

For the theme *sources of distress—other job responsibilities outside of providing inpatient care*, clinicians other roles which could be reenergizing or draining. One clinician stated:

But I think one of the reasons why I can embrace what I do clinically, it's going to do all these other things and I'm lucky enough to be able to do it. So, I can't relate to physician burnout. I don't get it. That doesn't mean I never get tired.” [560, low]

In this theme, physicians often had additional roles aside from attending on the inpatient service for a set number of weeks a year. They discussed that their primary roles—whether outpatient care, administrative, or research—continued. For APPs, other roles and responsibilities was often extra work they volunteer for outside of patient care; sometimes APPs attempted to juggle these responsibilities while at work, but this often bled into free time. Lastly, *sources of distress—interdisciplinary*, encompasses interpersonal conflict or frustrations with other colleagues. One clinician said:

I remember...a surgeon who basically had gone to try to do this procedure on my patient. And the way that it was approached, the patient said that she wanted to leave AMA [against medical advice], which was I like she doesn't want to do that. And I went and talked to her, and she didn't want to leave. She was just upset. Then I was talking to him after on the phone and he was like, "Can I just ask you? How did you get her to stay?" And I forget what words I actually used, but I basically said, in a nice way, to him, that I talked to her like she was a human being, which is usually the answer..." [429, mod]

Later, this clinician discussed the implicit bias and racism towards patients that they struggled with when working with certain colleagues. Others discussed frustrations with the variability of experience with colleagues (i.e., novice nurses versus experienced nurses).

Mixed Findings. The mixed analysis combines the quantitative findings (SA1) with the qualitative findings (SA2) for mixed interpretation. **Table 4.4** presents a joint display by typology with an inductive code describing respective typologies paired with the number of quantitative observations from each typology, the mean of the first reported distress thermometer (DT; 0-10 scale) and the mean of the clinician emotional experience (as measured by the Gallup Negative Experience Index, 0-7 composite score). The inductive theme for the low distress typology is *"equanimity...but not like a robot"* which is confirmed in the typology average low distress thermometer at time point one (DT1; mean 0.73) and low Gallup composite score (mean 0.53). For the moderate distress typology, the inductive theme *"tightrope"* where they try not to falter along the emotional balance tightrope is confirmed by the moderate DT1 (mean 2.98) and Gallup composite (mean 2.05). The inductive theme for the variable distress typology *"comfortable in the chaos"* is confirmed in the exemplar quotes presented and the slightly elevated DT1 (mean 3.25) and composite Gallup score (mean 2.19) between the moderate and high typologies. Finally,

the high distress typology inductive code is “*weight/waiting*,” where clinicians both carry emotional weight and feel like they are waiting on others to complete their jobs at times. Their initial distress level is highest (DT1, mean 5.79) and they have the highest symptom burden (Gallup, mean 3.55) experiencing three to four symptoms most of the day yesterday, thus, confirming the typology. Notably, in the qualitative interviews this group was all APPs, therefore they felt constrained and distressed by “*waiting*” on others to carry out clinical decisions at times (i.e., waiting for an oncologist to decide on next course of treatment).

Table 4.4. Joint Display: Mixed Analysis.

Qualitative Theme + Quantitative Findings by Typology	Exemplar Quote	Mixed Method Interpretation
Low Distress Typology		
Qual theme: “ <i>equanimity... but not like a robot</i> ” Quan observations: n=33 DT1 mean (sd): 0.73 (0.84) Gallup mean (sd): 0.53 (0.72)	<i>“So complicated folks who have medical issues don't create distress. I'm not like a robot. So if the question is about distress, distress is a mismatch between what you're doing and how you feel about it. Zero, right? That doesn't mean that there's not folks who were very needy. It doesn't mean that my Spidey sense if dialed up or have to do more work. I just like what I do.” [560]</i>	<u>Confirmed:</u> The low distress typology strives for mental calmness and evenness of temper while avoiding being uncaring or robotic.
Moderate Distress Typology		
Qual theme: “ <i>tightrope</i> ” Quan observations: n=47 DT1 mean (sd): 2.98 (1.36) Gallup mean (sd): 2.05 (1.49)	<i>“It's just making me think about the emotional balance that you have to live in to take care of sick and especially critically ill people... It's like a tightrope. It's just easy to fall in either direction. I think you can see people going either way, and I think it can be really negative. I think if you take it on too much, it can be really negative for you. If you go the other way, which I think people tend to do the longer that they work in healthcare, it can be harmful for the patients because if you're...I think sometimes people do get empathy fatigue.” [429]</i>	<u>Confirmed:</u> The moderate distress typology tries to hold the line of good care. They recognize that distress exists but focus on compartmentalizing (for example, save crying for after work but only on rare occasions).
Variable Distress Typology		
Qual theme: “ <i>comfortable in the chaos</i> ” Quan observations: n=28 DT1 mean (sd): 3.25 (1.51) Gallup mean (sd): 2.19 (1.63)	<i>“I think there's a way to be comfortable in chaos.” [403]</i> <i>“You know, as healthcare providers, it's still stressful and it's still hard to prepare for an imminent disaster. I don't know, you know what I mean? It's still stressful.” [032]</i>	<u>Confirmed:</u> The variable distress typology is okay with being distressed in distressing situations and acknowledge when all is well they are comfortable

		but ready for a fire at all time.
High Distress Typology		
Qual theme: “weight/ waiting” Quan observations: n=34 DT1 mean (sd): 5.79 (1.63) Gallup mean (sd): 3.55 (1.64)	“So with the job itself, I feel like it’s stressful with the acuity, with the amount that’s expected in our role. That’s a lot to live up to.” [172] “Trying to do anything in my power to make this hospitalization better for them while we’re waiting on these decisions. And they were grateful for such a small thing that I’m happy to do, but I’m also like, ‘I just want a way out for you.’”	Confirmed: The high distress typology are busy and hold themselves to a higher standard. The weight on the clinician shoulders, but also the helplessness of the waiting on others / logistical constraints.
Distress Thermometer (DT) is reported on a 0-10 scale with 0 being no distress and 10 being highest distress. The Gallup Negative Experience Index is a measure of 7 items of emotional experience, composite score range is 0-7. Higher score indicates higher symptom burden. Abbreviation: sd = standard deviation.		

The experience of distress is further illustrated through case summaries (Table 4.5). The concepts from the interview guide are listed in the top left of the table with notes from the specific transcript (qualitative findings). On the top right, the individual distress trajectory is mapped with DT values over the two days that the participant was enrolled (quantitative findings). Then, important quotes of the distress experience are captured. During the qualitative interviews, the individual chart was shared with the participant allowing rich discussion of longitudinal scores and the lived experience while enrolled.

Table 4.5. Joint Display: Case Summary Example.

ID: 150							
<u>Demographics & Clinical Practice:</u> Oncology APP <u>Distress Experience:</u> seeking therapy for first time as work stress was impacting home life; also new home stressors <u>Common Emotions:</u> anxiety, anger, overwhelm, gratitude <u>Emotion Experience:</u> nausea, chest pain, flutters; visited ED with panic attack x 2 <u>Lingering Patient Cases:</u> a patient who they enrolled in hospice then oncologist reversed decision. <u>Supports:</u> colleagues (outside of discipline); partner (but wasn’t using them as support as much as they should)	<u>Trajectory:</u> variable <u>Chart:</u> <table border="1"> <tr> <td>8/2, 0646</td> <td>8/2, 0946</td> <td>8/2, 1315</td> <td>8/2, 1815</td> <td>8/3, 1315</td> <td>8/3, 1815</td> </tr> </table> <u>Type of distress:</u> psychological manifested as physical; moral distress; interpersonal distress with communication with teams	8/2, 0646	8/2, 0946	8/2, 1315	8/2, 1815	8/3, 1315	8/3, 1815
8/2, 0646	8/2, 0946	8/2, 1315	8/2, 1815	8/3, 1315	8/3, 1815		
<u>Exemplar quotes:</u> “And I actually, I didn't have a lot of fires to put out or anything myself. So it was a pretty typical day.”							

“I mean, just looking at the graph, it makes sense as the days go on, usually it's more distressing because I'm getting more, use the word burned out for the week, ready to go home and get a few days rest. So that makes sense to me. I also remember just, the truth is work for me has been massively stressful lately. And I've been working with, now I'm giving you information about me, like cognitive-behavioral therapy and things to try and fix that, and recently started kind of approaching the workday differently to try and help manage that. And I found it to be somewhat successful. So you kind of found me at a time where I'm a little more, I want to say, not letting the stress get to me in the ways I was before. So I think that might counter as to why. And I remember those days feeling like, wow, maybe I can do this. I can manage this stress. Of course, there's still not zeroes because you just never are when you're working.” [explanation of graph]

“Yeah. Well, like you said before, some people want to sit in it. I think I just let myself sit in it for a while. I found the energy to climb out of it, and my options were: be miserable where I was working or try and enjoy it again. So that's what I'm working on, because at the root cause, I do enjoy the work. There's a lot of extra factors that I let stress me out and that stress builds up. And then I just say, this all sucks.”

Mixed Methods Interpretation: This example of a case summary confirms the assigned typology (variable) as displayed in the distress trajectory chart and further illustrates the distress experience, particularly related to patient care and workload. The participant further illustrates the implications of clinician distress is discussing conflicted emotions related to the enjoying their job and struggling with the stress it causes that affects their life outside of work.

The exemplar quotes included in **Table 4.5** include explanations of the individual graph. Finally, the mixed methods interpretation which illustrates the distress experience is found at the bottom of **Table 4.5**.

Mixed Finding: Sources of Support. Another concept that was explored both quantitatively and qualitatively was perception of support. In a joint display (**Table 4.6**) these sources of support are presented by typology including types of support collated from interviews and a mixed interpretation with exemplar quotes. In the quantitative surveys, participants were asked to rate their perceptions of support, work environment, and work climate; all three were asked on a visual analog scale from poor (0) to outstanding (10). Means from each typology are listed in **Table 4.6**; notably, the higher the distress typology level the lower the perceptions of all support, except for the variable and high typologies which have comparable means for these measures. Across typologies, the types of support included professional (colleagues and structured supports including debriefings or therapists) and personal (partner) supports.

Table 4.6. Theme: Support/Resources Per Typology.

Typology	Perceived Support (mean)*	Types of Supports Discussed	Mixed Methods Interpretation with Exemplar Quotes of Support and Resources
Low Distress	Support: 8.59 Environment: 8.00 Climate: 8.65	<u>Professional:</u> colleagues (peers, supervisees, supervisors, other disciplines), ethics team, palliative care colleagues, structured debriefing <u>Personal:</u> partner, walking home	<u>Confirmed:</u> “Yeah. I mean, you're kind of just swimming in it. Maybe it's a little bit of a forged in fire thing, but it's like when you're surrounded by people who are also essentially stretched to the brink with how much they work and how much they see and do, it's natural to just talk openly about it.” [849]
Moderate Distress	Support: 7.19 Environment: 7.42 Climate: 7.26	<u>Professional:</u> colleagues (peers, other disciplines, supervisors, supervisees), officemates, therapist, structured debriefing <u>Personal:</u> partner, parents, friends, sibling, exercise, television	<u>Expanded:</u> “I could talk to my partner about it or my therapist or whoever, but I think I find that I'm less inclined to talk to nonmedical people about it because I think they don't really understand the same way. And it's hard to explain why certain situations are so frustrating.” [429] <u>Confirmed:</u> “The nurses on the floor, for sure. They're my main sources of support.” [661]
Variable Distress	Support: 6.57 Environment: 6.71 Climate: 6.90	<u>Professional:</u> colleagues (peers, other disciplines, supervisors), therapist, palliative care colleagues <u>Personal:</u> partner, friends, family in healthcare, television	<u>Illustrated:</u> “I made some, dare I say the work friends with the pharmacy group or another specialty, and I'll go sit with them in their office and I'll work there and maybe we'll goof off for 20 minutes, so we'll go run and get a coffee together. And just getting away from the environment, getting pulled out of that, “oh yeah, you're dealing with this guy who's really sick” or something. It can help manage that anxiety or that stress for a little bit of time.” [150] <u>Expanded:</u> “...everyone is so aware when someone else is having a really stressful day, that we all try to alleviate it. And I think that's why this job is something that people can manage for a longer period of time, because even though the demand is high, the support is there and doesn't lead to the burnout that it might without that.” [990]
High Distress	Support: 6.85 Environment: 6.10 Climate: 6.95	<u>Professional:</u> colleagues (peers, other disciplines), therapist, staff support social worker <u>Personal:</u> partner, friends in healthcare, spiritual faith, exercise, music, dog, podcasts	<u>Expanded:</u> “And then I pray a lot. I feel like what I do is a calling to take care of the sick, and I just try to be calm and just try to focus on, try to strengthen my faith to get through.” [172] <u>Confirmed:</u> “Yeah, I mean, I talk to my colleagues, who are always really helpful. I have to say, probably 90% of our attendings are really helpful. If they see your stress they'll take some like load off of your back.” [561] <u>Expanded:</u> “It's not like I am listening to a really smart podcast. It is garbage. And I think I need that garbage sometimes just to turn my mind off and to talk about celebrity gossip. This has

Typology	Perceived Support (mean)*	Types of Supports Discussed	Mixed Methods Interpretation with Exemplar Quotes of Support and Resources
			<i>nothing to do with real life, and it's helping me escape.” [806]</i>
*Perceived support measured on 0-10 scale for support, environment, and climate; means calculated for each.			

Mixed Finding: Mixed Distress Experience. Clinicians experience of distress is influenced by many factors—patients, workload, other responsibilities, colleagues. This “mixed” distress experience emerged from qualitative interviews. One way to illustrate this finding is through a joint display. **Figure 4.1** includes the distress trajectory for one APP participant enrolled in the study in the variable distress typology. DT ranges from 0-8 (on the 11-point scale) for this participant over the course of a weekend. Quotes explaining the trajectory are imposed on the graph. This participant first describes an unstable patient who is contributing to their distress (DT = 8). They call this patient “*peri-ICU*” because while the patient was on the medical-surgical unit they were tenuous and on the verge of transfer to the ICU. On day 2 (Sunday), the participant describes the “*peri-ICU*” patient:

“Yeah. So then, at that point, it was probably more of just resignation to what was happening. Like, ‘Okay. He’s temporized. We’re probably not fixing anything this weekend,’ because it was one of those things where we were thinking, like, ‘Okay. Because if we’re going to scan him and give him contrast, that’s a bigger conversation that’s going to have to happen with us, his oncologist, the patient, and the family, all of that. And realistically, that’s not happening on Sunday. That’s a Monday conversation.’”

Clinician distress decreased when the patient was stable, there was a contingency plan if they declined, and there was a plan for a family meeting on Monday. Then on Monday, the clinician distress remained low, however it spiked again due to a logistic and team stressor, rather than patient care.

Saturday: “But, definitely, in that moment I felt distress because I was like, “Something is really wrong here with the guy and we don't know what it is, but I think I know what it is.”

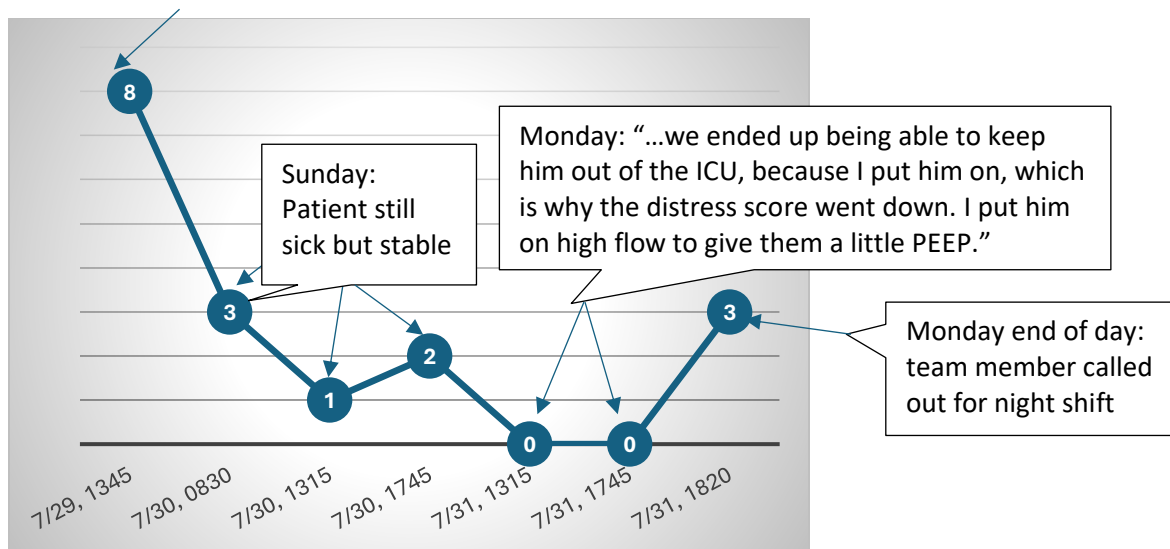


Figure 4.1. Joint Display: Mixed Distress Experience.

Figure 4.1. Legend: The phenomenon of clinician distress is grounded by the perspective of a clinician’s *perceptions* of serious illness care. Those perceptions occur within the context of a *sense of should* or that *something is awry*. A *sense of should* may be experienced through feelings or actions; the sense one should feel a certain way or that something should have gone differently. Then, a clinician recognizes within themselves one of the following conditions: (1) *conflict*, (2) *an emotional response*, (3) or a *mismatch between expectations and what is happening*. Under one of more of these conditions, there is a process of the *inability to feel and act according to one’s values due to a precipitating event* leading to the ultimate consequence of *clinician distress*.

Mixed Finding: Clinician Emotional Experience. As previously discussed, the clinicians’ emotional experience was measured by the Gallup Negative Experience Index (“Gallup”) which included seven emotional and physical symptoms. In each qualitative interview, clinicians described unique physical and/or emotional symptoms they experienced when distressed. A joint display (**Figure 4.2**) depicts where on the body these symptoms were experienced as described by exemplar quotes, as well as the prevalence (%) and association (χ^2) with 4-cluster typologies from lowest distress to highest distress typology.

While not all symptoms proved statistically significant, all symptoms were present in qualitative interviews. The composite Gallup score is denoted by “*All emotions*” as this score was statistically significant. Another emotional symptom that was not captured by the Gallup survey but was brought up in interviews is “fun.” One participant states:

“The other thing I think that is very important to me at work, especially because we work so much, is having fun and I think seeing humor in things, and obviously, never at the expense of anyone. But sometimes fun things happen. And I think being able to just laugh at the silly things that are happening, that's sort of I think...I guess levity within the darkness is an important emotion to me.” [429, mod]

In terms of physical symptoms, sometimes the symptom was difficult to describe as this participant notes:

“I definitely get a feeling that I don't even know how to put into words, but like almost like a shock wave kind of thing that I can feel. Or I get like abdominal pain, like sometimes I'm watching something on TV, or like reading a story about someone like it can make me have like, like, really transient, like, abdominal pain.” [242, mod]

The clinician emotional experience was clearly salient as reported in the quantitative findings, the qualitative interviews provided rich descriptions of these symptoms and elucidated the varied experience and manifestations of these symptoms of distress.

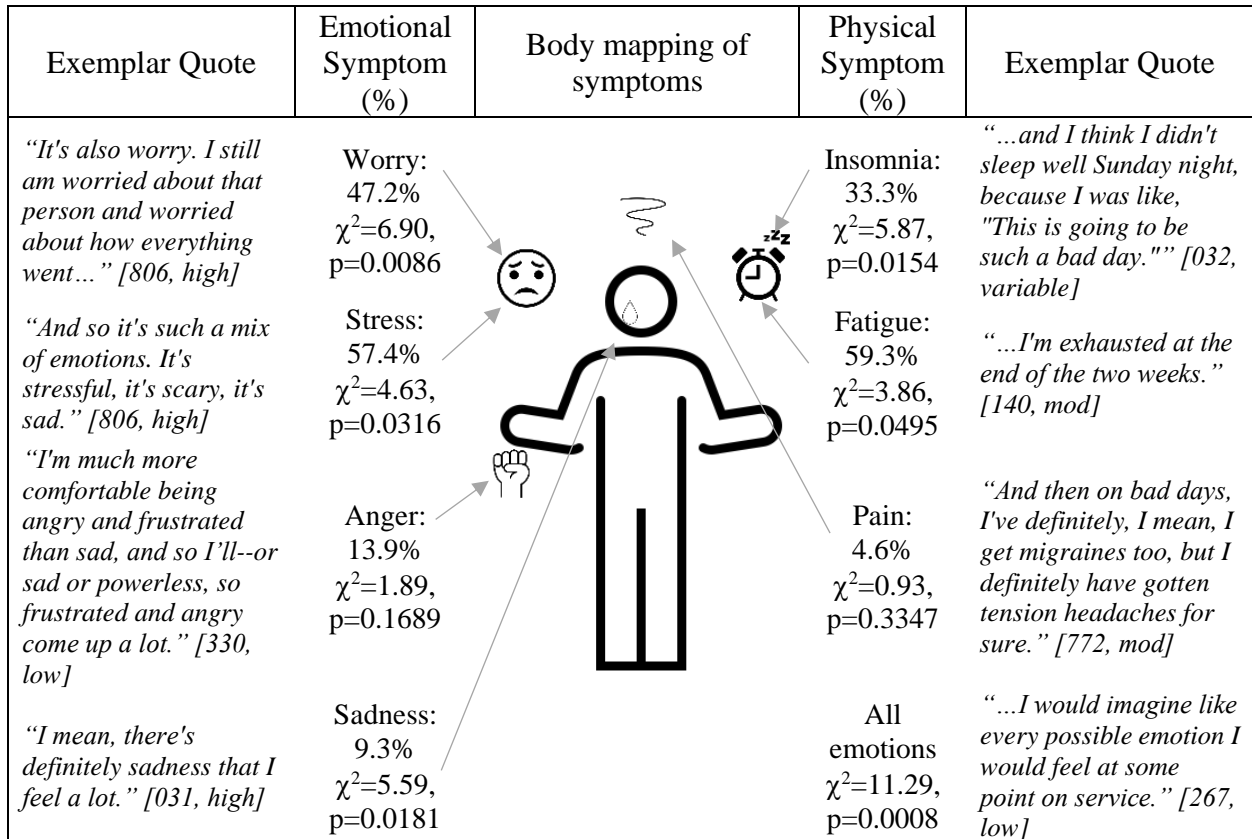


Figure 4.2. Joint Display: Emotional Experience.

Discussion

Qualitative Discussion. By examining the experience of clinician distress by unique typology, nuances amongst typologies were noted. Yet, overall the experience of distress per typology may not differ significantly. All interviewed clinicians described at least one aspect or incidence of distress, whether influenced by patient-specific case, external factors, or other sources. Further, qualitative findings elucidate that clinicians experience multiple sources of distress. This is confirmed in previous work where patients and systemic issues contributed to moral distress (Ladin et al., 2018; Pavlish et al., 2015; White & Meeker, 2019).

While clinicians in low distress typology rate their distress levels lower, they still experience distress, and they still experience emotional reactions while working. For instance, within this group one clinician describes themselves as a “minimizer” [330] or others are very strict in their definition of distress [560] or highly “analytical” of their job in general [050]. Within this group they all acknowledge emotion—either rarely or commonly—but attempt to compartmentalize while with patients. In the low distress typology, they do not see distress, or even burnout, as a part of their job; they may hide emotion while in a patient room or wait to cry until they get home. They also have had distressing experiences, both with patients and in their personal lives and they recognize that those experiences shape their patient interactions and clinical practice. This ability to take previous experiences to influence practice is described in the resiliency literature (Rushton, 2016).

In the variable and high distress typologies there may be a pattern of reactivity, however this would require further analysis. An integrative review of emotions in clinical decision making found that clinician emotions do impact decision making despite the absence of emotions in theoretical frameworks and training (Kozlowski, Hutchinson, Hurley, Rowley, & Sutherland, 2017). One study shows that clinicians’ physical expression of emotions impacted patients’ reactions; for instance, clinician facial expressions of happiness were associated with less patient anxiety (Versluijs, Moore, Ring, & Jayakumar, 2021). More research on the impact of clinician emotions on patient care is warranted.

The goal of this analysis was to understand the experience of distress, however there were multiple emerging themes that were outside the scope of this question and would require separate analysis. For instance, “*anticipatory distress*,” “*social distress*,” “*system distress*,” “*gray zone distress*,” and “*personal distress*” at home all require further exploration to understand their relationship to the distress experience. Additionally, participants could be stratified by other characteristics besides typologies. Namely, clinicians could be stratified by role based on the previous findings from where APPs were more likely to be in a higher distress trajectory than physicians. Another option is that clinicians could be stratified by level of experience as the level of experience was approaching significance in quantitative analysis and there is even distribution of clinicians across levels of experience who were interviewed.

Mixed Discussion. Mixing of the data allowed for a deeper interpretation of the unique typologies where distress scores, emotional experience (Gallup) scores and inductive codes could be compared more closely. These findings confirmed that lower distress typologies strive to toe the line of mental calmness (“*tightrope*” and “*equanimity...but not like a robot*”) and have lower distress scores as well as lower experiences of emotions. On the other hand, the higher distress groups acknowledge the “*chaos*” of the day and are “*waiting*” for disaster or a “*fire*” they would have to attend to; these two groups have higher distress scores and higher emotional burden. Previous studies have looked distress in clinicians, primarily in terms of their experience of moral distress. These studies are typically cross-sectional and often distressful situations deal with an ethical issue surrounding end-of-life care (Allen et al., 2013; Altaker et al., 2018; Bender et al., 2019; Mobley et al., 2007; Sirilla et al., 2017; Whitehead et al., 2015; Wolf et al., 2019).

In qualitative interviews, end-of-life issues were rarely discussed as distressing. Rather, the common triggers are discharge pressure, interruptions (from phone calls or EHR messages), tasks (“*getting pulled in a million directions*” [461]) and being short-staffed or turnover. For the variable and high distress typologies, clinicians mentioned heavy caseloads and very sick patients or intense families.

The low distress typology was more distressed by “*high touch*” [267] patients or families that took them away from other patients and responsibilities. Psychological distress in healthcare workers has been primarily described in times of crisis, such as pandemics where healthcare workers have an increase of anxiety, depression, and risk of post-traumatic stress disorder (Forrest et al., 2021; Lai et al., 2020; Li et al., 2020; Maunder et al., 2006; Pappa et al., 2020; Roberts et al., 2021; Rossi et al., 2020; Shaukat, Ali, & Razzak, 2020; Vindegaard & Benros, 2020). Interestingly, the low distress typology group discussed more protectors of distress—working with a good team, having working experience, having other roles, and goal concordant care—but those protectors were mentioned less and less as distress typology increased.

Each clinician interviewed experienced one or more physical or emotional symptom. Emotions spanned the typologies. Previous research has focused on the activation of emotions with a focus on negative emotions that clinicians experience in situations of moral distress (Campbell et al., 2016; Foxwell et al., 2021; Patch et al., 2023; Rushton et al., 2013). For instance, research by McFarland (2019); McFarland et al. (2017) showed that medical residents had drop in empathy, increase in distress, and spent less time with patients by the end of their oncology rotations; so triggered by a particularly distressing specialty rotation. One study of attending emergency medicine physicians found that physicians commonly had emotional symptoms (i.e. sadness and disappointment) and physical symptoms (i.e. insomnia and fatigue) triggered after a patient death (Strote et al., 2011).

Another finding of this current study shows that perception of support was inversely related to the level of distress. Those with higher distress had poorer perceptions of institutional support and environment. Qualitative interviews confirmed that all participants sought support in an ad-hoc manner. This is consistent with previous research where physicians primarily sought support from colleagues or talking with friends or family (Strote et al., 2011). Interdisciplinary clinicians with a strong daily spiritual practice are less likely to experience burnout (Holland & Neimeyer, 2005). Research shows that strong intra- and inter-disciplinary support can be beneficial (Lake et al., 2022; White & Meeker, 2019). With

recent acknowledge of structural issues impact burnout (ANA, 2017; Muir, Porat-Dahlerbruch, Nikpour, Leep-Lazar, & Lasater, 2024; NAM, 2019), there is an opportunity for healthcare institutions to create structured support. Some institution have existing supports such as moral distress consult teams, “code lavender,” ethics support, and employee assistant programs (Chooljian et al., 2016; Davidson, Graham, Montross-Thomas, Norcross, & Zerbi, 2017; Edrees et al., 2016; Hamric & Epstein, 2017; Stone, 2018). Structured debriefing may increase clinician empowerment and decrease distress (Browning & Cruz, 2018; Edmonds et al., 2015; Jonas & Bogetz, 2016; Orellana-Rios et al., 2018). Findings point to further opportunities for structured support based on unique distress typology.

Implications

Experience of distress is individualistic, yet there are common threads for clinicians. This study has important clinical, research, and policy implications. This study provides a framework of clinician distress typologies to target interventions to understand, acknowledge and care for selves. Partnering with clinicians from each typology to develop clinician-identified interventions is key. This research highlights the tenet from person-centered care that interventions cannot be blanketed for all (AGS, 2016).

Furthermore, institutions can be charged with improving the work environment and climate. In fact, a better work environment for clinicians is associated with improved patient satisfaction (Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). In this study the variable and high distress typologies feel the least supported and have the poorest perception of their work environment. Institutions can partner with clinician to make small changes to improve their environment. As one clinician said:

“Like most workplaces, you can find that with that comes more work that needs to be done. So you get more work piled on within the day but your day's not longer again, and it gets more stressful. And at some point it's like, where's the breaking point? How much more can we do? Or is this even sustainable?” [150, variable]

Leadership can work directly with clinicians to examine workload and offer recognition for a job well done and reassess role sustainability. Multiple clinicians who had other responsibilities within their job description explained that the variety of roles was reenergizing for their inpatient rotations. Health systems have a chance to accomplish varied schedule for both physicians and APPs.

Strength & Limitations

This study should be interpreted in the context of some important strengths and limitations. In terms of strengths, the data collected was rich and confirmatory. Secondly, the qualitative sample was diverse in demographics and credentials. Thirdly, the sample was spread across identified typologies. Fourthly, the mixed interpretation elevates the findings to provide illustrative understanding of the experience of the unique distress typologies. Lastly, many of the participants describe a therapeutic quality to the interview itself and having an outlet to discuss certain aspects of being a clinician that they either never or rarely spoke about.

In terms of limitations, this study may not be generalizable as it took place within one urban health system. Clinicians in other regions may have different experiences. Additionally, while clinicians were interviewed from each typology, the variable and high distress typologies were significantly smaller than the other groups potentially impacting findings. Further, this study was dependent on successful completion of the quantitative study. The quantitative study was adequately powered, although did have its own attrition limitations given the longitudinal nature of the study.

Conclusions

Hospital clinicians' experience of distress differs by between and within distress typology. Yet, importantly there are common sources of distress that have implications for patient care and healthcare systems. Qualitative context expanded the understanding of distress trajectories by providing narratives of patients causing distress, types of support and external factors. Higher distress was inversely related to perception of support. Healthcare systems have an ethical duty to improve work climate and environment to mitigate clinician distress and burnout. This study is also a preliminary step in deepening the understanding of the emotions that clinicians experience in caring for seriously ill hospitalized patients; presenting multiple opportunities for future research including identifying interventions for clinician distress based on typology.

Chapter Five: SUMMARY OF FINDINGS & IMPLICATIONS FOR THE FUTURE

Summary of Introduction

Hospital clinicians—including physicians and advanced practice providers (APPs)—care for increasingly sick and complicated patients. The National Academy of Medicine created the Action Collaborative on Clinician Well-Being and Resilience given the staggering statistics around burnout amongst clinicians (NAM, 2019). Indeed, more than 50% of physicians suffer from burnout (Sajjadi et al., 2017; Shanafelt et al., 2012). One out of four ICU nurses show symptoms of secondary trauma (NAM, 2019). Research examining moral distress has consistently found a correlation between rates of moral distress and intention to leave the healthcare profession (Allen et al., 2013; Sirilla et al., 2017; Trautmann et al., 2015; Whitehead et al., 2015). However, moral distress is often reported and measured post-hoc, that is after the distressing or triggering event. When caring for seriously ill hospitalized patients, clinicians may have expected or unexpected in-the-moment emotional reactions contributing to clinician distress. Clinician distress is defined as a complex unpleasant experience of psychological, emotional, social, spiritual and/or physical nature that impacts one’s ability to perform daily tasks; thus, expanding the definition of distress beyond the scope of ethical issues (Foxwell et al., 2021).

The emotional and psychological distress that clinicians may experience emerged in a new light during the COVID-19 pandemic. In a national survey during the first phase of COVID-19, clinicians reported feeling acute stress, worry, fatigue, insomnia, and even anger; and nearly 50% report feeling *a lot of stress* and 40% felt *a lot of worry* the previous day (Forrest et al., 2021). Given the acuity and rapid pace of the hospital environment, clinician distress likely varies not only among individuals but also over time. Yet, there is a critical gap in understanding the development of clinician distress, how it changes over time, and the impact on patient- and family-centered care in serious illness.

This dissertation is theoretically guided by the Patient-Centered Clinical Method along with empirical work (Piers et al., 2011) which focused on understanding clinicians’ perceptions of

inappropriateness of care. A conceptual framework was developed to ground this study in the importance of the individual whole patient, clinician characteristics and system-level factors. The overall goal for this study is to first focus on identifying unique typologies of clinician distress and begin to describe associated patient and clinician characteristics.

Summary of Chapter 2

This manuscript was published in *Nursing Ethics* in August 2021 (Foxwell et al., 2021). The purpose of this paper was to investigate the nature of clinician distress by asking “What is the nature of clinician distress?” Dimensional analysis methods were used to fracture complex phenomena to their smallest parts, to understand the dimensions of perspective, context, conditions, process and consequences, and finally to reconstruct the concept with a new understanding (Kools et al., 1996; Schatzman, 1991). Dimensional analysis was applied to existing literature; 577 articles were initially identified and reviewed resulting in a total of 33 published articles in the analysis.

Through this analysis, new dimensions of clinician distress emerged grounded in the perspective of perceptions. The findings of this dimensional analysis reveal that circumstance of clinician distress occurs within the process of ***the inability to feel and act according to one’s values due to a precipitating event***, which is driven by the condition of either (1) ***the recognition of conflict***, (2) ***the recognition of emotion***, or (3) ***the recognition of a mismatch between expectations and what is happening*** and results in the consequence of ***clinician distress***. The condition, process, and consequence of the phenomenon are conceptually bounded within the context of ***a sense of should*** or the feeling that ***something is awry***. All the dimensions of clinician distress in serious illness care are understood through the perspective of clinician ***perceptions***. Understanding clinician distress as a process developed by the clinician’s individual perceptions and influenced by one’s values, morals and emotions provides new insight to the phenomenon of clinician distress.

This study adds three unique contributions to the concept of clinician distress by: (1) including the emotional aspects of caring for seriously ill patients, (2) providing a new framework for understanding

clinician distress within the clinician's own perceptions, and (3) looking at action outside of a purely moral lens by dimensionalizing data, thereby pulling apart what has been socially constructed. For individual clinicians, learning to recognize one's perceptions and emotional reactions is the first step in mitigating distress. The resulting explanatory matrix provides a framework to understand the impact of emotions in the clinical setting. Future research should aim to investigate clinicians' experience of distress, support strategies, and the full impact of clinician distress.

Summary of Chapter 3

The overall purpose of this prospective cohort study is to describe and identify clinician distress trajectories in general medicine hospital clinicians, including physicians and advanced practice providers, caring for seriously ill patients and examine how these trajectories may be associated with patient and clinician characteristics. Latent class cluster analysis of serial mEMAs from 184 hospital encounters was performed for hospital clinicians (n=68) caring for seriously ill patients (n=151). Exploratory analysis of patient and clinician variables was then performed using bivariate and univariate logistic regression.

Clinicians fell into four clusters: low distress typology (23.2%), moderate distress typology (33.1%), variable distress typology (19.7%) and high distress typology (23.9%). Clinicians are tired (59.3%) stressed (57.4%), worried (47.2%), experience insomnia (33.3%), angry (13.9%), sad (9.3%) or in pain (4.6%) most of the day. Credentials ($\chi^2=9.11$, $p=0.0025$) and clinician emotional experience ($\chi^2=11.29$, $p=0.0008$) was significantly associated with clustering. APPs were six times more like to being in a higher distress typology (OR=6.16, $p=0.003$). Clinicians who had an increase in the number of emotions had an increased likelihood of being in a higher distress typology (OR=1.90, $p=0.001$). And mid-career clinicians were more likely to be distressed. Patient and clinician demographics were not otherwise significantly related to clusters.

Clinicians experience distress with multiple emotional and physical symptoms throughout their working day. An APP's odds of being in higher typologies are six times a physician's odds of being in higher distress typologies. This study identifies unique distress trajectories and specific characteristics

that should be leveraged by systems when designing interventions and support resources for hospital clinicians.

Summary of Chapter 4

Chapter 4 includes *Manuscript 3*, the qualitative and mixed method arm of this dissertation. In the qualitative aim (SA2) sources and variability of clinician distress and its potential implications for patient-centered care through in-depth interviews with clinicians from each typology (identified via mEMA data gathered in *Chapter 3, Manuscript 2*). Qualitative interviews (n=25) provided rich context and thick description to mEMA data that expanded the understanding the experience of distress, sources of distress and emotional reactions. Then, in mixed analysis (SA2a), quantitative (typologies) and qualitative (clinician distress themes) data was integrated using thematic matrix analysis to further elucidate how qualitative themes are distributed across and between the levels of distress typologies.

Qualitative themes which differed by typology were the unique experience of distress, patient sources of distress, and personal experience influencing the distress experience. Across typologies common themes included sources of distress, symptoms of distress, interpersonal variability of distress, implications of distress. Mixed analysis confirmed typologies with inductive themes and mean distress thermometer score (DT1) as well as clinician emotional experience mean (Gallup) score: (i) low distress typology theme of “*equanimity...but not like a robot*” (DT1, 0.73; Gallup 0.53); (ii) moderate distress typology theme of “*tightrope*” (DT1, 2.98; Gallup, 2.05), (iii) variable distress typology “*comfortable in the chaos*” (DT1, 3.25; Gallup, 2.19), and (iv) high distress typology inductive code of “*weight/waiting*” (DT1, 5.79; Gallup, 3.55).

Finally, emotional and physical symptoms spanned findings; for example, one participant said “*And so it's such a mix of emotions. It's stressful, it's scary, it's sad*” with concordance from quantitative data—stress ($\chi^2=17.23$, $p<0.0001$), worry ($\chi^2=18.58$, $p<0.0001$), sadness ($\chi^2=5.37$, $p=0.02024$). Joint analysis of the patient experience and case summary provided further mixed displays of the data.

Qualitative findings demonstrated that clinician distress varies across typology and yet each clinician experiences some aspect of distress whether influenced by patient factors, clinician-specific personal experience, or other sources. Mixed analysis revealed a deeper understanding of the unique typologies where the qualitative data confirmed the quantitative findings. Further perception of support was inversely related to the level of distress typology and therefore is a potential opportunity for developing systemic interventions to support clinicians.

Clinical Implications & Future Directions

This dissertation study has important immediate and broad implications for clinician well-being, clinician distress, and healthcare systems. From an individual perspective, clinicians, researchers, and leaders need to change the way they think about clinician well-being and distress. It is unlikely that there is one universal prevention or intervention for clinician distress, as evidenced by the variety of distress trajectories and typologies described.

On an institutional level, it is important to recognize that clinician distress is not necessarily related to caring for a particular sick or dying patient. Rather, supporting clinicians via doses based on distress typology could prove more effective. And targeting certain key groups at risk for clinician distress—APPs and mid-career clinicians—may be a feasible approach.

Research implications are numerous. Further exploration with qualitative inquiry would help to understand the nuances of the experience of clinician distress. Future research should explore potential interventions that could be employed by clinicians earlier to recognize emotional reactions. There have been promising interventions with individual and team-based tools such as psychological first aid (Forbes et al., 2011; Shah, Bedi, Onyeaka, Singh, & Chaudhari, 2020; Sulaiman et al., 2020; Thum, Chai, Zaman Huri, Wan Nawawi, & Ibrahim, 2020) and meaning-centered psychotherapy for healthcare providers (Fillion et al., 2009; Rosa et al., 2022; Snyder, Mournet, & Pao, 2023). Additionally, future quantitative work should include variables exploring the level of experience and levels of training given the key findings of this research. For further exploration of emotional distress, the Gallup tool could be useful

tool for near-real time recall of symptom severity. Future studies could explore the level of patient distress to explore whether patient emotional distress affects level of clinician distress. Additional variables of interest could include patient level of trust (Fuehrer et al., 2024; Kowalski et al., 2009), measuring burnout (Dyrbye et al., 2018; Maslach & Leiter, 2016) and clinician tolerance of uncertainty (Hillen, Gutheil, Strout, Smets, & Han, 2017; Strout et al., 2018). Uncertainty for the future is a key aspect of anxiety or worry, therefore exploration of tolerance of uncertainty could provide more context to levels of worry reported in this sample.

From a policy perspective, the findings from this work could be instrumental in reevaluating APP workflow, staffing, daily tasks, and discharge process as identified in qualitative interviews. For instance, improving APP staffing ratios could help mitigate some of the distress experience. Previous work establishing nursing staff ratios has proven that higher levels of moral distress and burnout when nurses are overworked (Aiken et al., 2002; Aiken et al., 2023; Lasater et al., 2021). Professional organizations should lobby for policy to address clinician distress and prevent downstream effects like burnout and turnover. The National Academy of Medicine (NAM, 2019) recognizes that clinician well-being is a priority; NAM and other organizations need to support policy to address clinician distress including psychological care and resources.

While this dissertation study focused on prescribing providers, we know that distress also impacts registered nurses. Nurses were not included in this study as the “dose of care” is not equal between bedside nurses and prescribing providers. Yet given the prevalence of moral distress and burnout amongst nurses, it is pertinent to explore the in-the-moment distress of bedside nurses. There are important implications for nursing and medical education to teach mitigation strategies for distress in training and to acknowledge and normalize emotional reactions in healthcare workers caring for seriously ill people. Furthermore, for this study it is evident that workplace emotional distress intersects with moral distress; it is critical to further explore this overlap—commonalities and distinctions in order to guide future interventions for both general clinician distress and moral distress.

Overall Conclusion

This dissertation examined a novel phenomenon experienced by hospital clinicians. Clinician distress is complex and previously not well understood. This study provides a basis for future work on clinician distress, that is the psychological or emotional distress that clinicians experience in-the-moment. Clinicians need tools to address these normal emotional reactions and leadership and hospital administration has an obligation to improve hospital environments and available supports in order to prevent downstream effects of clinician distress.

APPENDIX I
HUMAN SUBJECTS

HUMAN SUBJECTS

A. Protection of Human Subjects

A1. Human Subjects Involvement, Characteristics and Design

This proposed study involves data collection from persons hospitalized with serious, life-limiting illness as well as the clinicians who care for them. Data collection includes mEMA surveys, recorded interviews, participant report of demographic information and chart-extracted data. The aim is to recruit a total of 141 clinicians. The applicant will oversee recruitment and enrollment of participants who meet inclusion criteria with support for troubleshooting or ethical concerns from Drs. Ulrich, Meghani and Courtright.

Participants will be recruited from Penn Medicine hospitals. Penn Medicine is multi-hospital regional health system with one large urban academic medical center, one urban community hospital, an urban level I trauma center. The health system draws patients primarily from the greater Philadelphia area and surrounding suburbs, but also from other parts of Pennsylvania, New Jersey and Delaware. Patient recruitment reflects the average of the population characteristics of the Philadelphia area as provided by the U.S. Census Bureau. Clinician participant recruitment also reflects the city demographical information. The team aims to recruit both patients and clinicians from multiple racial minority groups including American Indian/Alaska Native, Asian, Black/African American, Latino/Hispanic. As the Philadelphia population of Native Hawaiian and other Pacific Islander is less than 0.04%, the team does not anticipate participation from this ethnic group; however, members of this group will not be excluded.

Participants may be any gender. The applicant and mentorship team does not anticipate unequal representation in gender. Serious, life-limiting illness affects individuals across the lifespan. Patient participants will be included if greater than 18 years old and diagnosed with a serious, life-limiting illness. Clinician participants will be recruited if employed as physician or advanced practice provider (either nurse practitioner or physicians assistant) at one of the three hospital study sites and caring for patients who meet inclusion criteria. The inclusion and exclusion criteria for the proposed study are below:

Table 1: Inclusion and Exclusion Criteria	
Inclusion Criteria	Exclusion Criteria
Clinician Participants	
<ul style="list-style-type: none"> • Hospital clinicians <ul style="list-style-type: none"> ○ Physicians: Attending, Fellow, Residents ○ Advanced Practice Providers: Nurse Practitioners, Physician's Assistants • English-speaking • Willing to participate 	<ul style="list-style-type: none"> • Clinicians who do not provide informed consent • Inability to communicate in English
Patient Participants	
<ul style="list-style-type: none"> • Adults (>18 years of age) • Diagnosed with a serious, life-limiting illness <ul style="list-style-type: none"> ○ A mortality risk model, developed and validated at the study 	<ul style="list-style-type: none"> • Pediatrics (<18 years of age) • Does not have a serious, life-limiting illness

<p>hospitals, will be used to identify patients with >50% predicted risk of death within 6 months</p> <ul style="list-style-type: none"> ○ Hospitalized at one of the three study site hospitals 	<ul style="list-style-type: none"> ○ As evidenced by morality risk score <50% predicted risk of death within 6 months ○ Not hospitalized at one of the three study site hospitals
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Each of the three hospitals within the Penn Medicine Health System has greater than 300 beds, with the Hospital of the University of Pennsylvania (HUP) having the largest census with 750 beds (excluding maternity). Each hospital has at least one general medicine unit and has had an interdisciplinary palliative care (PC) team seeing patients since 2012. At HUP, the PC team receives on average over 200 consults per month, while the other entities receive 50-70 new consults per month. The volume of PC consults is important to note as patients referred to PC have serious illnesses, however receiving a PC referral is not a requirement for inclusion. Dr. Courtright is currently a hospital attending physician with rotations on the palliative care consult service and the medical intensive care unit. Dr. Courtright has been a physician at HUP, in multiple capacities, since 2008 and will help to facilitate and troubleshoot recruitment.

A2. Sources of Material

The sources of materials for this study include survey instruments, audio recordings and transcripts of semi-structured interviews, participant report of demographic information, and chart-extracted data. All surveys and transcripts will be in electronic form and stored in a password protected and encrypted file on the University of Pennsylvania School of Nursing server that only study team members will have access to. In quantitative surveys participants will be assigned unique identifiers. All qualitative interview participants will choose or be designated a pseudonym. Names will be replaced with pseudonyms in transcripts. Recordings with original names and a database that links names with pseudonyms will be stored in a separate password protected and encrypted file.

A3. Potential Risks

There are minimal risks involved with this study. Potential risks for study participants include risk to confidentiality and possible fatigue and/or emotional distress. To ensure confidentiality, qualitative interviews will be conducted in a private area and the participant will be offered the opportunity to choose the setting. Prior to starting the interview informed consent will be reviewed and a copy will be given to the participant. Participants' confidentiality will be protected by privacy plan made in consultation with the Penn Nursing Information Technology Department and the mentorship team. All data stored will be behind multiple firewalls, accessible only to key personnel who receive private network, server password and data directory access rights. An electronic data capture tool will be used for data entry and storage (see Illumivu & REDCap Sections below). Thus, the risk of unlawful penetration is not a significant data safeguard concern.

Emotional reactions are anticipated in this study given the inquiry around distress. The applicant has specialized training in responding to emotions. Supportive health system staff will be available as needed, including the Penn Medicine Staff Support Coordinator, who supports staff throughout the health system confidentially, that is without risk of reporting to management. Survey fatigue due to burden is possible. To decrease the risk of fatigue, surveys have been limited to only the necessary items to reflect the concepts.

B. Adequacy of Protection Against Risks

B1. Recruitment and Informed Consent

After approval by the Institutional Review Board (IRB) at Penn, the applicant will recruit eligible participants from the Penn Medicine hospital sites. Potential clinician participants will be recruited through a patient identification via the Palliative Care Connect (PC Connect) data science algorithm that is active at each hospital study site. Potential participants will be provided a brief description of the study, study's inclusion and exclusion criteria and a recruitment script. Potential clinician participants will be fully informed regarding the study protocol. Clinician participants will be asked to download the mobile application Illumivu. Through the app they will sign consent and have an opt-out option for future contact for qualitative interviews. Illumivu is a HIPPA-compliant technology that has been used in many research NIH-funded studies. Illumivu securely stores de-identified data which can be periodically exported as an excel output. This excel data will then be stored at the University of Pennsylvania server through the REDCap secure network.

To protect against risk, all participants will be told that they are under no obligation to participate in the research, that their research participation is voluntary, and that they do not have to answer any question that they feel uncomfortable answering. As stress or distress from study participation is the most concerning risk to participants we will systematically monitor to assure that we identify it. We anticipate that stress may result in early withdrawal so we will monitor withdrawal rates. If a participant withdraws, reasons will be carefully noted. Remuneration—pending funding—will be provided and participants will be paid according to a wage-payment model that suggest that participation in research is similar to many forms of unskilled labor. Participants will be paid \$30 per participant, which is not anticipated to be undue inducement, considering the effort and commitment required of participants.

B2. Protection Against Risk

Stress or distress. To minimize the risk of stress or distress during data collection, the applicant will use multiple methods to create a safe space for sharing. First, during quantitative data collection, participants will be assured that responses are confidential. The applicant will ensure the clinician participants that participation will not be shared with employers. For qualitative interviews, the applicant will create an environment that is conducive to confidentiality. Clinician participants will be asked to discuss clinical situations involving seriously ill patients at the end of life. When caring for patients at the end of life, clinicians often bear witness physical and/or psychological suffering, which may in turn emotionally affect the clinician themselves. Recalling sensitive events where participants may have experienced emotions such as sadness, anger, guilt or anxiety may cause acute emotional distress. The researcher, trained in the assessment of acute emotional distress, will use an adapted distress protocol when concern is present. If distress is identified, the interview will be paused; then after assessment and response the participant will be given the option to continue, reschedule remainder of interview, or stop the interview. As part of the distress protocol, participants will be offered additional support from health system Staff Support Coordinator who is a trained licensed therapist (providing confidential support throughout the health system with no threat to report to management/supervisors) and/or the employee assistance program. The applicant will review transcripts with mentorship team to receive feedback on interview style and response to participant distress.

Fatigue. To minimize fatigue or survey burden during data collection, the applicant has developed questionnaire to capture concepts with the least number of questions. For qualitative semi-structured interviews, the applicant will develop an interview guide that allows for elicitation of necessary information to answer the research question. The interview guide will be designed based on the applicant's conceptual framework of clinician distress and will be rehearsed with peers and mentors prior to use. Participants' autonomy will be respected; a participant may choose to abort the interview at any time without repercussions. The applicant will pay special attention to signs of fatigue or distress.

Confidentiality. To protect against any risk to subject confidentiality, all electronic data will be deidentified. Confidentiality of the data will be maintained by (1) using sequential identification numbers when entering data, and (2) having the individual survey and interview information available only to the principal investigator and research study group members. Identifier numbers will be kept separate from the files with demographic and contact information to protect subject confidentiality. Participants will be informed of the potential for data breaches in the informed consent, although rare. Virtual interview sessions will be locked once all participants have joined to prevent intrusions.

Data Storage. Since this data storage system is behind multiple firewalls, is monitored regularly, and is accessible only to key personnel who receive private network/firewall, server/password, and data directory access rights, the risk of unlawful penetration is not a significant data safeguard concern. Individually identifiable or deducible data will not be transmitted by unsecured telecommunications, which include internet, email, and electronic file transfer protocol. The quality control process associated with the data processing will include data acquisition, verification, auditing, and cleaning. In addition, we have password-protected secure servers that are backed up every 24 hours, and we will keep a logbook of when data are entered and by whom, with notations of any changed/corrected data. Quantitative data will be captured via the Ilumivu license and transferred to the Research Electronic Data Capture (REDCap) system and qualitative transcripts will be stored in NVivo, both (REDCap and NVivo) of which are hosted on a secure network by the University of Pennsylvania School of Nursing.

Illumivu Software. Quantitative data collection through surveys will be collected and managed via the Ilumivu software. Ilumivu is a secure application designed to support data collection for research studies. The applicant will obtain a license from Ilumivu upon award and has received a quote for software support (see Budget). Ilumivu will be used as a central resource for data processing and management. Ilumivu is a HIPPA-compliant software that deidentifies participant data automatically.

REDCap Electronic Data Capture Tool. Quantitative data collection captured through mEMA via Ilumivu will be periodically exported and transferred to the Research Electronic Data Capture (REDCap) system hosted at the University of Pennsylvania. REDCap is a secure, web-based application designed to support and manage data collection for research studies, which the following:

- 1) an intuitive interface for validated data entry
- 2) audit trails for tracking data manipulation and export procedures
- 3) automated export procedures for seamless data downloads to common statistical packages
- 4) procedures for importing data from external sources.

REDCap will be used as a central resource for data processing and management. REDCap is a web application and back-end database model developed at Vanderbilt University. As the front-end collection instrument is created, REDCap automatically creates a back-end database designed to store the data that will be recorded from the research. Penn has licensed its own version of REDCap that is housed on our own password protected servers located within a data center inside the School of Nursing firewall and therefore are afforded the same network protections as other sensitive clinical systems. REDCap was developed specifically around HIPAA-Security guidelines with features such as data encryption and is recommended to Penn researchers by our Office of Human Research. It provides an intuitive interface for data entry with data validation, audit trails for tracking data manipulation and export procedures, automated export procedures for seamless data downloads to common statistical packages, including SAS, and procedures for importing data from external sources. As of December 2013,

REDCap was in production use or prototype build-status for more than 94,000 studies spanning numerous research focus areas across a consortium of 912 active institutional partners. The University of Pennsylvania currently has over 2,448 REDCap users and is enrolling subjects in 873 active clinical studies (www.project-redcap.org).

Quality Assurance of Data and Data Sharing Across Sites. Data quality and management will be the primary responsibility of the applicant and mentor (Dr. Ulrich) who will also actively participate in quality control processes. This shall include data collection, data entry and verification, data auditing, programming, management and administration. As data are received, they will be processed, transcribed, and entered into the NVivo and REDCap software databases. Data will be deidentified and stored on the database server with strong access controls, firewalls, secure file transfer protocols, network-wide virus protection software, and daily back-ups. The computers will be password-protected and maintained in a secure, locked location at the School of Nursing. Further, the data will not be physically moved or transmitted in any way from the server without written approval from the applicant. All output containing individual identifiable information is treated as confidential data and will never be transferred electronically via email. The master list and participant information will be stored in a different file folder. Access to these master files will be limited to those directly involved in the study. Data will be compiled for all the participants in the study and aggregated for analysis and publication. Audiotaped interviews will be assigned a unique identifier; any identifiable information in the interviews will be anonymized during the transcription process.

C. Potential Benefits of the Proposed Research to Human Subjects and Others

The applicant cannot guarantee that any participant will benefit directly by participating in this study and acknowledge that participant burden may be an issue for both clinicians and patients. However, the applicant believes that the benefits of knowledge gained will outweigh the burden and the risks to participants. The applicant anticipates that the results of this study will benefit healthcare quality delivery and therefore society, by helping to improve the understanding of clinician distress and the delivery of safe and high-quality, patient-centered care. Further, this research will serve as a basis to begin to develop interventions that support patient and clinician mental health, well-being, and the delivery of patient-centered care within hospital-based systems.

D. Importance of Knowledge to be Gained

Patients factors and the emotional well-being of clinicians within the hospital system are critically important in the delivery of patient-centered care. The majority of previous work has focused on cross-sectional measurements of psychological distress in discrete populations, generally moral distress in clinicians and psychological distress in patients with serious illness. This study will fill this gap in knowledge by examining clinician's distress longitudinally and describe associated patient characteristics. Further, this study will provide the applicant with the necessary skills to advance along the path toward independence in research, in which she will complete future studies that will advance the science of palliative care and patient-centered care. Finally, this study uses innovative technology through automated text survey to gauge in-the-moment distress will move the science forward to prevent recall bias when exploring clinician distress.

APPENDIX II
SEMI-STRUCTURED INTERVIEW GUIDE

Overall aim question: What is the experience of distress in clinicians caring for seriously ill hospitalized patients?

Participant Alias:	Participant ID Number:
Date:	Location:
Start Time:	End Time:

Introduction: Thank you for taking the time to talk with me today. I am interested in learning about your experience of caring for patients with serious illness. With your permission I would like to record this interview so that I may transcribe and review it later. I may take some notes during the interview as well. Your name and any identifying information will be removed, and the interview will only be shared with my research team. If you ever feel uncomfortable or do not want to answer any question, we can pause or stop the interview at any time. Do you have any questions before we get started? Do I have your permission to record and begin?

Reminder: This study views participants through a theoretical model based on the Patient-Centered Clinical Method. The conceptual framework captures the importance of the individual, whole patient, clinician characteristics, and systems-level factors. The qualitative aim, specific aim 2, explores clinician’s well-being and distress experiences elicited with a theoretical connection to patient-centered care. The goal for this study is to first focus on identifying unique typologies of clinician distress and begin to describe associated patient characteristics.

<i>Patient Characteristics (Pt)</i>	<i>Clinician Characteristics (CC)</i>	<i>Systems-level Factors (Sys)</i>
SES	Professional Role, SES	Job strain: workload, support
Diagnoses, complexities	Well-being/Distress	Perception of environment

Potential variables: Patient-centered care impacts quality of care and vice versa. Theoretically, clinician distress may contribute to a diminished sense of holistic care and may lead to decreased quality of care with clinician burnout and intent to leave the job.

(Words in RED below are part of the conceptual framework to help ground the interviewer.)

Quantitative AIMS:

SA1. Examine the associations between patient (i.e., age, sex, race, diagnosis, co-morbidities), individual clinician (i.e., credentials, years of experience and sociodemographic factors), and system level characteristics (i.e., hours worked in last 24 hours, hours slept in last 24 hours, hours on-call, perceived level of support, perception of work environment, type of institution, and hospital census) and clinician well-being (i.e., measured by distress thermometer).

SA1a. Describe clinician distress trajectories based on their level of distress over time. I will assess clinician distress (n=141) through serial ecological momentary assessments (mEMAs) collected during the course of 2 consecutive days (3 assessments per shift). I will perform a latent cluster analysis to identify distinct clinician distress clusters/typologies.

QUALITATIVE/MIXED AIMS:

SA2. Gain a comprehensive understanding of sources and variability of clinician distress and its potential implications for patient-centered care.

SA2a. Using typologies identified in Aim 1, I will elucidate how qualitative themes are distributed across the levels of clinician distress clusters/typologies.

Questions:

1. Tell me about your clinical practice. *(Pt, CC, Sys)*
2. Tell me about your last shift. *(Pt, CC, Sys)*
 - a. What kinds of patients did you care for? *(Pt)*
 - b. How would you compare this day to a typical day at work? *(Pt, CC, Sys)*
 - c. Was there anything unique about the shift? *(Pt, CC, Sys)*
3. I'd like to talk about your survey responses. Would it be okay if we look at your results together?
[Show the mEMA data] *(Distress)*
 - a. You rated you distress as XX on XX, can you tell me more about what was going on that day? *(Pt, CC, Sys) (Distress)*
 - i. How did that make you feel?
 - b. It looks like you were more/less distress on XX day as compared to XX day. Tell me about what your experience of XX day. *(Pt, CC, Sys?) (Distress)*
 - c. Possible probes: *(Distress)*
 - i. What else was going on that day? *(Pt, CC, Sys)*
 - ii. Tell me, was anything weighing on you? *(CC)*
 1. ...during your shift? *(Pt, Sys)*
 2. ...outside of work? *(CC)*
 - iii. Tell me about a patient that sticks with you or that you have thought about at home. *(Pt, CC) (Distress)*
 - iv. Did you talk to anyone about your stress that day? That week? OR Did you seek out any support when you were feeling [more] distressed? *(CC, Sys) (Distress)*
 1. Who else did you tell?
 2. From whom? Tell me more about that experience.
 - v. One of the things of interest to us in this study is how we as clinicians experience emotions. You mentioned XXX earlier, what other sorts of emotions are common for you at work? *(CC) (Distress)*
 1. Other positive emotions?
 2. Other negative emotions?
 - vi. Another thing I'm interested in is the types of distress that healthcare providers experience. *(CC, Sys) (Distress)*
 1. Did the distress you experienced cause any kinds of physical symptoms in you? (for example feeling worn out, tired, couldn't concentrate, headaches?)
 2. What about any emotional symptoms (for example, wanted to cry, just kept thinking about it, or kept thinking about what should have been done?)?
 3. In sharing your thoughts on stress/distress, you mentioned XXX, would you say that this distress stemmed from maybe knowing what should be done but being somewhat constrained?
 4. Tell me, is there anything that we have not discussed that you would like to talk about?

***If replies are short, try saying:

- *“Can you say more about that?”*
- OR *“Tell me more about that [experience].”*
- OR *“I remember you said [X], could we go back to that for a minute?”*
- OR *“How did that make you feel?”*

Conclusion: Thank you again for taking the time to speak with me. Learning about your experience has been invaluable.

APPENDIX III
DISTRESS PROTOCOL

Protocol for Distress During Interview

If the participant indicates they are experiencing high levels of stress OR exhibits outward signs of distress (e.g. crying, stumbling over words, wringing hands, pacing, rapid breathing)

Then, (1) Pause the interview. (2) Offer support and space. (3) Proceed to Stage I Assessment.

Stage I: Assessment Level of Distress

- ✓ Say, "I have paused the interview. Tell me what you are feeling."
- ✓ "Are your thoughts causing you distress?"
- ✓ "Do you feel safe?"

Stage II: Review

- ✓ Is the participant is experiencing emotional distress?
- ✓ Is the level of distress more than accepted when discussed a sensitive topic?

YES → If participating is unable to continue interview due to emotional distress, move to Stage III.

NO → After discussing thoughts and feelings, ask permission to continue or reschedule.

Stage III: Response

- ✓ Ask participant to call family OR offer to call someone for-participant.
- ✓ Offer behavior health resources* (*see footnote for examples of resources from a potential institution*)
- ✓ Obtain consent to call participant tomorrow.

Stage IV: Follow-up

Call patient the next day to offer support. Provide additional behavior health resources as needed.

Adapted from Draucker, C. B., Martsof, D. S., & Poole, C. (2009). Developing distress protocols for research on sensitive topics. *Arch Psychiatr Nurs*, 23(5), 343-350.

*Penn Medicine Resources: Jessie Jarmon, LCSW Staff Support Coordinator (215-XXXXXX); Employee Assistance Program (866-799-2329); The Center for the Treatment and Study of Anxiety (215-746-3327)

References

- AAMC. (2019). Diversity in Medicine: Facts and Figures 2019. Retrieved from <https://www.aamc.org/data-reports/workforce/report/diversity-medicine-facts-and-figures-2019>. Retrieved April 30, 2024, from Association of American Medical Colleges <https://www.aamc.org/data-reports/workforce/report/diversity-medicine-facts-and-figures-2019>
- AHA. (2019). Fast Facts on U.S. Hospitals, 2019.
- AHA. (2024). Fast Facts on U.S. Hospitals, 2024.
- Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002). Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Dissatisfaction. *JAMA*, 288(16), 1987-1993. doi:10.1001/jama.288.16.1987
- Aiken, L. H., Lasater, K. B., Sloane, D. M., Pogue, C. A., Fitzpatrick Rosenbaum, K. E., Muir, K. J., . . . Whade, J. J. (2023). Physician and Nurse Well-Being and Preferred Interventions to Address Burnout in Hospital Practice. *JAMA Health Forum*, 4(7), e231809. doi:10.1001/jamahealthforum.2023.1809
- Aiken, L. H., Sermeus, W., Van den Heede, K., Sloane, D. M., Busse, R., McKee, M., . . . Kutney-Lee, A. (2012). Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *BMJ*, 344, e1717. doi:10.1136/bmj.e1717
- Allen, R., Judkins-Cohn, T., Develasco, R., Forges, E., Lee, R., Clark, L., & Procnunier, M. (2013). Moral Distress Among Healthcare Professionals at a Health System. *JONA'S Healthcare Law, Ethics, and Regulation*, 15(3), 111-118. doi:10.1097/nhl.0b013e3182a1bf33
- Altaker, K. W., Howie-Esquivel, J., & Cataldo, J. K. (2018). Relationships Among Palliative Care, Ethical Climate, Empowerment, and Moral Distress in Intensive Care Unit Nurses. *American Journal of Critical Care*, 27(4), 295-302. doi:10.4037/ajcc2018252

- American Nurses Association. (2017). A Call to Action: Exploring Moral Resilience Toward a Culture of Ethical Practice. Retrieved from <https://www.nursingworld.org/~4907b6/globalassets/docs/ana/ana-call-to-action--exploring-moral-resilience-final.pdf>
- Amoroso, S., & Chalela, J. A. (2019). Perception of Provision of Futile Care Among Clinicians in the Neuroscience Intensive Care Unit. *Journal of Neuroscience Nursing*, 51(5), 249-252. doi:10.1097/JNN.0000000000000462
- Ankuda, C. K., Woodrell, C., Meier, D. E., Morrison, S., & Chai, E. (2020). A Beacon for Dark Time: Palliative Care Support During the Coronavirus Pandemic. *NEJM Catalyst: Innovations in Care Delivery*. doi:10.1056/CAT.20.0204
- Anusic, I., & Schimmack, U. (2016). Stability and change of personality traits, self-esteem, and well-being: Introducing the meta-analytic stability and change model of retest correlations. *J Pers Soc Psychol*, 110(5), 766-781. doi:10.1037/pspp0000066
- Appleton, J. V. (2006). Analysing qualitative interview data: addressing issues of validity and reliability. *Journal of Advanced Nursing*, 22(5), 993-997. doi:10.1111/j.1365-2648.1995.tb02653.x
- Asselbergs, J., Ruwaard, J., Ejdys, M., Schrader, N., Sijbrandij, M., & Riper, H. (2016). Mobile Phone-Based Unobtrusive Ecological Momentary Assessment of Day-to-Day Mood: An Explorative Study. *Journal of Medical Internet Research*, 18(3), e72. doi:10.2196/jmir.5505
- Back, A. L., Steihauser, K. E., Kamal, A. H., & Jackson, V. A. (2016). Building Resilience for Palliative Care Clinicians: An Approach to Burnout Prevention Based on Individual Skills and Workplace Factors. *Journal of Pain and Symptom Management*, 52(2), 284-291. doi:10.1016/j.jpainsymman.2016.02.002
- Bai, X., Wang, A., Cross, W., Lam, L., Plummer, V., Guan, Z., . . . Tang, S. (2020). Validation of the distress thermometer for caregivers of children and adolescents with schizophrenia. *Journal of Advanced Nursing*, 76(2), 687-698. doi:10.1111/jan.14233

- Barber, S., & Moreno-Leguizamon, C. J. (2017). Can narrative medicine education contribute to the delivery of compassionate care? A review of the literature. *Medical Humanities, 43*(3), 199-203. doi:10.1136/medhum-2017-011242
- Barnes, H., Rearden, J., & McHugh, M. D. (2016). Magnet® Hospital Recognition Linked to Lower Central Line-Associated Bloodstream Infection Rates. *Research in Nursing & Health, 39*(2), 96-104. doi:10.1002/nur.21709
- Barrett, L. F., Mesquita, B., Ochsner, K. N., & Gross, J. J. (2007). The Experience of Emotion. *Annual Review of Psychology, 58*, 373-403. doi:http://dx.doi.org/10.1146/annurev.psych.58.110405.085709
- Baruch, J. (2020). When Sensitivity Is a Liability. *New England Journal of Medicine, 382*(8), 694-695. doi:10.1056/nejmp1911401
- Bender, M. A., Andrilla, C. H. A., Sharma, R. K., Hurd, C., Solvang, N., & Mae-Baldwin, L. (2019). Moral Distress and Attitudes About Timing Related to Comfort Care for Hospitalized Patients: A Survey of Inpatient Providers and Nurses. *American Journal of Hospice and Palliative Medicine®*, *36*(11), 967-973. doi:10.1177/1049909119843136
- Benzies, K. M., & Allen, M. N. (2001). Symbolic interactionism as a theoretical perspective for multiple method research. *Journal of Advanced Nursing, 33*(4), 541-547. doi:10.1046/j.1365-2648.2001.01680.x
- Berkman, C., Ahronheim, J. C., & Vitale, C. A. (2019). Speech-Language Pathologists' Views About Aspiration Risk and Comfort Feeding in Advanced Dementia. *American Journal of Hospice and Palliative Medicine®*, *36*(11), 993-998. doi:10.1177/1049909119849003
- Bernacki, R., Paladino, J., Neville, B. A., Hutchings, M., Kavanagh, J., Geerse, O. P., . . . Block, S. D. (2019). Effect of the Serious Illness Care Program in Outpatient Oncology. *JAMA Internal Medicine, 179*(6), 751. doi:10.1001/jamainternmed.2019.0077

- Bernacki, R. E., & Block, S. D. (2014). Communication About Serious Illness Care Goals. *JAMA Internal Medicine*, 174(12), 1994. doi:10.1001/jamainternmed.2014.5271
- Bishop, P. A., & Herron, R. L. (2015). Use and Misuse of the Likert Item Responses and Other Ordinal Measures. *International journal of exercise science*, 8(3), 297-302. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/27182418>
- Blanco-Donoso, L. M., Moreno-Jiménez, J., Hernández-Hurtado, M., Cifri-Gavela, J. L., Jacobs, S., & Garrosa, E. (2021). Daily Work-Family Conflict and Burnout to Explain the Leaving Intentions and Vitality Levels of Healthcare Workers: Interactive Effects Using an Experience-Sampling Method. *International Journal of Environmental Research and Public Health*, 18(4), 1932. doi:10.3390/ijerph18041932
- Bressler, T., Hanna, D. R., & Smith, E. (2017). Making Sense of Moral Distress Within Cultural Complexity. *Journal of Hospice & Palliative Nursing*, 19(1), 7-16. doi:10.1097/NJH.0000000000000308
- Brighton, L. J., Selman, L. E., Bristowe, K., Edwards, B., Koffman, J., & Evans, C. J. (2019). Emotional labour in palliative and end-of-life care communication: A qualitative study with generalist palliative care providers. *Patient Education and Counseling*, 102(3), 494-502. doi:10.1016/j.pec.2018.10.013
- Brooks Carthon, J. M., Hatfield, L., Plover, C., Dierkes, A., Davis, L., Hedgeland, T., . . . Aiken, L. H. (2019). Association of Nurse Engagement and Nurse Staffing on Patient Safety. *Journal of Nursing Care Quality*, 34(1), 40-46. doi:10.1097/ncq.0000000000000334
- Brown, J. B., Stewart, M., Ryan, B.L. (2001). *Assessing communication between patients and physicians: the measure of patient-centered communication (MPCC) (2nd ed) Working Paper Series, 95-2*. London, Ontario: The University of Western Ontario.

- Brown, T. (2021, February 25, 2021). Covid-19 Is 'Probably Going to End My Career'. *The New York Times*. Retrieved from <https://www.nytimes.com/2021/02/25/opinion/nursing-crisis-coronavirus.html>
- Browning, E. D., & Cruz, J. S. (2018). Reflective Debriefing: A Social Work Intervention Addressing Moral Distress among ICU Nurses. *Journal of Social Work in End-of-Life & Palliative Care*, *14*(1), 44-72. doi:10.1080/15524256.2018.1437588
- Bureau, U. S. C. (Producer). (2022). Race American Community Survey 1-year estimates.
- Burke, L. E., Shiffman, S., Music, E., Styn, M. A., Kriska, A., Smailagic, A., . . . Rathbun, S. L. (2017). Ecological Momentary Assessment in Behavioral Research: Addressing Technological and Human Participant Challenges. *Journal of Medical Internet Research*, *19*(3), e77. doi:10.2196/jmir.7138
- Buttorff, C., Ruder, T., & Bauman, M. (2017). *Multiple Chronic Conditions in the United States*. Retrieved from <https://www.rand.org/pubs/tools/TL221.html>.
- Bybee, S. (2018). Vicarious Posttraumatic Growth in End-of-Life Care: How Filling Gaps in Knowledge Can Foster Clinicians' Growth. *Journal of Social Work in End-of-Life and Palliative Care*, *14*(4), 257-273. doi:10.1080/15524256.2018.1498820
- Campbell, S. M., Ulrich, C. M., & Grady, C. (2016). A Broader Understanding of Moral Distress. *American Journal of Bioethics*, *16*(12), 2-9. doi:10.1080/15265161.2016.1239782
- CAPC. (2019). *America's Care of Serious Illness: A State-by-State Report Care on Access to Palliative Care in Our Nation's Hospitals*. Retrieved from file:///Users/anessa/Downloads/2019-state-by-state-report-card-on-access-to-palliative-care-in-our-nations-hospitals%20(1).pdf
- CAPC. (2017). *Policies and Tools for Hospital Palliative Care Programs: A Crosswalk of National Quality Forum Preferred Practices*. Retrieved from www.capc.org: https://media.capc.org/filer_public/88/06/8806cedd-f78a-4d14-a90e-aca688147a18/nqfcrosswalk.pdf

- Charlson, M. E., Pompei, P., Ales, K. L., & MacKenzie, C. R. (1987). A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis*, 40(5), 373-383. doi:10.1016/0021-9681(87)90171-8
- Chooljian, D. M., Hallenbeck, J., Ezeji-Okoye, S. C., Sebesta, R., Iqbal, H., & Kuschner, W. G. (2016). Emotional Support for Health Care Professionals: A Therapeutic Role for the Hospital Ethics Committee. *Journal of Social Work in End-of-Life & Palliative Care*, 12(3), 277-288. doi:10.1080/15524256.2016.1200519
- Cimiotti, J. P., Aiken, L. H., Sloane, D. M., & Wu, E. S. (2012). Nurse staffing, burnout, and health care-associated infection. *American Journal of Infection Control*, 40(6), 486-490. doi:10.1016/j.ajic.2012.02.029
- Coetzee, S. K., & Klopper, H. C. (2010). Compassion fatigue within nursing practice: A concept analysis. *Nursing & Health Sciences*, 12(2), 235-243. doi:10.1111/j.1442-2018.2010.00526.x
- Colorafi, K. J., & Evans, B. (2016). Qualitative Descriptive Methods in Health Science Research. *Health Environments Research & Design Journal*, 9(4), 16-25. doi:10.1177/1937586715614171
- Courtright, K. R., Chivers, C., Becker, M., Regli, S. H., Pepper, L. C., Draugelis, M. E., & O'Connor, N. R. (2019). Electronic Health Record Mortality Prediction Model for Targeted Palliative Care Among Hospitalized Medical Patients: a Pilot Quasi-experimental Study. *Journal of General Internal Medicine*, 34(9), 1841-1847. doi:10.1007/s11606-019-05169-2
- Creswell, J. W., & Clark, V. L. P. (2018). *Designing and Conducting Mixed Methods Research* (3rd Edition ed.). Thousand Oaks, California: SAGE Publications, Inc.
- Creswell, J. W., Fetters, M. D., & Ivankova, N. V. (2004). Designing a mixed methods study in primary care. *Ann Fam Med*, 2(1), 7-12. doi:10.1370/afm.104
- Crunkilton, D. D., & Rubins, V. D. (2009). Psychological Distress in End-of-Life Care: A Review of Issues in Assessment and Treatment. *Journal of Social Work in End-of-Life & Palliative Care*, 5(1-2), 75-93. doi:10.1080/15524250903173918

- Davidson, J. E., Graham, P., Montross-Thomas, L., Norcross, W., & Zerbi, G. (2017). Code Lavender: Cultivating Intentional Acts of Kindness in Response to Stressful Work Situations. *EXPLORE*, 13(3), 181-185. doi:10.1016/j.explore.2017.02.005
- Dean, W., Talbot, S., & Dean, A. (2019). Reframing Clinician Distress: Moral Injury Not Burnout. *Federal Practitioner*, 36(9), 400-402.
- Dean, W., Talbot, S. G., & Caplan, A. (2020). Clarifying the Language of Clinician Distress. *JAMA*. doi:10.1001/jama.2019.21576
- Denzin, N. K. (2012). Triangulation 2.0. *Journal of Mixed Methods Research*, 6(2), 80-88. doi:10.1177/1558689812437186
- Dintino, B., Raja, A., & Cafaro, S. (2020, April 15). The race to save lives. *The Boston Globe*.
- Donovan, E. E., Nelson, E. C., & Scheinfeld, E. (2017). Cyberframing Cancer: An Exploratory Investigation of Valenced Cybercoping on Cancer Blogs. *Health Commun*, 32(1), 1-10. doi:10.1080/10410236.2015.1089467
- Donovan, K. A., Grassi, L., McGinty, H. L., & Jacobsen, P. B. (2014). Validation of the Distress Thermometer worldwide: state of the science. *Psycho-Oncology*, 23(3), 241-250. doi:10.1002/pon.3430
- Drucker, J. (2020, April 20). Two E.R. Workers Worry: If They Died, Who'd Take Care of Their Son? *The New York Times*.
- Dyrbye, L. N., Burke, S. E., Hardeman, R. R., Herrin, J., Wittlin, N. M., Yeazel, M., . . . van Ryn, M. (2018). Association of Clinical Specialty With Symptoms of Burnout and Career Choice Regret Among US Resident Physicians. *JAMA*, 320(11), 1114-1130. doi:10.1001/jama.2018.12615
- Dyrbye, L. N., Massie, F. S., Eacker, A., Harper, W., Power, D., Durning, S. J., . . . Shanafelt, T. D. (2010). Relationship Between Burnout and Professional Conduct and Attitudes Among US Medical Students. *Journal of the American Medical Association*, 304(11), 1173. doi:10.1001/jama.2010.1318

- Dzeng, E., Colaianni, A., Roland, M., Levine, D., Kelly, M. P., Barclay, S., & Smith, T. J. (2016). Moral Distress Amongst American Physician Trainees Regarding Futile Treatments at the End of Life: A Qualitative Study. *Journal of General Internal Medicine*, *31*(1), 93-99. doi:10.1007/s11606-015-3505-1
- Edmonds, K. P., Yeung, H. N., Onderdonk, C., Mitchell, W., & Thornberry, K. (2015). Clinical Supervision in the Palliative Care Team Setting: A Concrete Approach to Team Wellness. *Journal of Palliative Medicine*, *18*(3), 274-277. doi:10.1089/jpm.2014.0248
- Edrees, H., Connors, C., Paine, L., Norvell, M., Taylor, H., & Wu, A. W. (2016). Implementing the RISE second victim support programme at the Johns Hopkins Hospital: a case study. *BMJ Open*, *6*(9), e011708. doi:10.1136/bmjopen-2016-011708
- Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative Content Analysis: A Focus on Trustworthiness. *SAGE Open*, *4*(1). doi:10.1177/2158244014522633
- Epstein, E. G., & Hamric, A. B. (2009). Moral distress, moral residue, and the crescendo effect. *Journal of Clinical Ethics*, *20*(4), 330.
- Epstein, E. G., Whitehead, P. B., Prompahakul, C., Thacker, L. R., & Hamric, A. B. (2019). Enhancing Understanding of Moral Distress: The Measure of Moral Distress for Health Care Professionals. *AJOB Empir Bioeth*, *10*(2), 113-124. doi:10.1080/23294515.2019.1586008
- Erdogan Yuce, G., Doner, A., & Muz, G. (2021). Psychological Distress and Its Association with Unmet Needs and Symptom Burden in Outpatient Cancer Patients: A Cross-Sectional Study. *Semin Oncol Nurs*, *37*(5), 151214. doi:10.1016/j.soncn.2021.151214
- Evans, B. J., Kiellerup, F. D., Stanley, R. O., Burrows, G. D., & Sweet, B. (1987). A communication skills programme for increasing patients' satisfaction with general practice consultations. *British Journal of Medical Psychology*, *60*(4), 373-378. doi:10.1111/j.2044-8341.1987.tb02756.x
- Evered, J. A. (2020). Friendship in Adolescents and Young Adults With Experience of Cancer: A Dimensional Analysis. *Cancer Nurs*, *43*(2), E61-E70. doi:10.1097/NCC.0000000000000686

- Farquhar, M. C., Ewing, G., & Booth, S. (2011). Using mixed methods to develop and evaluate complex interventions in palliative care research. *Palliative Medicine*, 25(8), 748-757.
doi:10.1177/0269216311417919
- Fava, G. A., Guidi, J., Porcelli, P., Rafanelli, C., Bellomo, A., Grandi, S., . . . Sonino, N. (2012). A cluster analysis-derived classification of psychological distress and illness behavior in the medically ill. *Psychol Med*, 42(2), 401-407. doi:10.1017/S0033291711001231
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving Integration in Mixed Methods Designs- Principles and Practices. *Health Services Research*, 48(6pt2), 2134-2156. doi:10.1111/1475-6773.12117
- Fillion, L., Duval, S., Dumont, S., Gagnon, P., Tremblay, I., Bairati, I., & Breitbart, W. S. (2009). Impact of a meaning-centered intervention on job satisfaction and on quality of life among palliative care nurses. *Psycho-Oncology: Journal of the Psychological, Social and Behavioral Dimensions of Cancer*, 18(12), 1300-1310.
- Forbes, D., Lewis, V., Varker, T., Phelps, A., O'Donnell, M., Wade, D. J., . . . Creamer, M. (2011). Psychological First Aid Following Trauma: Implementation and Evaluation Framework for High-Risk Organizations. *Psychiatry: Interpersonal and Biological Processes*, 74(3), 224-239.
doi:10.1521/psyc.2011.74.3.224
- Forrest, C. B., Xu, H., Thomas, L. E., Webb, L. E., Cohen, L. W., Carey, T. S., . . . O'Brien, E. C. (2021). Impact of the Early Phase of the COVID-19 Pandemic on US Healthcare Workers: Results from the HERO Registry. *Journal of General Internal Medicine*. doi:10.1007/s11606-020-06529-z
- Foster, K., Mitchell, R., Van, C., Young, A., McCloughen, A., & Curtis, K. (2019). Resilient, recovering, distressed: A longitudinal qualitative study of parent psychosocial trajectories following child critical injury. *Injury*, 50(10), 1605-1611. doi:10.1016/j.injury.2019.05.003
- Foxwell, A. M. (2020, April 17, 2020). On the coronavirus front lines: Part-time nurse, full-time worry, Opinion. *The Philadelphia Inquirer*. Retrieved from <https://www.inquirer.com>

- Foxwell, A. M. (2020, April 17). On the coronavirus front lines: Part-time nurse, full-time worry. *The Philadelphia Inquirer*.
- Foxwell, A. M., H. Meghani, S., & M. Ulrich, C. (2021). Clinician distress in seriously ill patient care: A dimensional analysis. *Nursing Ethics*, 096973302110032. doi:10.1177/09697330211003259
- Foxwell, A. M., Meghani, S. H., & Ulrich, C. M. (2021). Clinician Distress in Seriously Ill Patient Care: A Dimensional Analysis. [Accepted Manuscript]. *Nursing Ethics*.
- Fuehrer, S., Weil, A., Osterberg, L. G., Zulman, D. M., Meunier, M. R., & Schwartz, R. (2024). Building Authentic Connection in the Patient-Physician Relationship. *Journal of Primary Care & Community Health*, 15. doi:10.1177/21501319231225996
- Funk, L. M., Peters, S., & Roger, K. S. (2018). Caring about dying persons and their families: Interpretation, practice and emotional labour. *Health & Social Care in the Community*. doi:10.1111/hsc.12559
- Gallup. (2019). Gallup 2019 Global Emotions Report. Retrieved from <https://www.gallup.com/analytics/248906/gallup-global-emotions-report-2019.aspx>
- Geller, G., Rushton, C., Francomano, C., Kolodner, K., & Bernhardt, B. (2010). Genetics professionals' experiences with grief and loss: implications for support and training. *Clinical Genetics*, 77(5), 421-429. doi:10.1111/j.1399-0004.2010.01409.x
- Genolini, C., Ecochard, R., Benghezal, M., Driss, T., Andrieu, S., & Subtil, F. (2016). kmlShape: An Efficient Method to Cluster Longitudinal Data (Time-Series) According to Their Shapes. *PLoS ONE*, 11(6), e0150738. doi:10.1371/journal.pone.0150738
- Genolini, C., & Falissard, B. (2011). KmL: a package to cluster longitudinal data. *Comput Methods Programs Biomed*, 104(3), e112-121. doi:10.1016/j.cmpb.2011.05.008
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *Am Psychol*, 48(1), 26-34. doi:10.1037//0003-066x.48.1.26

- Gooding, H. C., Quinn, M., Martin, B., Charrow, A., & Katz, J. T. (2016). Fostering Humanism in Medicine through Art and Reflection. *Journal of Museum Education, 41*(2), 123-130.
doi:10.1080/10598650.2016.1169732
- Graham-Wisener, L., Dempster, M., Sadler, A., McCann, L., & McCorry, N. K. (2021). Validation of the Distress Thermometer in patients with advanced cancer receiving specialist palliative care in a hospice setting. *Palliat Med, 35*(1), 120-129. doi:10.1177/0269216320954339
- Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today, 24*(2), 105-112.
doi:10.1016/j.nedt.2003.10.001
- Grotmol, K. S., Lie, H. C., Hjermsstad, M. J., Aass, N., Currow, D., Kaasa, S., . . . Loge, J. H. (2017). Depression—A Major Contributor to Poor Quality of Life in Patients With Advanced Cancer. *Journal of Pain and Symptom Management, 54*(6), 889-897.
doi:10.1016/j.jpainsymman.2017.04.010
- Grotmol, K. S., Lie, H. C., Loge, J. H., Aass, N., Haugen, D. F., Stone, P. C., . . . Hjermsstad, M. J. (2019). Patients with advanced cancer and depression report a significantly higher symptom burden than non-depressed patients. *Palliative and Supportive Care, 17*(2), 143-149.
doi:10.1017/s1478951517001183
- Guetterman, T. C., Fetters, M. D., & Creswell, J. W. (2015). Integrating Quantitative and Qualitative Results in Health Science Mixed Methods Research Through Joint Displays. *The Annals of Family Medicine, 13*(6), 554-561. doi:10.1370/afm.1865
- Hack, T. F., Degner, L. F., & Parker, P. A. (2005). The communication goals and needs of cancer patients: a review. *Psycho-Oncology, 14*(10), 831-845. doi:10.1002/pon.949
- Hamric, A. B., & Epstein, E. G. (2017). A Health System-wide Moral Distress Consultation Service: Development and Evaluation. *HealthCare Ethics Committee Forum, 29*(2), 127-143.
doi:10.1007/s10730-016-9315-y

- Handberg, C., Thorne, S., Midtgaard, J., Nielsen, C. V., & Lomborg, K. (2015). Revisiting Symbolic Interactionism as a Theoretical Framework Beyond the Grounded Theory Tradition. *Qualitative Health Research, 25*(8), 1023-1032. doi:10.1177/1049732314554231
- Haverman, L., Van Oers, H. A., Limperg, P. F., Houtzager, B. A., Huisman, J., Darlington, A.-S., . . . Grootenhuis, M. A. (2013). Development and Validation of the Distress Thermometer for Parents of a Chronically Ill Child. *The Journal of Pediatrics, 163*(4), 1140-1146.e1142. doi:10.1016/j.jpeds.2013.06.011
- Heeke, C., Franzen, M., Hofmann, H., Knaevelsrud, C., & Lenferink, L. I. M. (2022). A Latent Class Analysis on Symptoms of Prolonged Grief, Post-Traumatic Stress, and Depression Following the Loss of a Loved One. *Front Psychiatry, 13*, 878773. doi:10.3389/fpsyt.2022.878773
- Henson, L. A., Maddocks, M., Evans, C., Davidson, M., Hicks, S., & Higginson, I. J. (2020). Palliative Care and the Management of Common Distressing Symptoms in Advanced Cancer: Pain, Breathlessness, Nausea and Vomiting, and Fatigue. *Journal of Clinical Oncology, 38*(9), 905-914. doi:10.1200/jco.19.00470
- Hewitt, J. (2007). Ethical components of researcher researched relationships in qualitative interviewing. *Qualitative Health Research, 17*(8), 1149-1159. doi:10.1177/1049732307308305
- Hillen, M. A., Gutheil, C. M., Strout, T. D., Smets, E. M. A., & Han, P. K. J. (2017). Tolerance of uncertainty: Conceptual analysis, integrative model, and implications for healthcare. *Social Science & Medicine, 180*, 62-75. doi:https://doi.org/10.1016/j.socscimed.2017.03.024
- Hinderer, K. A. (2012). Reactions to Patient Death: The Lived Experience of Critical Care Nurses. *Dimensions of Critical Care Nursing, 31*(4), 252-259. doi:10.1097/DCC.0b013e318256e0f1
- Holland, J. M., & Neimeyer, R. A. (2005). Reducing the risk of burnout in end-of-life care settings: The role of daily spiritual experiences and training. *Palliative and Supportive Care, 3*(3), 173-181. doi:10.1017/s1478951505050297

- Holly, D., & Sharp, J. (2012). Distress thermometer validation: heart failure. *British Journal of Cardiac Nursing*, 7(12), 595-602. Retrieved from <https://proxy.library.upenn.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=104394373&site=ehost-live>
- Hooker, R. S., & Christian, R. L. (2023). The changing employment of physicians, nurse practitioners, and physician associates/assistants. *Journal of the American Association of Nurse Practitioners*, 35(8), 487-493.
- Houston, S., Casanova, M. A., Leveille, M., Schmidt, K. L., Barnes, S. A., Trungale, K. R., & Fine, R. L. (2013). The intensity and frequency of moral distress among different healthcare disciplines. *Journal of Clinical Ethics*, 24(2), 98-112. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=107963464&site=ehost-live>
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288. doi:10.1177/1049732305276687
- Hudson, N. W., Anusic, I., Lucas, R. E., & Donnellan, M. B. (2020). Comparing the Reliability and Validity of Global Self-Report Measures of Subjective Well-Being With Experiential Day Reconstruction Measures. *Assessment*, 27(1), 102-116. doi:10.1177/1073191117744660
- Illumivu. (n.d.). Retrieved from <https://illumivu.com/markets/researchers/>
- Jacobsen, P. B., Donovan, K. A., Trask, P. C., Fleishman, S. B., Zabora, J., Baker, F., & Holland, J. C. (2005). Screening for psychological distress in ambulatory cancer patients. *Cancer*, 103(7), 1494-1502. doi:10.1002/cncr.20940
- Jameton, A. (2017). What Moral Distress in Nursing History Could Suggest about the Future of Health Care. *The AMA Journal of Ethic*, 19(6), 617-628. doi:10.1001/journalofethics.2017.19.6.mhst1-1706

- Jenkins, T. M. (2015). 'It's time she stopped torturing herself': Structural constraints to decision-making about life-sustaining treatment by medical trainees. *Social Science and Medicine*, *132*, 132-140. doi:10.1016/j.socscimed.2015.03.039
- Johansen, S., Cvancarova, M., & Ruland, C. (2018). The Effect of Cancer Patients' and Their Family Caregivers' Physical and Emotional Symptoms on Caregiver Burden. *Cancer Nursing*, *41*(2), 91-99. doi:10.1097/ncc.0000000000000493
- Johnson-Coyle, L., Opgenorth, D., Bellows, M., Dhaliwal, J., Richardson-Carr, S., & Bagshaw, S. M. (2016). Moral distress and burnout among cardiovascular surgery intensive care unit healthcare professionals: A prospective cross-sectional survey. *Can J Crit Care Nurs*, *27*(4), 27-36. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/29786979>
- Jonas, D. F., & Bogetz, J. F. (2016). Identifying the Deliberate Prevention and Intervention Strategies of Pediatric Palliative Care Teams Supporting Providers during Times of Staff Distress. *Journal of Palliative Medicine*, *19*(6), 679-683. doi:10.1089/jpm.2015.0425
- Jones, G. M., Roe, N. A., Loudon, L., & Tubbs, C. R. (2017). Factors Associated With Burnout Among US Hospital Clinical Pharmacy Practitioners: Results of a Nationwide Pilot Survey. *Hospital Pharmacy*, *52*(11), 742-751. doi:10.1177/0018578717732339
- Kamal, A. H., Bull, J. H., Wolf, S. P., Swetz, K. M., Shanafelt, T. D., Ast, K., . . . Abernethy, A. P. (2019). Prevalence and Predictors of Burnout among Hospice and Palliative Care Clinicians in the US. *Journal of Pain and Symptom Management*. doi:10.1016/j.jpainsymman.2019.11.017
- Kaplan, S. H., Greenfield, S., & Ware, J. E., Jr. (1989). Assessing the effects of physician-patient interactions on the outcomes of chronic disease. *Med Care*, *27*(3 Suppl), S110-127. doi:10.1097/00005650-198903001-00010
- Kearney, M. K., Weininger, R. B., Vachon, M. L. S., Harrison, R. L., & Mount, B. M. (2009). Self-care of Physicians Caring for Patients at the End of Life. *JAMA*, *301*(11), 1155. doi:10.1001/jama.2009.352

- Kelley, A. S. (2014). Defining "Serious Illness". *Journal of Palliative Medicine*, 17(9), 985-985.
doi:10.1089/jpm.2014.0164
- Kelley, J. M., Kraft-Todd, G., Schapira, L., Kossowsky, J., & Riess, H. (2014). The Influence of the Patient-Clinician Relationship on Healthcare Outcomes: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *PLoS ONE*, 9(4), e94207. doi:10.1371/journal.pone.0094207
- Kools, S., McCarthy, M., Durham, R., & Robrecht, L. (1996). Dimensional analysis: Broadening the conception of grounded theory. *Qualitative Health Research*, 6(3), 312-330.
doi:https://doi.org/10.1177/104973239600600302
- Korstjens, I., & Moser, A. (2017). Series: Practical guidance to qualitative research. Part 2: Context, research questions and designs. *European Journal of General Practice*, 23(1), 274-279.
doi:10.1080/13814788.2017.1375090
- Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), 120-124.
doi:10.1080/13814788.2017.1375092
- Kowalski, C., Nitzsche, A., Scheibler, F., Steffen, P., Albert, U.-S., & Pfaff, H. (2009). Breast cancer patients' trust in physicians: The impact of patients' perception of physicians' communication behaviors and hospital organizational climate. *Patient Education and Counseling*, 77(3), 344-348.
doi:10.1016/j.pec.2009.09.003
- Kozlov, E., Phongtankuel, V., Prigerson, H., Adelman, R., Shalev, A., Czaja, S., . . . Reid, M. C. (2019). Prevalence, Severity, and Correlates of Symptoms of Anxiety and Depression at the Very End of Life. *Journal of Pain and Symptom Management*, 58(1), 80-85.
doi:10.1016/j.jpainsymman.2019.04.012
- Kozlowski, D., Hutchinson, M., Hurley, J., Rowley, J., & Sutherland, J. (2017). The role of emotion in clinical decision making: an integrative literature review. *BMC Medical Education*, 17(1).
doi:10.1186/s12909-017-1089-7

- Kuo, J. (2020, March 27). On the Front Lines of a Pandemic, 'I Love You' Can Mean 'Goodbye'. *NYTimes.com Feed*.
- Kuo, S. C., Sun, J. L., & Tang, S. T. (2017). Trajectories of depressive symptoms for bereaved family members of chronically ill patients: a systematic review. *J Clin Nurs*, 26(23-24), 3784-3799. doi:10.1111/jocn.13720
- Kutney-Lee, A., Stimpfel, A. W., Sloane, D. M., Cimiotti, J. P., Quinn, L. W., & Aiken, L. H. (2015). Changes in Patient and Nurse Outcomes Associated With Magnet Hospital Recognition. *Medical Care*, 53(6), 550-557. doi:10.1097/mlr.0000000000000355
- Lacourt, T. E., Koncz, Z., Tullos, E. A., & Tripathy, D. (2023). A detailed description of the distress trajectory from pre- to post-treatment in breast cancer patients receiving neoadjuvant chemotherapy. *Breast Cancer Research and Treatment*, 197(2), 299-305. doi:10.1007/s10549-022-06805-y
- Ladin, K., Pandya, R., Kannam, A., Loke, R., Oskoui, T., Perrone, R. D., . . . Wong, J. B. (2018). Discussing Conservative Management With Older Patients With CKD: An Interview Study of Nephrologists. *Am J Kidney Dis*, 71(5), 627-635. doi:10.1053/j.ajkd.2017.11.011
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., . . . Hu, S. (2020). Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA Network Open*, 3(3), e203976. doi:10.1001/jamanetworkopen.2020.3976
- Lake, E. T., Narva, A. M., Holland, S., Smith, J. G., Cramer, E., Rosenbaum, K. E. F., . . . Rogowski, J. A. (2022). Hospital nurses' moral distress and mental health during COVID-19. *J Adv Nurs*, 78(3), 799-809. doi:10.1111/jan.15013
- Lamas, D. J. (2020, March 24). I'm on the Front Lines. I Have No Plan for This. *The New York Times*.
- Lasater, K. B., Aiken, L. H., Sloane, D. M., French, R., Martin, B., Reneau, K., . . . McHugh, M. D. (2021). Chronic hospital nurse understaffing meets COVID-19: an observational study. *BMJ Quality & Safety*, 30(8), 639-647. doi:10.1136/bmjqs-2020-011512

- Lesage, F. X., & Berjot, S. (2011). Validity of occupational stress assessment using a visual analogue scale. *Occupational Medicine*, *61*(6), 434-436. doi:10.1093/occmed/kqr037
- Lesage, F. X., Berjot, S., & Deschamps, F. (2012). Clinical stress assessment using a visual analogue scale. *Occupational Medicine*, *62*(8), 600-605. doi:10.1093/occmed/kqs140
- Levenstein, J. H., McCracken, E. C., McWhinney, I. R., Stewart, M. A., & Brown, J. B. (1986). The patient-centred clinical method. I. A model for the doctor-patient interaction in family medicine. *Family Practice*, *3*(1), 24-30. doi:10.1093/fampra
- Li, G., Miao, J., Wang, H., Xu, S., Sun, W., Fan, Y., . . . Wang, W. (2020). Psychological impact on women health workers involved in COVID-19 outbreak in Wuhan: a cross-sectional study. *J Neurol Neurosurg Psychiatry*, *91*(8), 895-897. doi:10.1136/jnnp-2020-323134
- Li, X., & Hedeker, D. (2012). A three-level mixed-effects location scale model with an application to ecological momentary assessment data. *Stat Med*, *31*(26), 3192-3210. doi:10.1002/sim.5393
- Lief, L., Berlin, D. A., Maciejewski, R. C., Westman, L., Su, A., Cooper, Z. R., . . . Prigerson, H. G. (2018). Dying Patient and Family Contributions to Nurse Distress in the ICU. *Annals of the American Thoracic Society*, *15*(12), 1459-1464. doi:10.1513/AnnalsATS.201804-284OC
- Lin, W. C., Burke, L., Schlenk, E. A., & Yeh, C. H. (2019). Use of an Ecological Momentary Assessment Application to Assess the Effects of Auricular Point Acupressure for Chronic Low Back Pain. *Comput Inform Nurs*, *37*(5), 276-282. doi:10.1097/CIN.0000000000000478
- Linder, L. A., & Hooke, M. C. (2019). Symptoms in Children Receiving Treatment for Cancer-Part II: Pain, Sadness, and Symptom Clusters. *J Pediatr Oncol Nurs*, *36*(4), 262-279. doi:10.1177/1043454219849578
- Lindquist, K. A., Wager, T. D., Kober, H., Bliss-Moreau, E., & Barrett, L. F. (2012). The brain basis of emotion: A meta-analytic review. *Behavioral and Brain Sciences*, *35*(3), 121-143. doi:http://dx.doi.org/10.1017/S0140525X11000446

- Litz, B. T., Schorr, Y., Delaney, E., Au, T., Papa, A., Fox, A. B., . . . Prigerson, H. G. (2014). A randomized controlled trial of an internet-based therapist-assisted indicated preventive intervention for prolonged grief disorder. *Behaviour Research and Therapy*, *61*, 23-34. doi:10.1016/j.brat.2014.07.005
- Liu, Y., Li, Z., Xiong, H., Gao, X., Wu, J., & Wu, S. (2013). Understanding and enhancement of internal clustering validation measures. *IEEE Trans Cybern*, *43*(3), 982-994. doi:10.1109/TSMCB.2012.2220543
- Loren, A. W. (2018). Harder to Treat Than Leukemia - Opioid Use Disorder in Survivors of Cancer. *N Engl J Med*, *379*(26), 2485-2487. doi:10.1056/NEJMp1812850
- Lou, N. M., Montreuil, T., Feldman, L. S., Fried, G. M., Lavoie-Tremblay, M., Bhanji, F., . . . Harley, J. M. (2021). Nurses' and Physicians' Distress, Burnout, and Coping Strategies During COVID-19: Stress and Impact on Perceived Performance and Intentions to Quit. *Journal of Continuing Education in the Health Professions*. doi:10.1097/ceh.0000000000000365
- Ltd, QRS Play Limited. (2018). NVivo qualitative data analysis software, (Version 1.3).
- Lucas, R. E. (2007). Adaptation and the Set-Point Model of Subjective Well-Being. *Current Directions in Psychological Science*, *16*(2), 75-79. doi:10.1111/j.1467-8721.2007.00479.x
- Lucas, R. E., & Donnellan, M. B. (2007). How stable is happiness? Using the STARTS model to estimate the stability of life satisfaction. *Journal of Research in Personality*, *41*(5), 1091-1098. doi:10.1016/j.jrp.2006.11.005
- Lumivero. (2024). NVivo qualitative data analysis software, (Version 14.23.4).
- Ma, X., Zhang, J., Zhong, W., Shu, C., Wang, F., Wen, J., . . . Liu, L. (2014). The diagnostic role of a short screening tool—the distress thermometer: a meta-analysis. *Supportive Care in Cancer*, *22*(7), 1741-1755. doi:10.1007/s00520-014-2143-1

- Mack, J. W., Cronin, A., Taback, N., Huskamp, H. A., Keating, N. L., Malin, J. L., . . . Weeks, J. C. (2012). End-of-Life Care Discussions Among Patients With Advanced Cancer. *Annals of Internal Medicine, 156*(3), 204-210.
- Maffoni, M., Argentero, P., Giorgi, I., Hynes, J., & Giardini, A. (2019). Healthcare professionals' moral distress in adult palliative care: a systematic review. *British Medical Journal of Supportive & Palliative Care, 9*(3), 245-254. doi:10.1136/bmjspcare-2018-001674
- Mallinger, J. B., Griggs, J. J., & Shields, C. G. (2005). Patient-centered care and breast cancer survivors' satisfaction with information. *Patient Education and Counseling, 57*(3), 342-349. doi:10.1016/j.pec.2004.09.009
- Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample Size in Qualitative Interview Studies: Guided by Information Power. *Qualitative Health Research, 26*(13), 1753-1760. doi:10.1177/1049732315617444
- Martin, N., MacQuarrie, B., & Pan, D. (2020, May 31). Dispatches from the Front Lines. *The Boston Globe*.
- Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatry, 15*(2), 103-111. doi:10.1002/wps.20311
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job Burnout. *Annual Review of Psychology, 52*(1), 397-422. doi:10.1146/annurev.psych.52.1.397
- Matulevicius, S. A., Kho, K. A., Reisch, J., & Yin, H. (2021). Academic Medicine Faculty Perceptions of Work-Life Balance Before and Since the COVID-19 Pandemic. *JAMA Network Open, 4*(6), e2113539. doi:10.1001/jamanetworkopen.2021.13539
- Maunder, R. G., Lancee, W. J., Balderson, K. E., Bennett, J. P., Borgundvaag, B., Evans, S., . . . Wasylenki, D. A. (2006). Long-term psychological and occupational effects of providing hospital healthcare during SARS outbreak. *Emerg Infect Dis, 12*(12), 1924-1932. doi:10.3201/eid1212.060584

- McCormack, L. A., Treiman, K., Rupert, D., Williams-Piehot, P., Nadler, E., Arora, N. K., . . . Street, R. L. (2011). Measuring patient-centered communication in cancer care: A literature review and the development of a systematic approach. *Social Science & Medicine*, 72(7), 1085-1095. doi:10.1016/j.socscimed.2011.01.020
- McCracken, E. C., Stewart, M. A., Brown, J. B., & McWhinney, I. R. (1983). Patient-centred care: the family practice model. *Can Fam Physician*, 29, 2313-2316. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/20469404>
- McFarland, D. C. (2019). Less direct patient care delivered by medical trainees by the end of a hematology-oncology ward rotation: Association with empathy and related factors. *Psycho-Oncology*, 28(6), 1342-1348. doi:10.1002/pon.5089
- McFarland, D. C., Malone, A. K., & Roth, A. (2017). Acute empathy decline among resident physician trainees on a hematology–oncology ward: an exploratory analysis of house staff empathy, distress, and patient death exposure. *Psycho-Oncology*, 26(5), 698-703. doi:10.1002/pon.4069
- McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Aff (Millwood)*, 30(2), 202-210. doi:10.1377/hlthaff.2010.0100
- McWilliam, C. L., Brown, J. B., & Stewart, M. (2000). Breast cancer patients' experiences of patient–doctor communication: a working relationship. *Patient Education and Counseling*, 39(2-3), 191-204. doi:10.1016/s0738-3991(99)00040-3
- Mealer, M., & Jones, J. (2013). Posttraumatic Stress Disorder in the Nursing Population: A Concept Analysis. *Nursing Forum*, 48(4), 279-288. doi:10.1111/nuf.12045
- Meghani, S., & Knafl, G. (2016). Patterns of analgesic adherence predict health care utilization among outpatients with cancer pain. *Patient Preference and Adherence*, 81. doi:10.2147/ppa.s93726
- Miller, D. (2020, March 29). Coronavirus anxiety overwhelmed this doctor. A deep breath helped. *The Washington Post*.

- Mills, J., Wand, T., & Fraser, J. A. (2018). Exploring the meaning and practice of self-care among palliative care nurses and doctors: a qualitative study. *BMC Palliative Care, 17*(1). doi:10.1186/s12904-018-0318-0
- Milne, J., & Oberle, K. (2005). Enhancing rigor in qualitative description: a case study. *Journal of the Wound, Ostomy and Continence Nurses Society, 32*(6), 413-420. doi:10.1097/00152192-200511000-00014
- Mitchell, A. J., Chan, M., Bhatti, H., Halton, M., Grassi, L., Johansen, C., & Meader, N. (2011). Prevalence of depression, anxiety, and adjustment disorder in oncological, haematological, and palliative-care settings: a meta-analysis of 94 interview-based studies. *The Lancet Oncology, 12*(2), 160-174. doi:10.1016/s1470-2045(11)70002-x
- Mobley, M. J., Rady, M. Y., Verheijde, J. L., Patel, B., & Larson, J. S. (2007). The relationship between moral distress and perception of futile care in the critical care unit. *Intensive and Critical Care Nursing, 23*(5), 256-263. doi:10.1016/j.iccn.2007.03.011
- Mohan, D., Sacks, O. A., O'Malley, J., Rudolph, M., Bynum, J., Murphy, M., & Barnato, A. E. (2021). A New Standard for Advance Care Planning (ACP) Conversations in the Hospital: Results from a Delphi Panel. *J Gen Intern Med, 36*(1), 69-76. doi:10.1007/s11606-020-06150-0
- Morgan, B. E. (2020). A dimensional analysis of inner strength in people ageing with serious illness. *Nurs Inq, e12353*. doi:10.1111/nin.12353
- Morris, S. E., Kearns, J. P., Moment, A., Lee, K. A., & Delima Thomas, J. (2019). "Remembrance": A Self-Care Tool for Clinicians. *Journal of Palliative Medicine, 22*(3), 316-318. doi:10.1089/jpm.2018.0395
- Morrison, E. J., Novotny, P. J., Sloan, J. A., Yang, P., Patten, C. A., Ruddy, K. J., & Clark, M. M. (2017). Emotional Problems, Quality of Life, and Symptom Burden in Patients With Lung Cancer. *Clin Lung Cancer, 18*(5), 497-503. doi:10.1016/j.clcc.2017.02.008

- Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice*, 24(1), 9-18.
doi:10.1080/13814788.2017.1375091
- Muir, K. J., Porat-Dahlerbruch, J., Nikpour, J., Leep-Lazar, K., & Lasater, K. B. (2024). Top Factors in Nurses Ending Health Care Employment Between 2018 and 2021. *JAMA Netw Open*, 7(4), e244121. doi:10.1001/jamanetworkopen.2024.4121
- Murphy, J. W., Franz, B. A., & Schlaerth, C. (2018). The Role of Reflection in Narrative Medicine. *Journal of Medical Education and Curricular Development*, 5, 238212051878530.
doi:10.1177/2382120518785301
- NCCN. (2021). National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology: Distress Management.
- Neergaard, M. A., Olesen, F., Andersen, R. S., & Sondergaard, J. (2009). Qualitative description – the poor cousin of health research? *British Medical Journal of Medical Research Methodology*, 9(1), 52. doi:10.1186/1471-2288-9-52
- Orellana-Rios, C. L., Radbruch, L., Kern, M., Regel, Y. U., Anton, A., Sinclair, S., & Schmidt, S. (2018). Mindfulness and compassion-oriented practices at work reduce distress and enhance self-care of palliative care teams: a mixed-method evaluation of an “on the job“ program. *BMC Palliative Care*, 17(1). doi:10.1186/s12904-017-0219-7
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, 88, 901-907.
doi:10.1016/j.bbi.2020.05.026
- Patch, K., Huang, C., Hendriks, S., Wasserman, D., Parrish, M., & Grady, C. (2023). "It's Pretty Sad If You Get Used to It": A Qualitative Study of First Responder Experiences with Opioid Overdose Emergencies. *Prehosp Emerg Care*, 1-8. doi:10.1080/10903127.2023.2236200

- Pavlish, C., Brown-Saltzman, K., Fine, A., & Jakel, P. (2015). A Culture of Avoidance: Voices From Inside Ethically Difficult Clinical Situations. *Clinical Journal of Oncology Nursing*, *19*(2), 159-165. doi:10.1188/15.CJON.19-02AP
- Pavlish, C., Brown-Saltzman, K., Hersh, M., Shirk, M., & Nudelman, O. (2011). Early indicators and risk factors for ethical issues in clinical practice. *J Nurs Scholarsh*, *43*(1), 13-21. doi:10.1111/j.1547-5069.2010.01380.x
- Periyakoil, V. S., Neri, E., & Kraemer, H. (2015). No easy talk: A mixed methods study of doctor reported barriers to conducting effective end-of-life conversations with diverse patients. *PLoS ONE*, *10*(4). doi:10.1371/journal.pone.0122321
- Person-Centered Care: A Definition and Essential Elements. (2016). *Journal of the American Geriatrics Society*, *64*(1), 15-18. doi:10.1111/jgs.13866
- Piers, R. D., Azoulay, E., Ricou, B., Dekeyser Ganz, F., Decruyenaere, J., Max, A., . . . ESICM, A. S. G. o. t. E. S. o. t. (2011). Perceptions of appropriateness of care among European and Israeli intensive care unit nurses and physicians. *JAMA*, *306*(24), 2694-2703. doi:10.1001/jama.2011.1888
- Pratt, L. A. (2009). Serious Psychological Distress, as Measured by the K6, and Mortality. *Annals of Epidemiology*, *19*(3), 202-209. doi:10.1016/j.annepidem.2008.12.005
- Raines, M. L. (2000). Ethical Decision Making in Nurses: Relationships Among Moral Reasoning, Coping Style, and Ethics Stress. *JONA'S Healthcare Law, Ethics, and Regulation*, *2*(1), 29-41.
- Raso, R., Fitzpatrick, J. J., & Masick, K. (2021). Nurses' Intent to Leave their Position and the Profession During the COVID-19 Pandemic. *JONA: The Journal of Nursing Administration*, *51*(10), 488-494. doi:10.1097/nna.0000000000001052
- R Core Team (2021). R: A language and environment for statistical computing. R Foundation for Statistical Computing (Version 2023.12.0+369). Vienna, Austria. Retrieved from <https://www.R-project.org/>

- Riordan, K. (2020, March 29). On the front lines of the pandemic; While Most of us are Socially Isolating in an Effort to Quell the Coronavirus, There are some People Whose Jobs are Skills are too Essential to be Sequestered. These are Their Stories, In Their Own Words. *The Philadelphia Inquirer*.
- Roberts, T., Daniels, J., Hulme, W., Hirst, R., Horner, D., Lyttle, M. D., . . . Carlton, E. (2021). Psychological distress and trauma in doctors providing frontline care during the COVID-19 pandemic in the United Kingdom and Ireland: a prospective longitudinal survey cohort study. *BMJ Open*, *11*(7), e049680. doi:10.1136/bmjopen-2021-049680
- Rosa, W. E., Roberts, K. E., Schlak, A. E., Applebaum, A. J., Breitbart, W. S., Kantoff, E. H., . . . Lichtenthal, W. G. (2022). The Critical Need for a Meaning-Centered Team-Level Intervention to Address Healthcare Provider Distress Now. *Int J Environ Res Public Health*, *19*(13). doi:10.3390/ijerph19137801
- Rossi, R., Socci, V., Pacitti, F., Di Lorenzo, G., Di Marco, A., Siracusano, A., & Rossi, A. (2020). Mental Health Outcomes Among Frontline and Second-Line Health Care Workers During the Coronavirus Disease 2019 (COVID-19) Pandemic in Italy. *JAMA Network Open*, *3*(5), e2010185. doi:10.1001/jamanetworkopen.2020.10185
- Rushton, C. H. (2016). Moral Resilience: A Capacity for Navigating Moral Distress in Critical Care. *AACN Advanced Critical Care*, *27*(1), 111-119. doi:10.4037/aacnacc2016275
- Rushton, C. H., Kaszniak, A. W., & Halifax, J. S. (2013). A framework for understanding moral distress among palliative care clinicians. *J Palliat Med*, *16*(9), 1074-1079. doi:10.1089/jpm.2012.0490
- Rutledge, T., Stucky, E., Dollarhide, A., Shively, M., Jain, S., Wolfson, T., . . . Dresselhaus, T. (2009). A real-time assessment of work stress in physicians and nurses. *Health Psychol*, *28*(2), 194-200. doi:10.1037/a0013145
- Ryan, B. L., Brown, J. B., Tremblay, P. F., & Stewart, M. (2019). Measuring Patients' Perceptions of Health Care Encounters: Examining the Factor Structure of the Revised Patient Perception of

- Patient-Centeredness (PPPC-R) Questionnaire. *Journal of Patient-Centered Research and Reviews*, 6(3), 192-202. doi:10.17294/2330-0698.1696
- Sadowska, K., Fong, T., Horning, D. R., McAteer, S., Ekwebelem, M. I., Demetres, M., . . . Shalev, D. (2023). Psychiatric Comorbidities and Outcomes in Palliative and End-of-Life Care: A Systematic Review. *J Pain Symptom Manage*, 66(1), e129-e151. doi:10.1016/j.jpainsymman.2023.03.007
- Sajjadi, S., Norena, M., Wong, H., & Dodek, P. (2017). Moral distress and burnout in internal medicine residents. *Canadian Medical Education Journal*, 8(1), e36-e43. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/28344714>
- Sandelowski, M. (2000a). Combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Res Nurs Health*, 23(3), 246-255. doi:10.1002/1098-240x(200006)23:3<246::aid-nur9>3.0.co;2-h
- Sandelowski, M. (2000b). Whatever happened to qualitative description? *Research in Nursing & Health*, 23(4), 334-340. doi:10.1002/1098-240x(200008)23:4<334::aid-nur9>3.0.co;2-g
- Schatzman, L. (1991). Dimensional analysis: Notes on an alternative approach to the grounding of theory in qualitative research. In I. D. M. (Ed.) (Ed.), *Social organization and social process: Essays in honor of Anselm Strauss* (pp. pp. 303–314). New York, NY: Aldine De Gruyter.
- Schneider, L., & Schimmack, U. (2009). Self-Informant Agreement in Well-Being Ratings: A Meta-Analysis. *Social Indicators Research*, 94(3), 363-376. doi:10.1007/s11205-009-9440-y
- Scott, S. D., Hirschinger, L. E., Cox, K. R., McCoig, M., Brandt, J., & Hall, L. W. (2009). The natural history of recovery for the healthcare provider "second victim" after adverse patient events. *Quality and Safety in Health Care*, 18(5), 325-330. doi:10.1136/qshc.2009.032870
- Seow, H., Guthrie, D. M., Stevens, T., Barbera, L. C., Burge, F., McGrail, K., . . . Sutradhar, R. (2021). Trajectory of End-of-Life Pain and Other Physical Symptoms among Cancer Patients Receiving Home Care. *Current Oncology*, 28(3), 1641-1651. doi:10.3390/curroncol28030153

- Shah, K., Bedi, S., Onyeaka, H., Singh, R., & Chaudhari, G. (2020). The Role of Psychological First Aid to Support Public Mental Health in the COVID-19 Pandemic. *Cureus*. doi:10.7759/cureus.8821
- Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., . . . Oreskovich, M. R. (2012). Burnout and Satisfaction With Work-Life Balance Among US Physicians Relative to the General US Population. *Archives of Internal Medicine*, *172*(18), 1377. doi:10.1001/archinternmed.2012.3199
- Shaukat, N., Ali, D. M., & Razzak, J. (2020). Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review. *International Journal of Emergency Medicine*, *13*(1). doi:10.1186/s12245-020-00299-5
- Shiffman, S., Stone, A. A., & Hufford, M. R. (2008). Ecological Momentary Assessment. *Annual Review of Clinical Psychology*, *4*(1), 1-32. doi:10.1146/annurev.clinpsy.3.022806.091415
- Sirilla, J., Thompson, K., Yamokoski, T., Risser, M. D., & Chipps, E. (2017). Moral Distress in Nurses Providing Direct Patient Care at an Academic Medical Center. *Worldviews Evid Based Nurs*, *14*(2), 128-135. doi:10.1111/wvn.12213
- Snyder, D. J., Mournet, A. M., & Pao, M. (2023). Reflections on experiential training in meaning-centered psychotherapy: How MCP ended up facilitating professional wellbeing. *Palliat Support Care*, *21*(1), 38-42. doi:10.1017/S1478951522000414
- Statistics, B. o. L. (n.d.). Labor Force Statistics from the Current Population Survey. Retrieved April 30, 2024
- Steiner, J. M., Patton, K. K., Prutkin, J. M., & Kirkpatrick, J. N. (2018). Moral Distress at the End of a Life: When Family and Clinicians Do Not Agree on Implantable Cardioverter-Defibrillator Deactivation. *Journal of Pain and Symptom Management*, *55*(2), 530-534. doi:10.1016/j.jpainsymman.2017.11.022
- Stephoe, A., Deaton, A., & Stone, A. A. (2015). Subjective wellbeing, health, and ageing. *The Lancet*, *385*(9968), 640-648. doi:10.1016/s0140-6736(13)61489-0

- Stewart, M. (2001). Towards a global definition of patient centred care. *BMJ*, 322(7284), 444-445.
doi:10.1136/bmj.322.7284.444
- Stewart, M., Brown, J. B., Donner, A., McWhinney, I. R., Oates, J., Weston, W. W., & Jordan, J. (2000).
The impact of patient-centered care on outcomes. *J Fam Pract*, 49(9), 796-804. Retrieved from
<https://www.ncbi.nlm.nih.gov/pubmed/11032203>
- Stewart, M., Meredith, L., Ryan, B. L., & Brown, J. B. (2004). *The Patient Perception of Patient-Centeredness Questionnaire (PPPC Working Paper Series #04-1)*. London, Ontario: The University of Western Ontario.
- Stewart, M. A. (1995). Effective physician-patient communication and health outcomes: a review. *CMAJ*, 152(9), 1423-1433. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/7728691>
- Stone, R. S. B. (2018). Code Lavender. *Nursing*, 48(4), 15-17.
doi:10.1097/01.nurse.0000531022.93707.08
- Strote, J., Schroeder, E., Lemos, J., Paganelli, R., Solberg, J., & Range Hutson, H. (2011). Academic
Emergency Physicians' Experiences With Patient Death. *Academic Emergency Medicine*, 18(3),
255-260. doi:10.1111/j.1553-2712.2011.01004.x
- Strout, T. D., Hillen, M., Gutheil, C., Anderson, E., Hutchinson, R., Ward, H., . . . Han, P. K. (2018).
Tolerance of uncertainty: A systematic review of health and healthcare-related outcomes. *Patient
Education and Counseling*, 101(9), 1518-1537.
- Sulaiman, A. H., Ahmad Sabki, Z., Jaafa, M. J., Francis, B., Razali, K. A., Juares Rizal, A., . . . Ng, C. G.
(2020). Development of a Remote Psychological First Aid Protocol for Healthcare Workers
Following the COVID-19 Pandemic in a University Teaching Hospital, Malaysia. *Healthcare*,
8(3), 228. doi:10.3390/healthcare8030228
- Tabor, P. D. (2011). Vicarious traumatization: Concept analysis. *Journal of Forensic Nursing*, 7(4), 203-
208. doi:10.1111/j.1939-3938.2011.01115.x

- Tarbi, E. C., Gramling, R., Bradway, C., Broden, E. G., & Meghani, S. H. (2021). "I Had a Lot More Planned": The Existential Dimensions of Prognosis Communication with Adults with Advanced Cancer. *J Palliat Med*, 24(10), 1443-1454. doi:10.1089/jpm.2020.0696
- Tarbi, E. C., Gramling, R., Bradway, C., & Meghani, S. H. (2021). "If it's the time, it's the time": Existential communication in naturally-occurring palliative care conversations with individuals with advanced cancer, their families, and clinicians. *Patient Education and Counseling*, 104(12), 2963-2968. doi:https://doi.org/10.1016/j.pec.2021.04.040
- Tashakkori, A., & Teddlie, C. (Eds.). (2010). *SAGE Handbook of Mixed Methods in Social & Behavioral Research* (2nd Edition ed.). Thousand Oaks, California: SAGE Publications, Inc.
- Temel, J. S., Greer, J. A., Muzikansky, A., Gallagher, E. R., Admane, S., Jackson, V. A., . . . Lynch, T. J. (2010). Early Palliative Care for Patients with Metastatic Non–Small-Cell Lung Cancer. *New England Journal of Medicine*, 363(8), 733-742. doi:10.1056/nejmoa1000678
- Teno, J. M., Gozalo, P., Trivedi, A. N., Bunker, J., Lima, J., Ogarek, J., & Mor, V. (2018). Site of Death, Place of Care, and Health Care Transitions Among US Medicare Beneficiaries, 2000-2015. *JAMA*, 320(3), 264. doi:10.1001/jama.2018.8981
- The National Academy of Medicine. (2019). *Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being*. Washington, DC: The National Academies Press.
- Thekkumpurath, P., Venkateswaran, C., Kumar, M., Newsham, A., & Bennett, M. I. (2009). Screening for Psychological Distress in Palliative Care: Performance of Touch Screen Questionnaires Compared with Semistructured Psychiatric Interview. *Journal of Pain and Symptom Management*, 38(4), 597-605. doi:10.1016/j.jpainsymman.2009.01.004
- Thomas, J. d. (2007). How Far Along Are You? *Annals of Internal Medicine*, 147(10), 738. doi:10.7326/0003-4819-147-10-200711200-00013 %m 18025449

- Thum, C. C., Chai, Y. C., Zaman Huri, S., Wan Nawawi, W. Z., & Ibrahim, N. (2020). Innovative psychological first aid (PFA) in the new normal for frontliners. *Perspectives in Psychiatric Care*. doi:10.1111/ppc.12600
- Tikkanen, R., & Abrams, M. K. (Jan 2020). U.S. Health Care from a Global Perspective, 2019. *Higher Spending, Worse Outcomes?* Retrieved from <https://www.commonwealthfund.org/publications/issue-briefs/2020/jan/us-health-care-global-perspective-2019>
- Toscano, F., O'Donnell, E., Broderick, J. E., May, M., Tucker, P., Unruh, M. A., . . . Casalino, L. P. (2020). How Physicians Spend Their Work Time: an Ecological Momentary Assessment. *Journal of General Internal Medicine*, 35(11), 3166-3172. doi:10.1007/s11606-020-06087-4
- Traudt, T., Liaschenko, J., & Peden-McAlpine, C. (2016). Moral Agency, Moral Imagination, and Moral Community: Antidotes to Moral Distress. *Journal of Clinical Ethics*, 27(3), 201-213. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=118809041&site=ehost-live>
- Trautmann, J., Epstein, E., Rovnyak, V., & Snyder, A. (2015). Relationships among moral distress, level of practice independence, and intent to leave of nurse practitioners in emergency departments: results from a national survey. *Adv Emerg Nurs J*, 37(2), 134-145. doi:10.1097/TME.0000000000000060
- Ulrich, C., & Grady, C. (2018). *Moral distress in the health professions*. Switzerland: Springer.
- Ulrich, C., O'Donnell, P., Taylor, C., Farrar, A., Danis, M., & Grady, C. (2007). Ethical climate, ethics stress, and the job satisfaction of nurses and social workers in the United States. *Social Science & Medicine*, 65(8), 1708-1719. doi:10.1016/j.socscimed.2007.05.050
- Vahey, D. C., Aiken, L. H., Sloane, D. M., Clarke, S. P., & Vargas, D. (2004). Nurse Burnout and Patient Satisfaction. *Medical Care*, 42(2), II-57. doi:10.1097/01.mlr.0000109126.50398.5a

- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing and Health Sciences, 15*(3), 398-405. doi:10.1111/nhs.12048
- Van Zyl, A. B., & Noonan, I. (2018). The Trojan War inside nursing: an exploration of compassion, emotional labour, coping and reflection. *British Journal of Nursing, 27*(20), 1192-1196. doi:10.12968/bjon.2018.27.20.1192
- Versluijs, Y., Moore, M. G., Ring, D., & Jayakumar, P. (2021). Clinician Facial Expression of Emotion Corresponds with Patient Mindset. *Clin Orthop Relat Res, 479*(9), 1914-1923. doi:10.1097/CORR.0000000000001727
- Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain Behav Immun. doi:10.1016/j.bbi.2020.05.048*
- Wales, J. (2019). Last Song — Sharing Humanity while Maintaining Boundaries. *New England Journal of Medicine, 381*(20), 1894-1895. doi:10.1056/nejmp1907600
- Wan, W. (2021, April 21, 2021). Burned out by the pandemic, 3 in 10 health-care workers consider leaving the profession. *The Washington Post*.
- White, D. B., Angus, D. C., Shields, A.-M., Buddadhumaruk, P., Pidro, C., Paner, C., . . . Arnold, R. M. (2018). A Randomized Trial of a Family-Support Intervention in Intensive Care Units. *New England Journal of Medicine, 378*(25), 2365-2375. doi:10.1056/nejmoa1802637
- White, D. M., & Meeker, M. A. (2019). Guiding the Process of Dying: The Personal Impact on Nurses. *Journal of Hospice & Palliative Nursing, 21*(5), 390-396. doi:10.1097/NJH.0000000000000539
- Whitehead, P. B., Herbertson, R. K., Hamric, A. B., Epstein, E. G., & Fisher, J. M. (2015). Moral Distress Among Healthcare Professionals: Report of an Institution-Wide Survey. *Journal of Nursing Scholarship, 47*(2), 117-125. doi:10.1111/jnu.12115

- Wocial, L. D., & Weaver, M. T. (2013). Development and psychometric testing of a new tool for detecting moral distress: the Moral Distress Thermometer. *J Adv Nurs*, *69*(1), 167-174. doi:10.1111/j.1365-2648.2012.06036.x
- Wolf, A. T., White, K. R., Epstein, E. G., & Enfield, K. B. (2019). Palliative Care and Moral Distress: An Institutional Survey of Critical Care Nurses. *Crit Care Nurse*, *39*(5), 38-49. doi:10.4037/ccn2019645
- Wu, Y. P., Thompson, D., Aroian, K. J., McQuaid, E. L., & Deatrck, J. A. (2016). Commentary: Writing and Evaluating Qualitative Research Reports. *Journal of Pediatric Psychology*, *41*(5), 493-505. doi:10.1093/jpepsy/jsw032
- Yerramilli, D., Parker, G., LeBaron, V., Krishnan, M., Hertan, L., Spektor, A., . . . Balboni, T. (2019). Ethical issues in patients referred for palliative radiation therapy. *Annals of palliative medicine*, *8*(3), 231-239. doi:10.21037/apm.2019.06.02
- Yong, E. (2021, November 16). Why health-care workers are quitting in droves. *The Atlantic*.
- Yoon, J. D., Hunt, N. B., Ravella, K. C., Jun, C. S., & Curlin, F. A. (2017). Physician Burnout and the Calling to Care for the Dying: A National Survey. *American Journal of Hospice & Palliative Medicine*, *34*(10), 931-937. doi:10.1177/1049909116661817
- Younas, A., Pedersen, M., & Durante, A. (2020). Characteristics of joint displays illustrating data integration in mixed-methods nursing studies. *J Adv Nurs*, *76*(2), 676-686. doi:10.1111/jan.14264
- Zimmermann, C. (2012). Acceptance of dying: A discourse analysis of palliative care literature. *Social Science & Medicine*, *75*(1), 217-224. doi:10.1016/j.socscimed.2012.02.047