

Spring 2022

The Impact of Individual and Team-Level Variables on Burnout in Healthcare Providers

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The Impact of Individual and Team-Level Variables on Burnout in Healthcare Providers

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A dissertation submitted to the Department of Human Factors and Behavioral Neurobiology in
the College of Arts and Sciences in partial fulfillment of the requirements for the Degree of
Doctor of Philosophy in Human Factors.

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Spring 2022

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Logan M. Gisick

This dissertation was prepared under the direction of the candidate's Dissertation Committee Chair, Dr. Joseph R. Keebler and has been approved by the members of the dissertation committee. It was submitted to the College of Arts and Sciences and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Human Factors.

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Abstract

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Burnout among medical providers is a growing issue with effects that start at the provider level and span outward to affect the entire hospital system. The consensus of the literature is that there are multiple categories of factors which lead to the development of burnout including personal characteristics, social characteristics, and job/work characteristics. Because of the highly collaborative and interpersonal nature of healthcare work, the interactions among team members have the potential to significantly influence provider burnout and recent studies are beginning to examine this interaction more carefully. However, there is little research that examines the relationship between multiple personal and team characteristics and the burnout phenomenon in healthcare providers. The present study aimed to investigate the role of team-level constructs such as team outcome effectiveness and team psychological safety, and individual-level constructs such as emotional intelligence and perceived autonomy in relation to burnout among clinicians. It was hypothesized that higher levels of perceived autonomy, team outcome effectiveness, psychological safety, and emotional intelligence would result in lower

levels of burnout in providers. Medical providers (n = 245) at two large medical centers were asked to complete an 86-item online survey and the data was used to conduct a full structural equation model (SEM) to determine the relationships between the constructs. Results of this study indicate that emotional intelligence, psychological safety, and team outcome effectiveness positively predicted one or more aspects of the burnout phenomenon, while perceived autonomy did not. In addition, the present study found that emotional intelligence significantly and positively predicted psychological safety, perceived autonomy, and team outcome effectiveness. The resultant findings have provided valuable insight into the impact of team and personal constructs on perceived burnout among clinicians, so that these constructs may be utilized in the future as a diagnostic for the health and performance of a high-functioning care team. Future studies on burnout should examine its statistical relationship with other relevant constructs, especially those which represent a characteristic of the team.

Keywords: burnout, healthcare, teamwork, communication, team performance, team effectiveness, group cohesion, psychological safety, emotional intelligence, autonomy

“You can, you should, and if you’re brave enough to start, you will.”

-Stephen King

Acknowledgements

I would like to dedicate this achievement to my mother Victoria and my father Michael, who with love and effort have accompanied me in this process of seeing my dreams come true, which are also their dreams.

To my girlfriend Emily for her unwavering support through the highs and the lows. You have been there every step of the way, and I love and appreciate you more and more each day.

To my adviser Joe Keebler, who has guided me through the difficulties and celebrated my successes. To my professors Elizabeth Lazzara, Barbara Chaparro, Alex Chaparro, Evan Palmer, and Rui Ni who took me under their wings, inspired me, and gave me the opportunities to improve myself. To my dissertation committee for giving me the tools I needed to achieve this accomplishment. To Ashley Cervantes for always believing in me.

To my brothers Cody and Brookton, my sister Alyssa and my little niece Camilla who is turning two years old as I write this today. To Grandma Gisick and Grandma Hepler for their constant love and support. To my stepfather Malone, for always giving me his honest opinion and for motivating me to become a better man. To my life coach and dear friend Andrew Cooke, and his father Francis Cooke for inspiring me to pursue knowledge from a young age. To my Uncle David for allowing me to be myself. To my Uncle Steve, Aunt Terry, and Aunt Valerie for showing me what true strength and perseverance looks like. To my Uncle KC for teaching me to be kind. To my Aunt Jennifer and Uncle Joe for their love and laughter. To Kelsey, Cole, Cousin Michael, Robyn, Jose, Tory, Leah, Grandpa Hepler, Karen, Erin, Annabelle and Aiden.

Finally, I want to dedicate this dissertation to all of my friends who have helped to create the person I am today, and who provided stimulating discussions as well as happy distractions to rest my mind outside of my research: Caleb Shunatona, Seth Layton, Kegan Clark, Luke Moore,

Daniel Marte, Matt Pierce, Tony Baker, Nick Reuse, Paige Lawton, Jacquelin McSorely, Jessica Derby, Josh Smith, John Kleber, Alex Kleber, Mattie Milner, Victoria Lew, Tim Disher, Nate Walters, Jacob Benedict, Will Shelstad, Adam Kaplan, Benji Lietzke, Eric Tetteh, Ryan Brockhoff, Devon Shunatona, Adrian Harwell, Evan Harwell, Austin Bristol, Matthew Mena, Caleb Smith, Adam Thurman, Tyler Fletcher, Kody Bray, and Aaron Shunatona.

To all those who made this achievement possible: love and unlimited gratitude.

In Loving Memory of Ronald E. Gisick

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Chapter 1: Introduction

Statement of the Problem

Burnout is a growing issue that influences individuals throughout the entire hospital system (West, Dyrbye, & Shanafelt, 2018; Moss et al., 2016). To illustrate, Shanafelt et al. (2014) conducted a survey among 6880 U.S. physicians (aged 35–60 years) from different specialties and found that 54.4% of the U.S. physicians reported at least one symptom of burnout, and only 40.9% indicated they were satisfied with their work–life balance. Formally defined, burnout is a psychological syndrome which is comprised of emotional exhaustion, depersonalization, and diminished personal accomplishment that can occur among individuals who work with other people in some capacity (Maslach et al., 1986, p.192).

Given its prevalence, burnout is particularly concerning and its associated costs may be considerable. Some estimate that burnout can lead to physicians leaving the organization, which can result in a loss of up to \$1 million USD in training and recruiting a new physician (Moss et al., 2016; Wright & Katz, 2018). A study at one academic medical center discovered that 3.4–5.8 percent of the annual operating budget (\$17–29 million on a \$500 million base across the entire medical center) was utilized to cover the cost of provider turnover alone (Waldman et al., 2004). The high turnover rates are particularly concerning as they can result in reduced quality of care, diminished productivity, and lowered morale (Pelissier et al., 2018). Consequently, the true cost of burnout in the healthcare system may actually be much higher than currently estimated (Mello et al., 2010). Estimates are higher because one cannot accurately quantify the number of poor medical decisions, diagnoses, and actions that may be the result of providers experiencing high levels of burnout.

In addition to the aforementioned effects on cost, burnout also relates to a variety of other outcomes. It can contribute to the failure of interpersonal relationships, increased medical errors, increased risk of malpractice, reduced patient satisfaction (Shanafelt et al., 2014), less favorable patient outcomes (Miller, 2016; West et al., 2012), early retirement, and healthcare system failure (Moss et al., 2016; West et al., 2018). From a psychological standpoint physician burnout might contribute to increased incidence of stress, disruptive behavior, mood disorders, and a noted correlation with depression (Asai et al., 2007; Bianchi et al., 2015; Shanafelt et al., 2003).

Finally, with the current global climate under the influence of the COVID-19 virus for over two years, the study of burnout has experienced a resurgence in contemporary healthcare research.

Table 1*Consequences of Burnout Categorized by Organizational and Personal*

<i>Consequences of Burnout</i>	<i>References</i>
<i>Organizational Consequences</i>	
Increased turnover rates	Moss et al., 2016 Wright & Katz, 2018
Cost of training and recruiting replacement	Moss et al., 2016 Wright & Katz, 2018
Increase in medical malpractice/liability costs	Mello et al., 2010
Healthcare system failure	Moss et al., 2016 West et al., 2018
Early retirement	Moss et al., 2016 West et al., 2018
Lower provider satisfaction	Shanafelt et al., 2014
Lower patient satisfaction	Shanafelt et al., 2014
Reduced quality of care	Pelissier et al., 2018
Increased medical errors	Miller, 2016 West et al., 2012
Reduced patient satisfaction	Miller, 2016 West et al., 2012
Less favorable patient outcomes	Miller, 2016 West et al., 2012
<i>Personal Consequences</i>	
Lower morale	Pelissier et al., 2018
Diminished productivity	Pelissier et al., 2018
Failure of interpersonal relationships	Miller, 2016 West et al., 2012
Increased incidence of stress	Asai et al., 2007 Bianchi et al., 2015 Shanafelt et al., 2003

Disruptive behavior	Asai et al., 2007 Bianchi et al., 2015 Shanafelt et al., 2003
Mood disorders	Asai et al., 2007 Bianchi et al., 2015 Shanafelt et al., 2003
Depression	Asai et al., 2007 Bianchi et al., 2015 Shanafelt et al., 2003

Now that I have discussed the effects of burnout, I will shift attention to the factors that may potentially influence burnout. The consensus of the literature is that there are multiple categories of factors which lead to the development of burnout including personal characteristics, social characteristics, and job/work characteristics (Campayo & de Juan Ladrón, 2006). Some of the personal characteristics include being self-critical, engaging in unhelpful coping strategies, sleep deprivation, over commitment, perfectionism, idealism, and work–life imbalance (Azam et al., 2017; Shanafelt, 2009). In addition, Gazelle and colleagues (2015) posit that physicians may be predisposed to burnout due to inherent traits such as compulsiveness, guilt, and self-denial. Furthermore, medical training has historically acculturated physicians to deny their own self-care in the service of others, which may contribute to perceived burnout as well (Bohman et al., 2017).

Social characteristics also predict burnout. One of these factors include working in a medical culture that emphasizes perfectionism, denial of personal vulnerability, and delayed gratification (Gazelle et al., 2015). Other factors include an inadequate support system outside of the work environment (i.e., having no spouse, partner, or children) (Azam et al., 2017; Shanafelt, 2009), relationships with team members (Campayo & de Juan Ladrón, 2006), limited

interpersonal collaboration, limited social support, and negative leadership behaviors (Shanafelt et al., 2015).

Job/work characteristics may be one of the most influential factors for determining a provider's level of burnout. Considering we spend almost a third of our lives at work, it is seemingly obvious that characteristics associated with work are also influential (García-Campayo et al., 2016). In fact, work-related stress is one of the main generators of overall stress (Peiró & Rodriguez, 2008). Not surprisingly, stress plays a key role in the appearance of burnout syndrome, especially the aspect of emotional exhaustion (Maslach et al., 2001). Another work factor that predicts burnout is increased clerical burden (e.g., charting patient information in the Electronic Health Record [EHR]). Clerical tasks mean less time spent engaging in the more meaningful aspects of being a provider, such as direct patient interaction (Dyrbye et al., 2012; Friedberg et al., 2014; Shanafelt et al., 2016). Another significant factor that predicts burnout is the amount of autonomy that a provider feels they have at work, and this perceived autonomy directly relates to physician's experience of exhaustion and cynicism (Portoghese et al., 2014). Lack of autonomy, which comes from a physician's long work shifts, increased use of EHRs and computers, and large number of administrative duties are reported as the top causes of burnout (Peckham & Grisham, 2017).

Table 2*Predictors of Burnout Categorized by Personal, Social, and Work Factors*

<i>Predictors of Burnout</i>	<i>References</i>
<i>Personal factors</i>	
Being self-critical	Azam et al., 2017 Shanafelt, 2009
Engaging in unhelpful coping strategies	Azam et al., 2017 Shanafelt, 2009
Sleep deprivation	Azam et al., 2017 Shanafelt, 2009
Over commitment	Azam et al., 2017 Shanafelt, 2009
Perfectionism	Azam et al., 2017 Shanafelt, 2009
Idealism	Azam et al., 2017 Shanafelt, 2009
Work-life imbalance	Azam et al., 2017 Shanafelt, 2009
Compulsiveness	Gazelle et al., 2015
Guilt	Gazelle et al., 2015
Medical training which emphasizes denial of self-care	Bohman et al., 2017
<i>Social factors</i>	
Inadequate support system outside the work environment	Azam et al., 2017 Shanafelt, 2009
Culture of perfectionism, denial of personal vulnerability, delayed gratification	Gazelle et al., 2015
Limited interpersonal collaboration	Shanafelt et al., 2015
Limited social support	Shanafelt et al., 2015

Negative leadership behaviors	Shanafelt et al., 2015
Relationships with team members	Campayo & de Juan Ladrón, 2006
Seniority	Campayo & de Juan Ladrón, 2006

Work factors

Increased clerical burden	Dyrbye et al., 2012 Friedberg et al., 2014 Shanafelt et al., 2016
Less time interacting with patients	Dyrbye et al., 2012 Friedberg et al., 2014 Shanafelt et al., 2016
Perceived autonomy	Peckham & Grisham, 2017
Long work shifts	Peckham & Grisham, 2017
Working overtime	Garrett, 2018; Van Ham et al., 2006
Turnover in support staff	Deckard et al., 1994 Helfrich et al., 2017
Increase in quantitative job demands	Azam et al., 2017
Excess patient volume	Helfrich et al., 2017
Extended weekend work hours	Helfrich et al., 2017
Inadequate staffing	Helfrich et al., 2017
Work load expectations	Shanafelt et al., 2015
Insufficient rewards	Shanafelt et al., 2015
Limited opportunities for advancement	Shanafelt et al., 2015
Work overload	Campayo & de Juan Ladrón, 2006
Shift type	Campayo & de Juan Ladrón, 2006
Type of work activity	Campayo & de Juan Ladrón, 2006

Because of the highly collaborative and interpersonal nature of healthcare work, the interactions among team members have the potential to significantly influence burnout within providers, and recent studies are beginning to examine this interaction more carefully (Deneckere et al., 2013; Sutinen et al., 2005; Welp et al., 2016). One study, which collected team climate data on teams after the implementation of care pathways for nurses in an acute hospital setting, found that teams that scored higher in innovation, level of organized care, and conflict management demonstrated lower risk of burnout (decreased emotional exhaustion). The researchers posit that improved teamwork lowered the risk of burnout and improved the performance of the team (Deneckere et al., 2013).

Other studies have found that nurses and physicians who are dissatisfied with the quality of teamwork in their unit experience more emotional exhaustion (Sutinen et al., 2005). Welp and colleagues (2016) examined the relationship between the cognitive-behavioral aspect of teamwork (i.e., the extent to which team members share a representation of care tasks or the ability to communicate about and jointly execute this task), interpersonal teamwork (i.e., perception of teamwork quality between nurses and physicians), and emotional exhaustion. Overall, their results suggested that emotionally exhausted clinicians are less able to contribute to effective teamwork and that low clinician emotional exhaustion increased the quality of interpersonal teamwork.

Purpose of the Current Study

The present study aimed to investigate the factors that predict burnout among clinical care providers. Specifically, I examined the role of team-level constructs such as team outcome effectiveness and psychological safety. Each of these variables focus on an individual's

perceptions towards a specific team or type of team. Ultimately, I wanted to better understand how various factors related to the culture and operation of a team affect the individual in terms of burnout. Previous studies have demonstrated a relationship between team processes/perceptions and burnout such that increased perceptions of effective teamwork was associated with lower levels of emotional exhaustion (Welp et al., 2016). The current study furthers this area of research by examining the relationship between the above-stated team constructs and burnout.

In addition to the team-level constructs, I also sought to garner insights regarding the individual-level constructs such as emotional intelligence and perceived autonomy in relation to burnout among clinicians. Specifically, I measured emotional intelligence (EI) to discover whether it played a moderating/mediating role between team perceptions and burnout. Emotional intelligence refers to an ability to recognize the meanings of emotions and their relationships, and to reason and problem-solve on the basis of them (Mayer et al., 1999). With this definition in mind, I utilized a measure of emotional intelligence to quantify some of the personal characteristics that clinicians exhibit on an individual level. In one study which examined 154 nurses, burnout was shown to predict emotional intelligence, so though the research is scarce, there is some evidence to suggest that these constructs are related (Budnik, 2003). Beyond emotional intelligence, I also measured perceived autonomy as it has been shown previously to be one of the strongest predictors of burnout (Fernet et al., 2013; Madathil et al., 2014). I was able to use this measurement to determine whether our burnout metric is measuring what it is intended to measure. For example, if a participant scores high on the burnout scale, they should also score low on the perceived autonomy scale. The resultant findings have provided valuable insight into the impact of team and personal constructs on perceived burnout among clinicians,

so that these constructs may be utilized in the future as a diagnostic for the health and performance of a high-functioning care team.

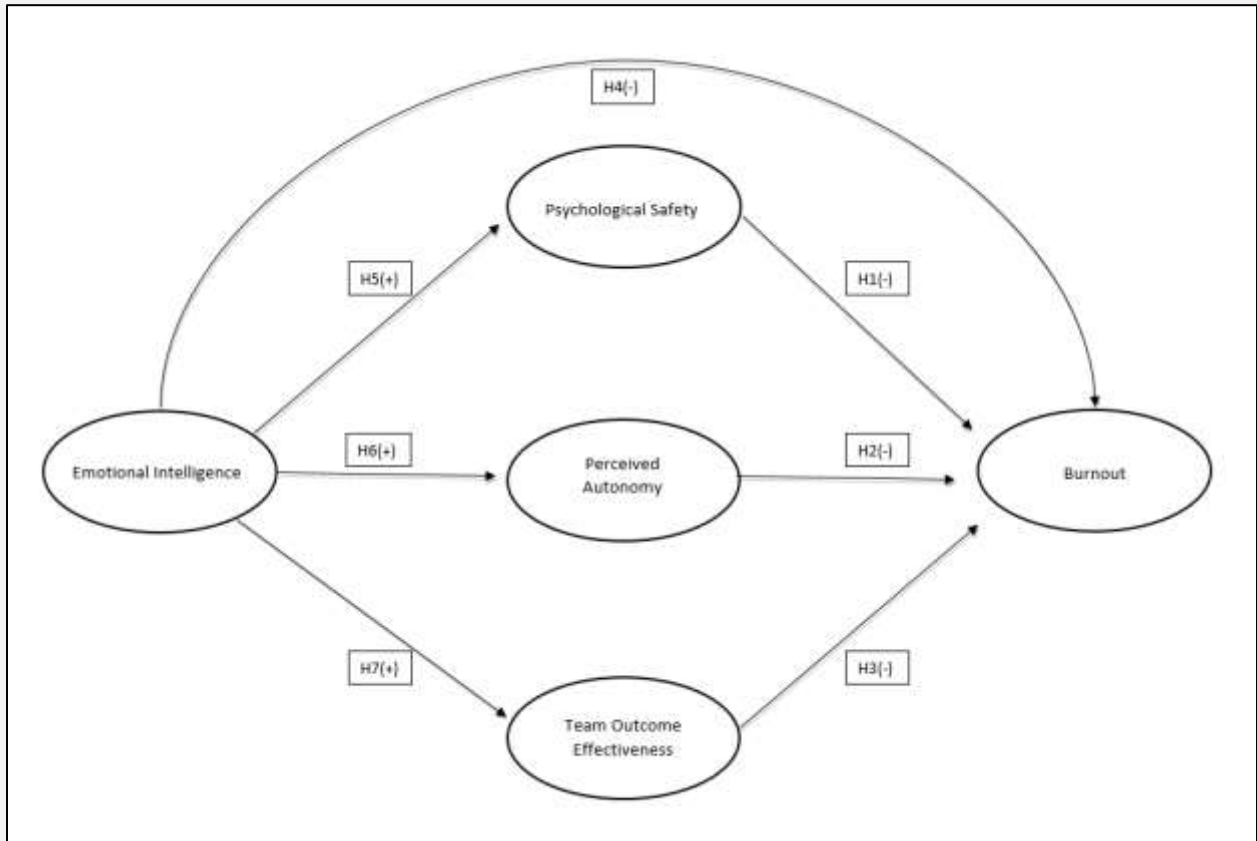
Hypotheses

I constructed seven hypotheses to approach my research question. These hypotheses were designed to examine the interactions between five independent variables (Psychological Safety, Perceived Autonomy, Team Outcome Effectiveness, and Emotional Intelligence) and their effect on Burnout, the dependent variable.

- H₁ Psychological Safety negatively predicts Burnout.
- H₂ Perceived Autonomy negatively predicts Burnout.
- H₃ Team Outcome Effectiveness negatively predicts Burnout.
- H₄ Emotional Intelligence negatively predicts Burnout.
- H₅ Emotional Intelligence positively predicts Psychological Safety.
- H₆ Emotional Intelligence positively predicts Perceived Autonomy.
- H₇ Emotional Intelligence positively predicts Team Outcome Effectiveness.

Figure 1

Line & Box Model of all proposed hypotheses



Chapter 2: Literature Review

This chapter begins by reviewing the history and nature of healthcare teams in the literature. I will then discuss the characteristics that are associated with effective healthcare teams and some of the barriers to becoming a high-achieving healthcare team. This will be followed by an overview of each of the study constructs including a brief background, popular metrics, links to healthcare teams, and the proposed hypotheses and supporting theoretical rationale. The chapter ends with a summary of the hypotheses that form the basis of this dissertation.

The Introduction of Healthcare Teams

Archeological evidence indicating the use of anti-bacterial plants to treat periodontal disease in *Homo erectus* around 1.7 million years ago marks the oldest known case of medical intervention (Hardy, 2020). Since then, the modern physician has come a long way in helping patients get better with the use of improved methods, technology, and medical discoveries. Arguably, one of the most important evolutions was the invention of the health care team. Huge leaps in the complexity of healthcare tasks necessitated this innovation, and we continue to strive for healthcare team improvement to this day. These teams can be very diverse. In the operating room, the team may consist of the surgeon, nurses, and anesthesiologists, hospitalists as well as other provider roles. Patients with cancer will see a team comprised of an oncologist, radiation therapist, etc., while patients within a primary care clinic may see a physician, medical assistant, and receptionist. Each of these are instances of healthcare teams. Healthcare teams are comprised of multiple, diverse individuals who communicate with each other regularly about the care of a patient or group of patients (Wagner, 2000).

Around the year 100BC, Ancient Romans established the first hospitals where teams of healthcare providers would work together to care for patients. These providers included the Chief Physician (*archiatroi*), professional nurses (*hypourgoi*) and the orderlies (*hyperetai*), (Smith & Virginia, 2008). One of the earliest instances of modern interdisciplinary healthcare teams in the U.S. took place in 1915 when teams of physicians, healthcare educators, and social workers were assembled at Massachusetts General Hospital. In 1948, models for primary care teams were developed at New York's Montefiore Hospital (Wise et al., 1974). These models did not immediately catch on, however, due to what one researcher described as “overwhelming territoriality and systems inertia” (Baldwin, 1994). Systems inertia in this instance referred to the inability of organizational and administrative bodies for each discipline to adapt to incorporate that of the other disciplines. The first healthcare “Team meetings” were lengthy sessions in which each team member offered their perspective on a patient and family. Many physicians found these early meetings to be ineffective due to the loftiness of the goal and the enormous amount of time it took to explore all the intricacies and nuances of comprehensive health care (Grumbach et al., 2004).

Over the years, healthcare teams have become more widely accepted, and in 2001, the Institute of Medicine called for a New Health System for the 21st Century in which primary care teams play a central role (Richardson et al., 2001). Modern healthcare is delivered by teams rather than individuals and requires the cooperation of healthcare providers from various disciplines. The following section will discuss some of the key elements associated with effective healthcare teams.

Examining Effective Healthcare Teams

For the purpose of this paper, a team is defined as an identifiable social work unit consisting of two or more people which exhibit (a) dynamic social interaction with meaningful interdependencies, (b) shared and valued goals, (c) a discrete lifespan, (e) distributed expertise, and (f) clearly assigned roles and responsibilities (Salas et al., 2007).

From a psychological viewpoint, members of a particular group (i.e., physicians, nurses, and ancillary staff) tend to view their co-workers through an in-group/out-group lens (University of Oklahoma & Sherif, 1961). To add to the division, the members of these groups are prone to viewing the attributes of their own groups as positive and those of other groups as less desirable (Burford, 2012). These inherent challenges to communication between providers are reflected in the findings of The Joint Commission, whose international patient safety goals include improving effective communication among clinical staff (Sutcliffe et al., 2004).

A recent literature review on the effectiveness of teamwork in healthcare teams by Schmutz et al. (2019) discovered that there is great variation between the effects of teamwork on performance outcomes, with some studies seeing a large effect, and others finding little to no effect. After controlling for potential moderating factors such as professional composition, team familiarity, team size, task type, patient realism, and performance measures, Schmutz and colleagues' (2019) meta-analysis found that teams who engage in teamwork processes (i.e., coordination and non-technical skills) are almost three times more likely to achieve high performance than teams who do not. The performance measures they investigated were either patient outcomes (i.e., morbidity and mortality, etc.) or related to patient outcomes (i.e., adherence to treatment guidelines).

Schmutz provided several explanations for these findings. One explanation is that researchers spread across multiple disciplines often lack a common conceptual foundation for investigating teams and teamwork in healthcare. A second explanation is that many of these studies have small sample sizes; therefore, their results may not reflect true effects. Their final explanation is that studies involving healthcare teams often ignore important context variables of teams such as team composition and size, characteristics, and team environment. The researchers conclude that each of these variables are likely to influence the effect that teamwork has on clinical performance.

Because this dissertation focused on the interactions between team member's perceptions of their team and their level of perceived burnout, it is important to discuss the known overlap between these two constructs. Previous research conducted in seven different countries has discovered that a lack of teamwork quality is associated with a 5-fold risk of intention to leave (ITL) (Estryn-Béhar et al., 2007). The teamwork quality questions were comprised of items focused on satisfaction with teamwork and quality of communication within the team. Another study found that nurses that were less satisfied with team communication had higher ITL and experienced higher risk of burnout (Vermeir et al., 2018). Because previous research had shown that increased burnout results in higher turnover rates (Montgomery et al., 2019), it is likely that higher burnout may be associated with higher ITL.

Welp and colleagues (2016) found that interactions between teamwork, clinician burnout, and clinician-rated patient safety generally play out over time. Interpersonal teamwork (i.e. perceptions of teamwork quality between providers) and cognitive-behavioral teamwork (i.e., the extent to which team members share a representation of care tasks or the ability to communicate about and jointly execute this task) play key roles in the process leading from clinician emotional

exhaustion (and burnout) to decreased clinician-rated patient safety. Welp also concluded that targeting clinician emotional exhaustion is critical to ensure effective teamwork and subsequently, a high level of patient safety. Thus, further measurement and examination of burnout is crucial to effective teamwork and patient care.

Burnout

Burnout is a multifarious issue, which is ubiquitous in modern medicine. After years of careful monitoring and study, there remains little comprehensive guidance to understand and alleviate burnout through Human Factors and Ergonomics. In addition, there is a dearth of research which examines burnout through a lens that considers both individual and team characteristics. To understand burnout among healthcare providers is to understand why providers lose their passion for caring for patients, and why this loss of enthusiasm and emotional energy on an individual level may be detrimental to the entire healthcare system.

Understanding Burnout

Past reviews of the burnout literature (Moore, 2000; Schaufeli & Enzmann, 1998; Shirom, 2003) viewed burnout as a work-related affective response to ongoing stress, which represents the gradual depletion of individuals' coping resources. According to Maslach (2001), burnout is defined as a prolonged response to chronic emotional and interpersonal stressors on the job, and it is defined by the three dimensions of emotional exhaustion, cynicism (depersonalization), and inefficacy (lack of personal accomplishment).

Emotional Exhaustion

Emotional exhaustion is the most widely reported and the most thoroughly analyzed dimension of burnout. Although emotional exhaustion reflects the stress dimension of burnout, it fails to capture the critical aspects of the relationship people have with their work. Exhaustion is not simply *experienced*; it prompts actions to distance oneself emotionally and cognitively to cope with work overload. Human service jobs can exhaust a service provider's capacity to respond to the needs of recipients (Maslach, 2001).

Depersonalization

Depersonalization can be viewed as an attempt to put distance between oneself and recipients of service by actively ignoring the qualities that make the recipients unique individuals. The demands and desired outcomes of the recipient are more manageable when they are considered impersonal objects of one's work. Cognitive distancing (an attempt to separate your thoughts from your work) is used outside of the human services environment by developing a cynical attitude when one is exhausted or discouraged. Emotional distancing (moderating one's compassion for clients) and cognitive distancing are such common reactions to exhaustion that a strong relationship between exhaustion and cynicism (depersonalization) is most always reported in burnout research across various organizational and occupational settings (Maslach, 2001).

Diminished Personal Accomplishment

In some instances, reduced personal accomplishment (inefficacy) appears to be a function of either emotional exhaustion, depersonalization, or a combination of the two (Byrne, 1994; Lee & Ashforth, 1996). A job that is consistently and overwhelmingly demanding may contribute to exhaustion or depersonalization and will likely erode one's sense of personal accomplishment. Additionally, exhaustion and/or depersonalization have a negative influence on one's sense of

effectiveness. Overall, it can be difficult to maintain a sense of personal accomplishment when an individual is constantly exhausted or when one begins to feel indifference toward those they are helping. Alternatively, in some contexts, inefficacy tends to develop in parallel with depersonalization and exhaustion, as opposed to sequentially (Leiter, 2005). Reduction in personal accomplishment often stems from a lack of relevant resources (such as time, materials, staff, or social support); while exhaustion and depersonalization originate from the experience of work overload and social conflict (Maslach, 2001).

The Origin of the Burnout Phenomenon

The first articles discussing burnout appeared in the mid-1970's (Freudenberger, 1974, 1975; Maslach & Pine, 1977). These articles provided an initial description of the burnout phenomenon and showed that it is not an aberration from the norm, but instead, a common phenomenon.

While working at an alternative health agency, Freudenberger – a psychiatrist - observed volunteers experience gradual emotional depletion and a loss of motivation and commitment. Typically after about one year of volunteering, the individuals would begin to show these signs of exhaustion. To denote this state of mental exhaustion, Freudenberger used a word which was used colloquially to refer to the effects of chronic drug abuse: “burnout”.

Around the same time, a social psychology researcher named Christina Maslach was studying ways in which people cope with emotional arousal on the job. Her focus at the time was on cognitive strategies such as detached concern and dehumanization in self-defense. Her research found that both had important implications for people's professional identity and job behavior. When she happened to discuss these results with a friend who worked as an attorney, she was told that poverty lawyers called this phenomenon “burnout” (Maslach, 2001).

Why is it that burnout was not studied academically until the 1970s? Several authors point to a social climate, which acted as an ideal catalyst for burnout. Farber (1982) claimed that American workers had become increasingly disconnected and alienated from their communities and increasingly insistent upon attaining personal fulfillment and gratification from their work. Furthermore, he insisted that the combination of these two trends resulted in workers with higher expectation of fulfillment and fewer recourses to cope with frustrations.

In addition, Farber (1982) states that after World War II, social services became more professionalized, bureaucratized, credentialed, and isolated. Government interference increased, and clients became needier and more entitled to services. Consequently, it became more difficult for people to find professional fulfillment in human services work, and burnout became increasingly common. The combination of these environmental factors produced workers with higher expectations of fulfillment and fewer resources to cope with their frustrations. Furthermore, as the government continues to cut back costs for many human service agencies, increasing workload has to be managed by even fewer people (Cherniss, 1980).

Cherniss (1980) also points to the decline in authority of professions over the past decades. Cherniss describes a “professional mystique” in which laypersons believe that human service professionals experience a high level of autonomy and job satisfaction, are highly trained and competent, work with responsive clients, and are generally compassionate and caring. This mystique is reinforced by the education professionals in the human service industry receive and leads to high and unrealistic expectations in young professionals that clash with the harsh everyday reality of the job.

In the years immediately following the publishing of the first burnout articles, interest flared among practitioners, who wrote articles on burnout in magazines and professional

journals. The most attention was drawn to practitioners who were involved in people-oriented, human services occupations in which (1) the relationship between a provider and a recipient is central to the job and (2) the provision of service, care, or education can be fraught with emotional strain. Therefore, early discussion of burnout occurred in the fields of education, social services, medicine, the criminal justice system, mental health, religion, and various other people-oriented occupations (Maslach, 2001).

Early articles in these fields contained definitions and descriptions of burnout, which were inconsistent. A review of the literature by Perlman and Hartman (1982) found that only about 10% contained any empirical data beyond anecdotes. This lack of empirical data may be a result of the fact that most all of the research being conducted was by practitioners, as opposed to academic researchers. In fact, academics were initially reluctant to recognize the concept of burnout. Maslach's Burnout Inventory (MBI) was rejected by journal editors who refused to read the article claiming that they do not publish 'pop' psychology (Maslach & Jackson, 1984).

Some solutions have been proposed to treat and prevent burnout (Ruotsalainen et al., 2014); however, most focus on individual strategies such as removing a burnt-out worker from the job or working to strengthen the worker's internal resources or change their work behavior. These approaches are only partially effective, however, because most research has found that situational/organizational factors play a greater role in mitigating burnout than individual factors.

COVID-19 Pandemic

For over two years now, COVID-19 has assailed healthcare facilities across the globe. COVID-19 presents new challenges and stressors to healthcare providers including risk of

infection, social isolation, increased workload, and economic consequences (Bradley & Chahar, 2020).

A recent study of 9,500 critical care providers showed that median self-reported provider stress has increased from a score of 3 to a score of 8 (Society of Critical Care Medicine). Some of the top stressors identified in this survey included lack personal protective equipment, fear of contracting COVID-19, and fear of spreading the infection to family members. Bradley and Chahar posit that the significant increase of stressors for healthcare providers due to COVID-19 without adequate approaches for combating these stressors will increase the rate of physician burnout (Bradley & Chahar, 2020).

According to another recent study, it appears we are already seeing these effects. In a survey of healthcare workers that had been taking care of COVID-19 patients across six hospitals, 53.0% experienced high levels of burnout (Jalili et al., 2021).

As stated previously, Maslach (2001) defines burnout as a prolonged response to chronic emotional and interpersonal stressors on the job. Based on this definition, the two year span of the pandemic, and the Society of Critical Care Medicine data demonstrating the increase in stress scores for healthcare providers during this time, it is likely that we will continue to see a rise in burnout among medical workers. For this reason, the present study may be more relevant than ever before.

Metrics

After the initial ‘pioneer phase’ of burnout research came an empirical phase characterized by more focused, scientific research. Standardized measures of burnout were

developed and working models and various interventions were proposed. Widespread acceptance of the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981a) helped drive burnout research in academia, resulting in an influx of scholarly articles on the subject. By the late eighties burnout was being studied in countries across the globe. The MBI has since become the gold standard for measuring burnout (Mayzell & Normand, 2020).

Other metrics for burnout have been utilized in the literature, but none so much as the MBI. These include the ten-item Mini Z (Linzer et al., 2009), the 16-item Oldenburg Burnout Inventory (Demerouti & Bakker, 2008), the nine-item Bergen Burnout Inventory (Salmela-Aro et al., 2011), the 19-item Copenhagen Burnout Inventory (Kristensen et al., 2005), and a handful of single item measurements (Dolan et al., 2015; Rohland et al., 2004).

Discriminant Validity of Burnout

Early in the study of burnout there was much discussion regarding its discriminant validity. Is burnout truly a distinct phenomenon that is different from other constructs which have already been established? The two most discussed constructs, which may be the true source of the phenomenon, were depression and job satisfaction. During the process of developing the MBI, Maslach found burnout to be related to anxiety and depression. Other researchers have also established a connection in several empirical studies using the MBI and various measures of depression (Bakker et al., 2000; Glass & McKnight, 1996; Leiter & Durup, 1994). This research determined that burnout is specifically associated with the context of work, as opposed to depression, which often encompasses all aspects of a person's life, both professional and personal. That being said, previous research has found that individuals who are prone to depression are also more vulnerable to burnout (Freudenberger, 1983; Warr, 1987).

Distinguishing between burnout and job satisfaction, there is a negative correlation between the two constructs (ranging from .40 to .52). The correlation is not strong enough to assume that these constructs are identical; however, they seem to be closely related (Maslach, 2001). Though some research suggests that burnout plays a mediating role in the relationship between stress and job satisfaction (Wang et al., 2014), there is still much speculation in the literature concerning the relationship between these constructs.

Burnout in Other Fields

Burnout was originally studied specifically in individuals who held human service positions; therefore, the initial MBI-Human Services Survey (MBI-HSS) was created for those individuals specifically (Maslach et al., 1986a). A second version was developed for the use of individuals in education settings (MBI-Educators Survey; MBI-ES) (Maslach et al., 1986b). Both surveys, however, assessed burnout in people who interacted with other people frequently (clients, patients, students, etc.)

Due to the increasing interest in burnout, a more general version of the MBI was created to examine burnout in individuals who do not necessarily work closely with other people on a daily basis. The MBI-General Survey (MBI-GS) (Maslach et al., 1996) conceptualized the three elements of burnout in broader terms and draws focus away from only the personal relationships that may be a part of an individual's job. The elements in this survey are thereby labeled: exhaustion, cynicism (an attitude of distancing from the job) and reduced professional *efficacy* (as opposed to accomplishment). The MBI-GS assess the same constructs as the original MBI and has the same factor structure (Maslach, 2001).

Links to Healthcare Teams

Burnout has become a dire issue in healthcare, with serious consequences for healthcare providers. It has been associated with sleep deprivation (Vela-Bueno & Moreno-Jiménez, 2008), medical errors (Fahrenkopf et al., 2008), poor quality of care (Shirom et al., 2006), and low ratings of patient satisfaction (Vahey et al., 2004). Failing to deal with burnout also results in higher staff turnover, lost revenue associated with decreased productivity, and a negative effect on the organization's long-term viability due to the effects of burnout on quality of care, patient satisfaction, and safety (Shanafelt et al., 2017). Additionally, burnout is experienced by healthcare teams as a whole, as levels of healthcare team burnout have been shown to predict patient satisfaction on various aspects of care (Hockey, 1993).

In a recent study by Welp and colleagues (2015), researchers found that intensive care units in which staff had high emotional exhaustion had higher patient mortality, even after controlling for unit characteristics such as workload. In addition, the effects of burnout on performance are likely underestimated, as job performance can be maintained even when staff are experiencing burnout as they adopt “performance protection” strategies to maintain high priority clinical tasks and neglect low priority secondary tasks (such as reassuring patients) (Hockey, 1993). One possible explanation for the negative relationship between burnout and performance may be that providers experiencing burnout do not want to help others (Swinder & Zimmerman, 2010) and do not receive any help themselves which results in a decrease in productivity (Bakker et al., 2014).

Psychological Safety

Over the past two decades, the term psychological safety has become well-known in the literature. Psychological safety is considered a team variable, which Edmondson (1999) defines as a shared belief held by members of a team that the team is safe for interpersonal risk taking. Previous research has shown that psychological safety may have an effect on burnout; therefore, I decided to study this characteristic in the present study.

Researchers in one study found that clinicians who scored higher on a psychological safety scale scored lower on a burnout scale across three different medical practices: independent practices, hospital owned practices, and federally qualified health centers (Cuellar et al., 2018). Another study by Vévoda and colleagues (2016) examined nurses and found a significant negative relationship between psychological safety and two characteristics of burnout: emotional exhaustion ($r = -0.181$) and depersonalization ($r = -0.256$).

Vévoda and colleagues (2016) assert that psychological safety at work is a factor that can be modified by employers, and that by introducing preventative measures related to the psychosocial environment, employers may indirectly influence the health of their employees, including the level of burnout they experience. In this way, psychological safety acts as a protective factor regarding burnout, and increasing psychological safety is closely related to the quality of nursing care, and consequently with patient satisfaction. This previous research indicates that psychological safety may play a key role in a provider's likelihood of experiencing burnout.

The construct of psychological safety has roots in early organizational change research, in which Schein and Bennis (1965) posited that it is imperative we create psychological safety for individuals within a team in order for them to feel secure and capable of changing. In 1999,

Edmondson noted that much of the current literature on organizational learning relied on qualitative studies to gather rich detail about cognitive and interpersonal processes; however, these studies did allow for actual hypothesis testing. Team studies, in contrast, had been using large samples and quantitative data without any study of the antecedents and consequences of learning behavior. Edmondson proposed a model of team learning which takes into consideration both of these factors, jointly, and supports an integrative perspective which considers both team structures such as context support and team leader coaching, and how shared beliefs shape outcomes.

Examples of the learning behavior Edmondson focused on include seeking feedback, sharing information, asking for help, talking about errors, and experimenting. Edmondson's hypothesis was that there are some environments which are more conducive to these learning behaviors, and subsequently breed more efficient teams. Researchers found that these beliefs about the interpersonal context of an individual's willingness to engage in otherwise-threatening learning behavior do indeed vary between teams in the same organization, and also influence team outcomes (Edmondson, 1999).

The advent of measuring psychological safety has had an impact on organizational learning because learning is, as educational philosopher John Dewey (1922) described, an iterative process of designing, carrying out, reflecting upon, and modifying actions as opposed to relying upon habitual or automatic behavior. Therefore, when a member of a team is conditioned to remain silent when there is a mistake, there is a breakdown of communication and a loss of information which could be utilized to redesign processes and modify future actions. For a team to learn effectively, team members must test assumptions and discuss differences of opinion openly rather than privately or outside the group.

Other fields of research such as management accept this to be true as well. Researchers in this field have discussed learning as dependent on attention to feedback (Schon, 1984), experimentation (Henderson & Clark, 1990), and discussion of failure (Sitkin, 1992). Performance benefits have been discovered for teams and managers which frequently seek feedback (Ancona & Caldwell, 1992; Ashford & Tsui, 1991), and for teams that frequently experiment (Henderson & Clark, 1990). Other research has found that the ability to discuss mistakes productively has been associated with increased organizational effectiveness (Schein, 1993; Sitkin, 1992). This research leads us to believe that increased learning behavior in teams may be positively associated with team performance.

Increased psychological safety stems from a confidence that the team will not embarrass, reject, or punish someone for speaking up. This confidence is achieved through mutual respect and trust among team members. Edmondson also states that, though psychological safety does not play a direct role in the team satisfying the customers' needs (and thereby has no direct effect on performance), it facilitates the teams' ability to take appropriate actions to accomplish their work. Edmondson concluded that psychological safety is a mechanism that helps explain how structural factors, such as contextual support and team leader coaching, affect behavioral and performance outcomes.

Metrics

The traditional – gold standard- measure for psychological safety, Edmondson's self-report psychological safety survey (1999) consists of 7 items which ask the individual questions such as "if you make a mistake on this team, it is often held against you" and asks participants to respond on a 5-point Likert scale from "Strongly Agree" to "Strongly Disagree".

Other measurements such as the one described in a recent study by O'Donovan and colleagues (2020) have combined the strengths of observational and survey measures to create a measurement of psychological safety that is specifically tailored for healthcare teams. This composite measure was co-developed by healthcare professionals and is grounded in the psychological safety and healthcare literature to assist researchers in conducting longitudinal research on this topic. The observational portion of the measure has 31 observable behaviors spanning 7 categories: voice, defensive voice, silence behaviors, supportive, unsupportive, learning or improvement-oriented and familiarity behaviors. The survey consists of 19 items related to the team leader, other team members, and the team as a whole.

Links to Healthcare Teams

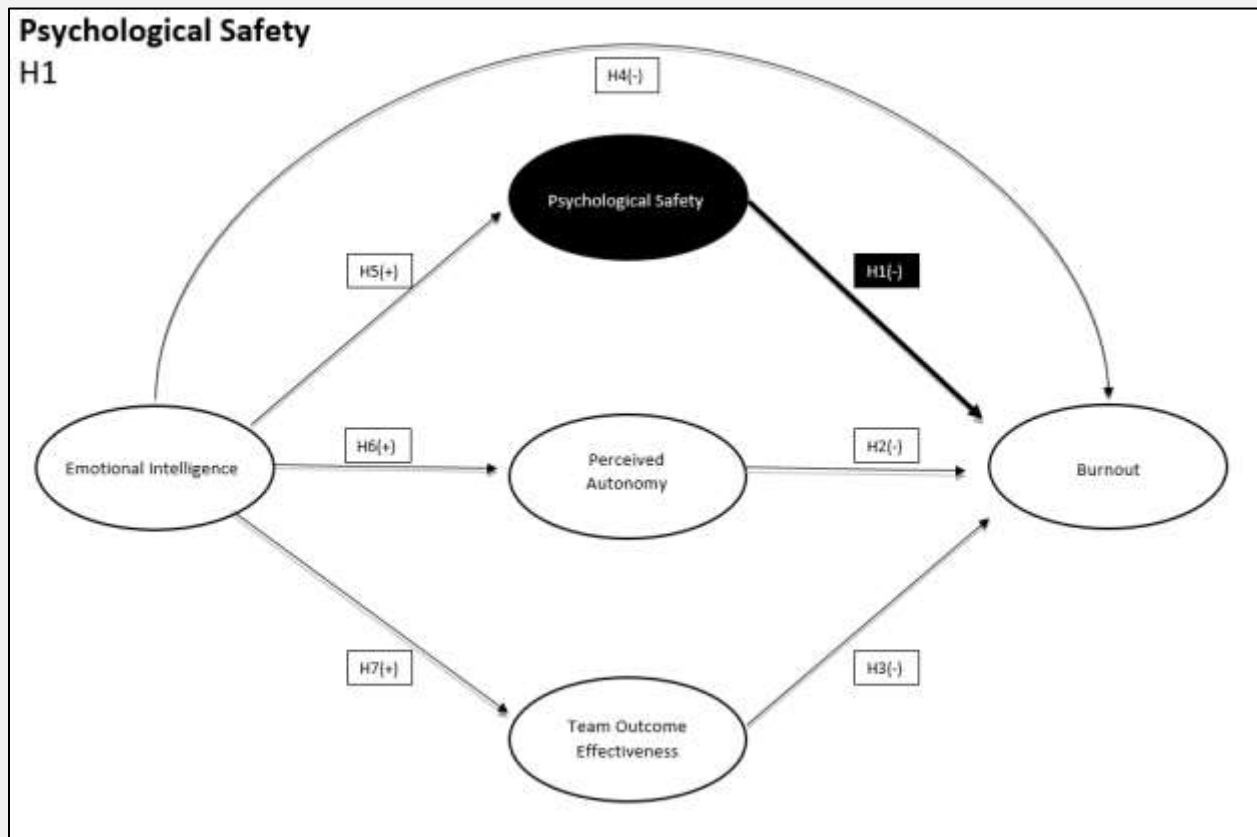
In a previous study by Edmondson (1996), significant differences were found in hospital patient-care teams member's beliefs about the social consequences of reporting medication errors. In some teams, members openly acknowledged them and discussed ways to avoid their recurrence, but in others, members kept their knowledge of a drug error to themselves (Edmondson, 1996). Here is a situation in which the members who felt comfortable enough to discuss the medication error may be decreasing the likelihood of a similar event occurring in the future, thus, preventing patient harm. If a nurse gives the wrong concentration of a particular drug because the labels are so similar on the vials, the nurse may inform their supervisor, who then may inform the team at the morning huddle so that they can be sure to look more closely and double-check before administering that specific drug.

Hypotheses

H₁ Psychological Safety negatively predicts Burnout.

Figure 2

Line & Box Model for psychological safety hypothesis



(+) = Statistically positive relationship

(-) = Statistically negative relationship

→ = Variable predicts another variable

H = Hypotheses is related to discussed construct

H = Hypotheses is not related to discussed construct

Perceived Autonomy

Job autonomy represents a job-related resource that potentially enables employees to cope more effectively with stressful situations because they can more readily use their available coping resources and skills (Fried & Ferris, 1987). Job autonomy conceptually overlaps with perceived control (Peeters & Rutte, 2005), which has been found in many studies to have significant negative effects on all burnout dimensions (de Lange et al., 2003). Several studies have reported that lack of job autonomy was negatively associated with all dimensions of burnout because it undermined employee motivation and learning (Bakker et al., 2005; Lindblom et al., 2006; Peeters & Rutte, 2005).

According to Deci and Ryan's (1985, 1991) self-determination theory, when the social context is autonomy supportive, people are motivated to internalize the regulation of important activities. Alternatively, when the context is controlling, self-determined motivation is undermined. Additionally, according to self-determination theory, perceived autonomy is described as a psychological resource alongside competence and relatedness. Previous research targeting a variety of professions including those in healthcare has found that an autonomy-supportive style facilitates self-determined forms of regulation (such as intrinsic regulation) and decreases non-self-determined types (amotivated), whereas a controlling style undermines self-determination (Williams et al., 1996; Williams & Deci, 1996). In addition, it is hypothesized that too much control on the part of other people (supervisors, coworkers, administrators, insurance companies, utilization review) may have negative effects on internalization in terms of self-motivation and self-determination (Deci et al., 1994; Isaac et al., 1999; Sansone et al., 1992). This is key, because self-determination is associated with enhanced psychological functioning (Deci, 1980; Deci & Ryan, 1985).

In addition, studies have found that more self-determined forms of motivation lead to a more positive emotional tone, higher instances of flow, higher self-esteem, better adjustment, greater interest, greater effort, better performance, greater satisfaction, and enhanced health (Blais et al., 1990; Fortier et al., 1995; Grolnick & Ryan, 1987; Kasser & Ryan, 1996; O'Connor & Vallerand, 1990; Pelletier et al., 1995;). One study that examined the persistence of college students taking an elective course found that the students who remained in the course had previously reported more self-determined forms of regulation, and less non-self-determined types of regulation than students who had dropped out (Vallerand & Bissonnette, 1992).

Metrics

Researchers in the past have made recommendations concerning the types of measures that need to be developed to increase our understanding of work/job autonomy. Fried (1991) posited that developing multiple scales to access conceptually different facets of autonomy may be essential to increase the validity and consistency of information regarding the influence of work autonomy. This sentiment was echoed by Taber and Taylor (1990).

Breaugh (1985) had attempted to develop an instrument that validly measured work autonomy, work schedule autonomy, and work criteria autonomy. The validity of these scales were further assessed by Breaugh and Becker in 1987. In 1989, Breaugh found that work groups that should differ in terms of autonomy did in fact differ. For example, he found that unionized employees reported higher levels of autonomy than non-unionized employees, and non-supervisors reported having less autonomy than supervisors. Evans and Fischer (1992) later reported confirmatory factor analysis results which also showed that the work autonomy scales were associated with three unique facets of autonomy.

Links to Healthcare Teams

The growth of managed care health insurance in the past 30 years has significantly altered the doctor-patient relationship (Mechanic & Schlesinger, 1996; Kao et al., 1998; Sulmasy et al., 2000). Before the advent of managed care, most healthcare services provided by physicians were conducted on a fee-for-service basis, with minimum review of a physician's clinical decisions by insurance companies. Managed care health insurance plans such as health maintenance organizations (HMOs) and preferred provider organizations (PPOs) changed this.

New administrative processes including utilization review, prior authorization, physician profiling, and mandatory second opinions were implemented. Financial incentives such as capitation, withholds, bonuses, reduced fees, fee schedules and incentive compensation were designed to limit the amount of care provided. Physicians argue that these changes have reduced their clinical autonomy, their patient's trust in them, their satisfaction with their medical careers, and ultimately the quality of care they can provide (Kao et al., 1998; Reschovsky et al., 2001).

In a 1993 study by Baker & Cantor, physicians employed by an HMO were much less likely to respond affirmatively than generalists who were self-employed on questions such as "I have the freedom to spend sufficient time with my patients", "I have the freedom to control my own work schedule", and "I have the freedom to care for patients even when they are unable to pay the fees and charges". HMO physicians were also significantly less likely than self-employed physicians to be satisfied with their job. In most all conditions, specialists reported higher levels of autonomy and satisfaction than generalists.

When it comes to using the hospital to order tests and procedures, or to keep the patient for an extended length of time, HMO physicians were more likely than generalists to respond affirmatively. In addition, only 3 percent of HMO physicians reported that they'd had a medical

decision disallowed by an insurance company or government utilization review program, versus 42 percent of self-employed physicians and 33 percent of employees of other employers. In addition to less autonomy, physicians are also experiencing an influx of additional, less rewarding tasks (Baker & Cantor, 1993).

With the increasing use of technology in medical settings, the daily tasks of physicians have evolved, extending well beyond patient care to also include other tasks (i.e., electronic data entry and management). The physician's time is consumed with a multitude of auxiliary duties beyond patient care including but not limited to: regulatory paperwork, insurance approvals, and reimbursement battles (Dyrbye & Shanafelt, 2011). In current medical practice, physicians often spend more time doing clerical work compared to spending time with patients (Sinsky et al., 2017; Wright & Katz, 2018).

In addition to reducing valuable time with patients, EHR can also be cumbersome and frustrating for physicians (Meigs & Solomon, 2016). One study which surveyed 6375 physicians found that 43% were dissatisfied or very dissatisfied with their EHRs (Shanafelt et al., 2016). Many physicians have stated that time spent with the EHR is of no added value (Tutty et al., 2019). Additionally, physicians who used EHRs or Computerized Physician Order Entry (COPE) were at a higher risk of burnout regardless of whether or not they were satisfied with their EHR (Shanafelt et al., 2016). Other evidence suggests that providers who are unable to utilize the EHRs to facilitate diagnosing and treating patients are 2.8 times more likely to suffer signs of burnout (Gardner et al., 2018).

Research has found that the amount of workload and autonomy physicians experience relates to exhaustion, cynicism, and burnout (Portoghese et al., 2014). In essence, the greater their perceived workload and the lower amount of perceived autonomy relates to increases in

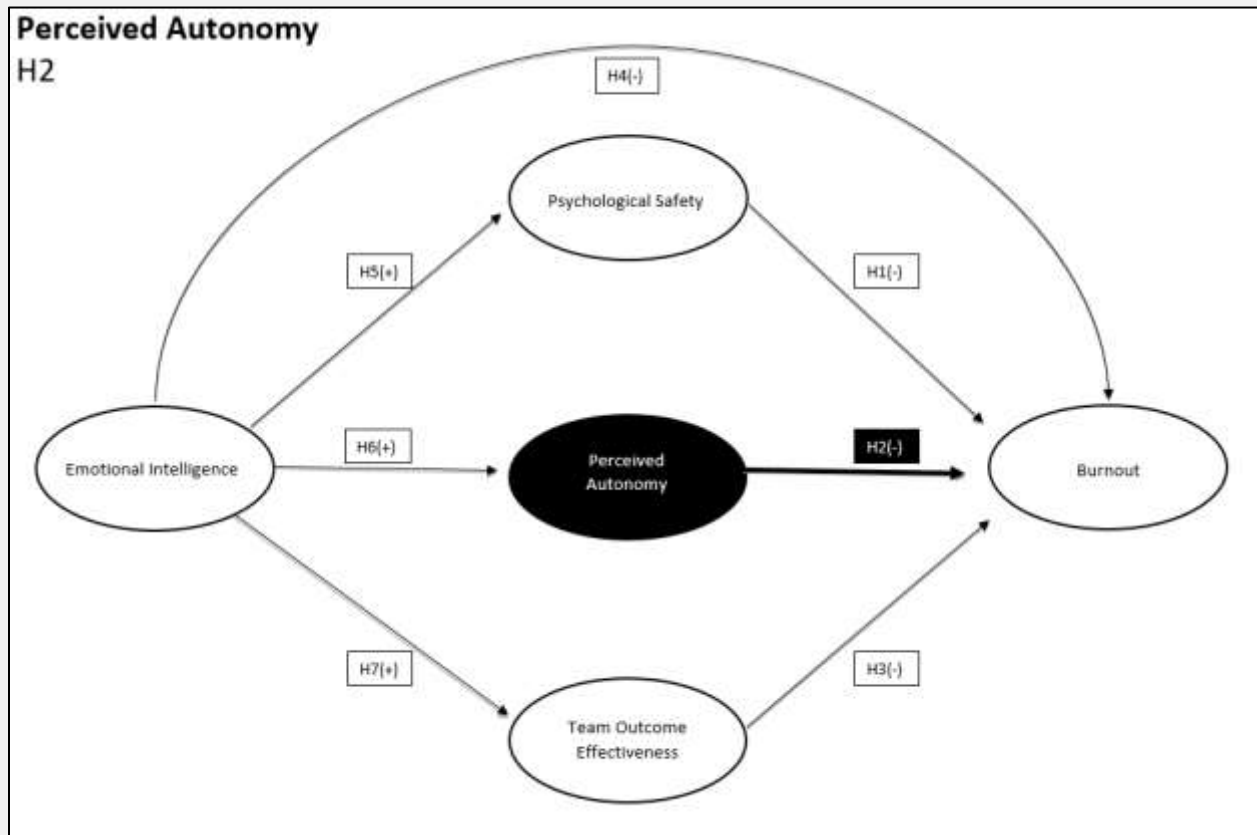
exhaustion and ultimately burnout. Physicians' lack of autonomy that comes from long work shifts, increased use of EHRs and computers, and a large number of administrative duties are reported as the top causes of burnout (Peckham & Grisham, 2017).

Hypotheses

H₂. Perceived Autonomy negatively predicts Burnout.

Figure 3

Line & Box Model for Perceived Autonomy Hypothesis



Team Outcome Effectiveness

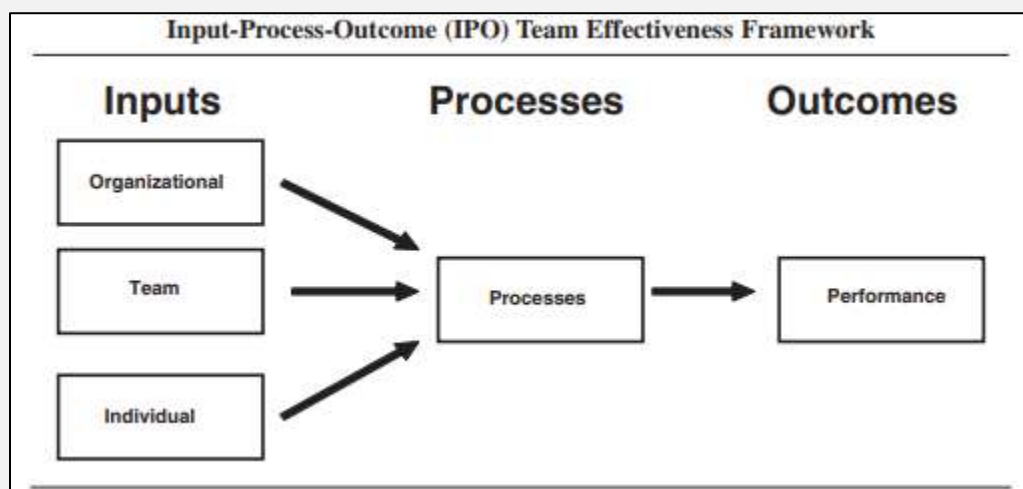
Before the rise of teams in the workplace, the predominant focus of metrics and research tended to be individual performance, and/or department/unit-wide measures (Mohrman et al., 1995). Consequently, it was often infeasible for researchers to compare teams in different functional areas, departments, or facilities (Cohen & Bailey, 1997). This made research regarding reinforcement of desired team behaviors particularly difficult.

For the purpose of this study, I studied team effectiveness in terms of the various outcomes that teams produce. This metric is called team *outcome* effectiveness and it is defined

in terms of performance effectiveness (i.e. controlling costs, improving productivity and quality), employee attitudes about their quality of work life (i.e. job satisfaction, organization commitment), and employee behavior (absenteeism).

Figure 4

McGrath's (1964) input-process-outcome (IPO) model



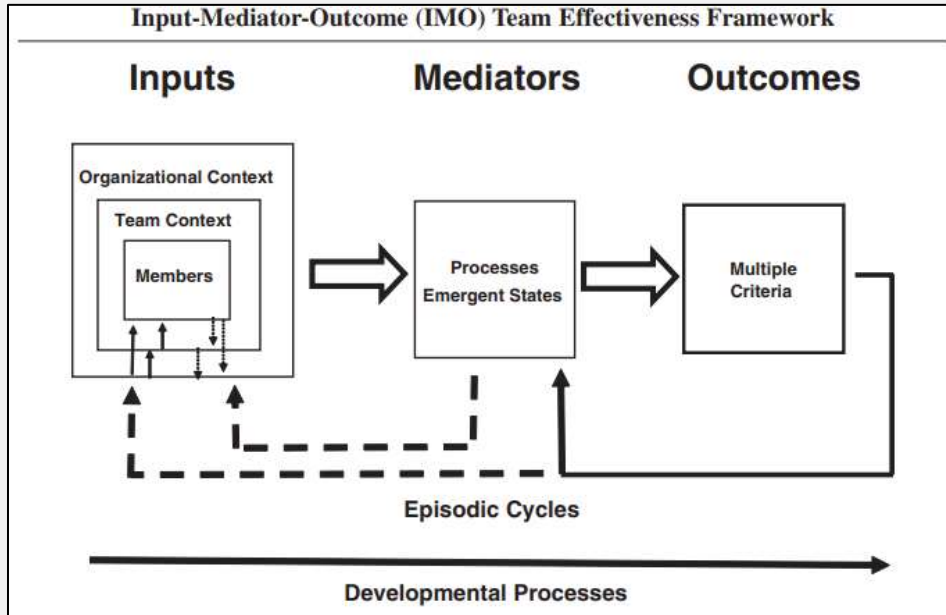
More than 40 years ago, McGrath (1964) created an input-process-outcome (IPO) framework for studying team effectiveness (Figure 4). Inputs describe preexisting factors that enable or constrain team members' interactions including individual team member characteristics (i.e., competencies and personalities), team-level factors (i.e., task structure and external leader influences), and organizational and contextual factors (i.e., organizational design features and environmental complexity). These various antecedents combine to drive team processes, which describe members' goal-directed interactions. Processes describe how team inputs are transformed into outcomes. Finally, *outcomes* are results and by-products of team actions, which are valued by one or more constituencies (Mathieu et al., 2000). These may include performance

(i.e., quality and quantity) and members' affective reactions (i.e., satisfaction, commitment, and viability).

Other versions of this framework have been created to account for additional factors such as Klein & Kozlowski's multi-level model (2000). As shown in Figure 5, the framework suggests that organizational context (i.e., environmental, and organizational contextual factors) have an overarching effect on team context (i.e., leadership practices, task design, and other features that teams will likely enact). In turn, the team context can have an overarching effect on the individual members of the team (i.e., competencies of members and the distributions of such competencies throughout the team). Though inner layers can influence outer (higher-order layers) generally the opposite is more common, with the outer layer having the most significant effects on the subordinate layers. For example, organizational context effects team context, which effects members as opposed to the reverse.

Figure 5

Klein & Kozlowski's multi-level IPO model (2000)



In addition to adopting this nested structure, researchers have also determined that time is a critical element that must be accounted for (Ancona & Chong, 1999; Marks et al., 2001; McGrath, 1991). While the traditional IPO model is often depicted as unidirectional, the episodic approach (also depicted in Figure 5) argues that teams must execute different processes at different times, depending on task demands that recur in a cyclical fashion (Marks et al., 2001; McGrath, 1984). This approach depicts the process by which a team develops over time as teams mature, wherein outputs from previous performance episodes are input into a later episode. Ilgen et al. (2005) recognized this and created the IMOI model (Input-Mediator-Output-Input).

Team effectiveness theories have long followed Input-Process-Output (IPO) frameworks (Guzzo & Dickson, 1996; Hackman & Morris, 1975), and while much research has been dedicated to the process-to-outcome relationship, little thought has been devoted to input-to-

process relationship (Marks et al., 2001; Weingart, 1997). Ilgen and colleagues (2005) posit that these IPO models should be expanded to consider the broader range of variables that are important mediational factors with explanatory power for understanding variability in team performance and viability.

Studies have shown that a supportive organizational context (Hackman, 1987), psychological empowerment, and self-managing behaviors are conduits for more effective teams (Wageman, 2001). Moreover, when the structural design of work shifts the control and responsibility from external management to teams, members of the team experience greater psychological empowerment, and consequently demonstrate greater team effectiveness (Kirkman & Rosen, 1999; Leach et al., 2003).

All this being said, one must also recognize that though there are many ways of visualizing and measuring team effectiveness, the criteria for what constitutes team effectiveness has evolved over the years to include many different forms and has subsequently become far more complex. Cohen and Bailey (1997) separate effectiveness into three categories: performance, attitudes, and behaviors. They further categorized performance into: Organizational-level performance (i.e. profitability), Team performance behaviors and outcomes (i.e. team process improvement, learning behaviors, and cognitive task performance), and Role-based performance (the extent to which members exhibit the requisite competencies necessary to perform their jobs: Welbourne et al., 1998).

Attitudes in team effectiveness research are often measured using self-report data, and often describe an individual's team, job, and organizational satisfaction, along with team and organizational commitment (Janz et al., 1997; Kirkman & Rosen, 1999). Additionally, a criterion referred to as *viability*) has been studied to determine team effectiveness (Barrick et al., 2007).

Like social or group cohesion, this is a term that refers to the extent to which the members of the team experience a collective sense of belonging, the extent individuals wish to remain members of the team, and the general stability of the team over time. Viability has become a blanket term for a variety of different constructs and *team viability* is often combined with affect or attitudinal measures in the study of team effectiveness (Barrick et al., 2007).

Metrics

Generally, team effectiveness can be measured by looking at objective outcomes (i.e., patient satisfaction, quality of care, etc.) or subjective outcomes (i.e., effectiveness as perceived by team members, etc.) as suggested by Cohen and colleagues (1996). Another metric is Heinemann and Zeiss' (2002) nine state-of-the-art instruments specific for health care teams that measure aspects of team effectiveness such as team climate, collaboration, effectiveness, attitude towards teams, team integration, and development of teams.

Ultimately, team effectiveness is an amalgam of various measures of team performance, team behaviors, and team attitudes that are not always attached to the outcome of the performance episode. While each of these aspects are important, for the basis of this research I analyzed *team outcome effectiveness* using the Team Outcome Effectiveness Scale, (Gibson et al., 2003) which views team behaviors, attitudes, and performance in terms of the final outcomes (i.e., controlling costs, improving productivity and quality, job satisfaction, organization commitment, and absenteeism). My survey questions asked participants about their attitudes towards their team's ability to accomplish their goals, as well as their perceptions toward the behaviors and attitudes of their team collectively. The team outcome effectiveness survey is

divided into 5 separate dimensions: Goals, Customers, Timeliness, Quality, and Productivity. A description of each of the dimensions are listed below:

Goals: The degree to which the team meets its objectives.

Customers: The degree to which the team meets the customer's needs.

Timeliness: The degree to which the team adheres to temporal goals.

Quality: The degree to which the team avoids errors.

Productivity: The degree to which the team is efficient with respect to inputs/outputs.

Links to Healthcare Teams

In the seminal work, *To Err is Human: Building a Safer Health System* (1999), the authors concluded that effective teamwork and better communication between providers could prevent half of the 44,000-98,000 patients who die annually due to medical errors (Kohn & Corrigan, 1999). That number has increased over the past 20 years and is now expected to be closer to 251,000 (Makary & Daniel, 2016). Kohn and Corrigan (1999) also posited that effective teamwork leads to higher-quality decision making and medical intervention and, in turn, improved patient outcomes. As a result of this discovery, "To promote effective team functioning" became one of the five principles in the Institute of Medicine (IOM) report to create safe hospital systems (Kohn & Corrigan, 1999). This call-to-action sparked great interest in the topic of team effectiveness in health care.

Previous research tells us that when the effectiveness of teamwork decreases, job demands increase, and increased job demand leads to fatigue and psychological distancing from the job (Bakker et al., 2000). An effective team will pool their physical and intellectual resources to assist other members and achieve their common goal; therefore, ineffective teams generate

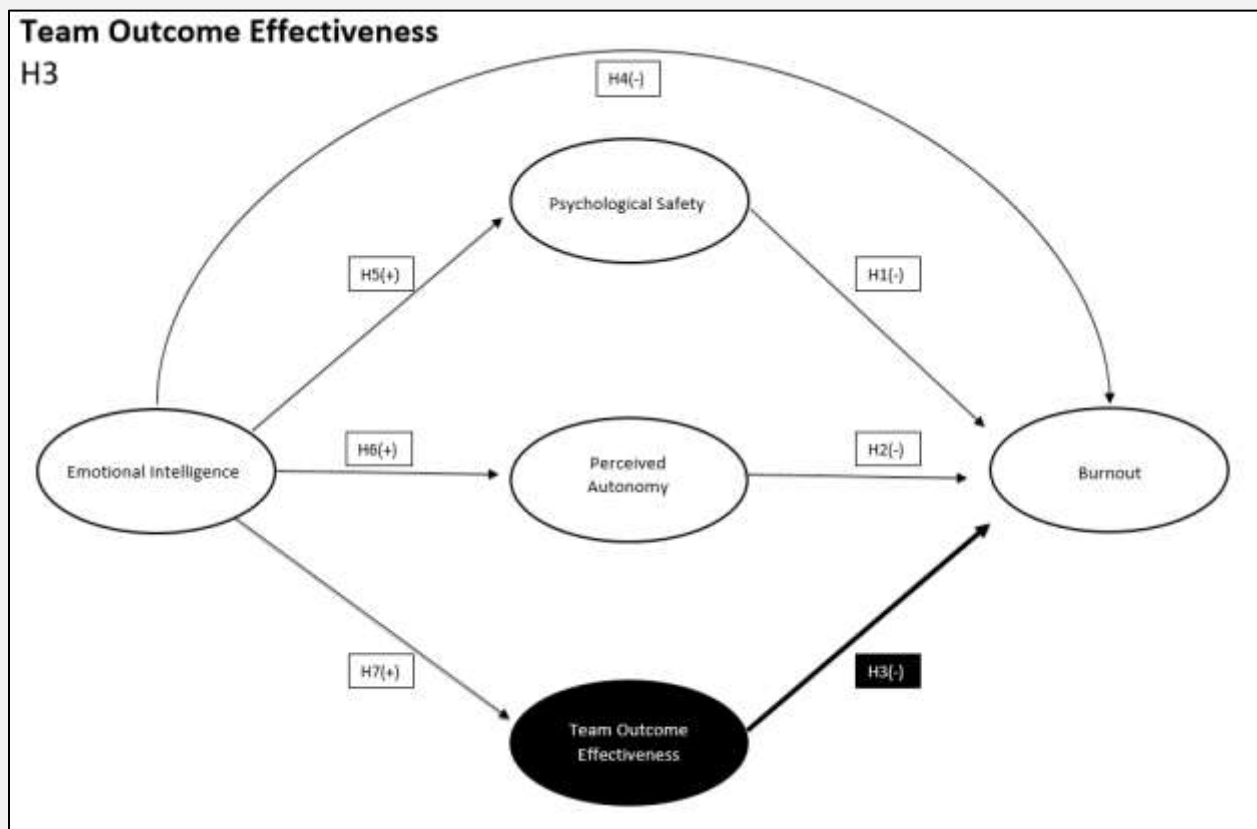
fewer resources (in the form of mental and physical output such as ideas generated, and tasks completed). The relationship between resources and burnout remains constantly negative (Demerouti et al., 2001).

Hypotheses

H₃. Team Outcome Effectiveness negatively predicts Burnout.

Figure 6

Line & Box Model for Team Outcome Effectiveness Hypothesis



Emotional Intelligence

Emotional intelligence (EI) refers to an ability to recognize the meanings of emotions and their relationships and to incorporate this knowledge into one's reasoning. It is also involved in the capacity to perceive emotions, assimilate emotion-related feelings, understand those emotions, and manage them (Mayer & Salovey, 1997). Daniel Goleman notes that the chief characteristic of EI is that an individual is aware of emotions and able to regulate them, and this awareness and regulation are directed both inward, to oneself, and outward, to others (Goleman, 2005).

EI includes self-control, zeal and persistence, and the ability to motivate oneself. At best, it is predicted that Intelligence Quotient (IQ) contributes about 20 percent to the factors that determine life success. In short, academic intelligence does not prepare one for the numerous trials that life may bring. Goleman (1995) argues that people with well-developed emotional skills are more likely to be content and effective in their lives and are adept at mastering the habits of mind that foster their own productivity, giving them a distinct advantage in any domain.

One of the first notions of emotional intelligence appeared in Thorndike's (1920) work on social intelligence, which focused on the ability to understand and manage people and to act wisely in social situations. Next came Gardner's (1983) work on multiple intelligences, specifically the concepts of intrapersonal and interpersonal intelligence. According to Gardner's later work (1999), interpersonal intelligence represents a person's capacity to understand the intentions, motivations, and desires of other people and utilize these abilities to work effectively with others. Intrapersonal intelligence on the other hand, "involves the capacity to understand oneself, to have an effective working model of oneself – including one's own desires, fears, and capacities – and to use such information effectively in regulating one's own life" (p. 43).

Salovey and Mayer (1990) introduced the first formal model and definition of emotional intelligence, though, the term was used several times in the literature before this (Leuner, 1966; Payne, 1985). In addition, Salovey and Mayer carried out some of the first empirical studies examining emotional intelligence (Mayer et al., 1990). It was Goleman's (1995) book, however, which popularized the term and sent shockwaves through the scientific community.

Initially, researchers began to create self-report measures as well as maximum-performance tests of EI, believing that they were studying the same construct. Petrids and Furnham (2000) argued that the manner in which individual difference variables are measured (self-report versus maximum performance) has a direct impact on their operational organization, therefore, distinguished between trait EI (or emotional self-efficacy) and ability EI (or cognitive-emotional ability). These are two separate constructs.

While trait emotional intelligence determines our potential for learning the fundamentals of self-mastery, our emotional competence shows how much of that potential we have mastered in ways that translate into on-the-job capabilities. To be proficient at an emotional competency like customer service or teamwork requires an underlying ability in EI fundamentals, specifically social awareness, and relationship management. Underlying trait EI is necessary, but not sufficient, to manifest a given competency or job skill.

Metrics

Ability emotional intelligence can be measured by asking a person to solve an emotion related problem, such as identifying which emotion is present in a story or painting and then comparing their answer to the correct answer (Mayer et al., 1990; Mayer & Geher, 1996). Trait emotional intelligence can be measured through self-report items such as "I'm in touch with my

emotions,” or “I am a sensitive person.” Some of the most well-known EI tests are shown in Table 3 Below. For this study, I examined *trait EI* as opposed to *ability EI*, as the operationalization of ability EI is considered problematic, due to the subjectivity of emotional experience (Chamorro-Premuzic et al., 2015).

Table 3

List of popular measure of emotional intelligence

<i>EI Measurement Tool</i>	<i>References</i>
Trait-Meta-Mood Scale (TMMS)	Salovey et al., 1995
Bar-On Emotional Quotient Inventory (EQ-I)	Bar-On, 1997
Schutte Emotional Intelligence Scale (SEIS)	Schutte et al., 1998
Emotional Competence Inventory (ECI)	Boyatzis et al., 1999
Emotional Intelligence Self-Regulation Scale (EISRS)	Martinez-Ponz, 2000
Dulewicz & Higgs Emotional Intelligence Questionnaire (DHEIQ)	Dulewicz & Higgs, 2001
Trait Emotional Intelligence Questionnaire (TEIQ)	Petrides & Furnham, 2003
Sjöberg Personality Test Battery (SPTB)	Sjöberg, 2001
Tapia Emotional Intelligence Inventory (TEII)	Tapia, 2001
Work-Place Swinburne University Emotional Intelligence Test (Workplace SUEIT)	Palmer & Stough, 2002
Workgroup Emotional Intelligence Profile (WEIP)	Jordan et al., 2002
Emotional Intelligence Scale (EIS)	Van der Zee et al., 2002
Wong & Law Emotional Intelligence Scale (WLEIS)	Wong & Law, 2002

In terms of the elements that they encompass, the various models of EI tend to be complementary rather than contradictory (Ciarrochi et al., 2000). In addition, popular EI models tend to share many core facets such as: ability to understand one's own emotions, ability to understand other's emotions, ability to manage one's own emotions, and the ability to manage other's emotions. The shared facets between models provided the basis of the first sampling domain of EI, which included the common elements, but excluded the peculiar ones (Petrides & Furnham, 2001).

Links to Healthcare Teams

Emotional intelligence has also been studied in the realm of healthcare. Towards the end of the ninety's healthcare professions began to shift away from the idea of detachment and keeping patients at a distance. They are now instead encouraging closer relationships between patients and providers (Williams, 2001). It had become more acceptable, and sometimes even necessary, for providers to express their emotions while they empathize with their patients. It is also strongly advised, however, that providers should *manage* (conceal and outwardly replace) their emotions to signal their empathetic concern. This practice is referred to as "emotional labor" (McQueen, 2004). Hochschild (1983) defined emotional labor as a suppression of true feelings to create a caring and safe atmosphere for clients. The main aspect of conveying required emotions while personally experiencing conflicting emotions is defined as 'emotional dissonance' (Zapf et al., 2001). The frequency and variety of emotional interactions may result in conflicting emotions (emotional dissonance), which may lead to dissatisfaction (Morris & Feldman, 1996). Regardless of the provider's response to emotional work (i.e., compliance or

resistance). Emotional intelligence, in this context, can be identified as a factor that contributes to minimizing the negative outcomes of emotional labor and enhances provider well-being.

A study by Năstasă & Fărcaș (2015), found a medium to large statistically significant correlation between emotional intelligence and personal accomplishment. Their findings confirmed previous research which suggested that the ability to utilize various emotions to create effective solutions to work challenges provides healthcare providers the opportunity to counteract feelings of dissatisfaction, bitterness, and mistrust (Spânu et al., 2012).

Another study which focused on a different human services professional – teachers – discovered low scores in emotional exhaustion, depersonalization, and high scores in personal accomplishment were in association with EI scores (Pishghadam & Sahebjam, 2012). Rationale for this phenomenon was previously provided by Mortiboys (2004), who claimed that teachers with high EI can recognize their students` emotions, develop positive attitudes towards them, and feel they are able to effectively help their students learn. These findings also supported Chang`s claims (2009) that teachers need a variety of emotional resources (including emotional intelligence) in order to avoid burnout. Alavinia & Ahmadzadeh (2012) also conducted a study on teachers which utilized the Maslach Burnout Inventory-Educators Survey and found that EI was negatively correlated with burnout and could be an effective predictor of burnout. This literature forms the basis for the following hypotheses.

Hypotheses

H₄: Emotional Intelligence negatively predicts Burnout.

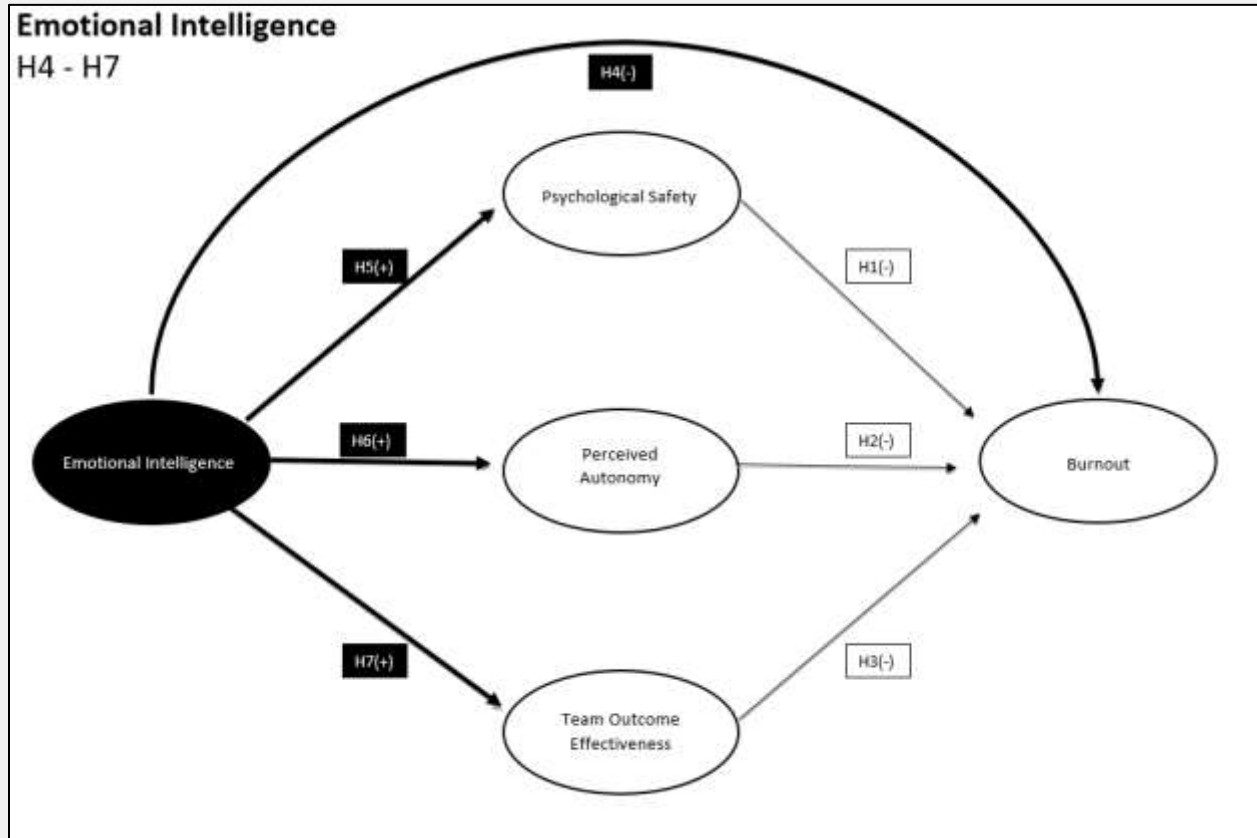
H₅: Emotional Intelligence positively predicts Psychological Safety.

H₆: Emotional Intelligence positively predicts Perceived Autonomy.

H₇: Emotional Intelligence positively predicts Team Outcome Effectiveness.

Figure 7

Line & Box Model for Emotional Intelligence Hypotheses



Chapter 2 Summary

Chapter 2 outlines the current body of literature regarding team-level variables such as PS, and TOE, as well as the individual-level variables of EI and PA and they how they might influence a provider’s level of perceived burnout. A summary of my hypotheses based on this literature can be found below. For a summary of operational definitions and the measurement tools I used to measure each construct, see Table 4 and Table 5 respectively. It is also important

to establish that TOE is an exploratory hypothesis, as its relationship to burnout is not clearly established in the literature. The remainder of the variables in the model are confirmatory.

- H₁ Psychological Safety negatively predicts Burnout.
- H₂ Perceived Autonomy negatively predicts Burnout.
- H₃ Team Outcome Effectiveness negatively predicts Burnout.
- H₄ Emotional Intelligence negatively predicts Burnout.
- H₅ Emotional Intelligence positively predicts Psychological Safety.
- H₆ Emotional Intelligence positively predicts Perceived Autonomy.
- H₇ Emotional Intelligence positively predicts Team Outcome Effectiveness.

Chapter 3: Methods

This dissertation utilizes several validated scales and metrics that were distributed via online survey to study the target constructs. The survey data was then analyzed using a full structural equation model (SEM) to determine whether our independent variables could successfully predict burnout within a sample of healthcare providers.

Participants

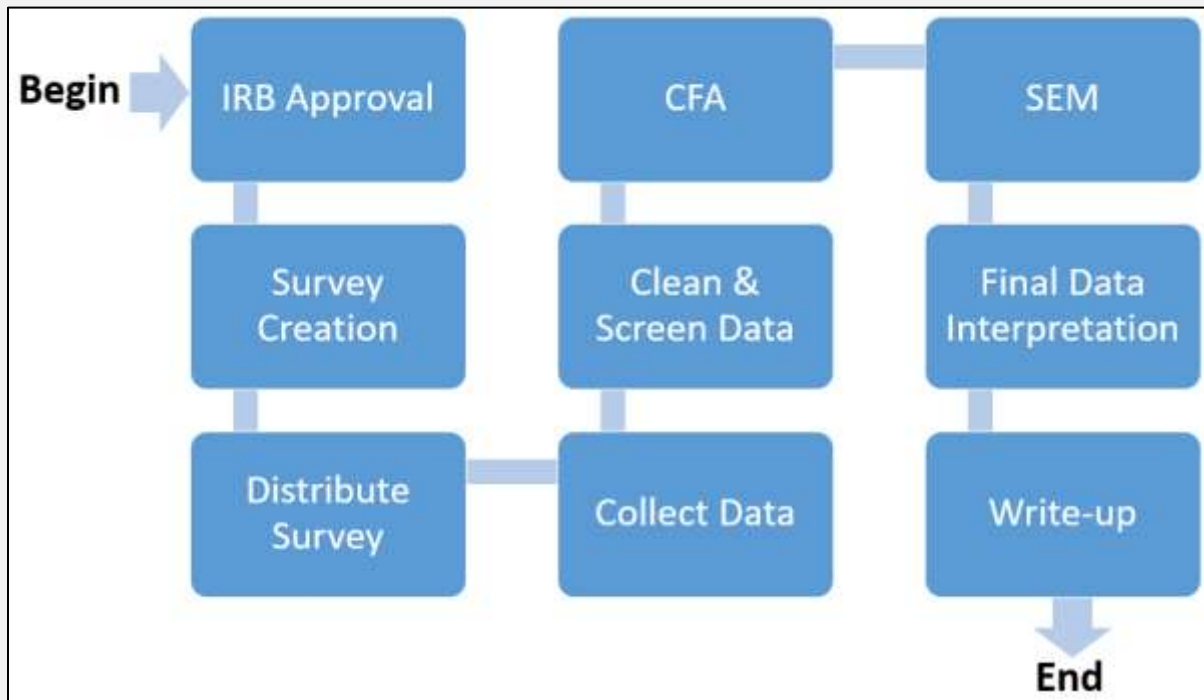
A convenience sample of 196 healthcare providers at two large medical centers in the United States were surveyed for this dissertation. This included a convenience sample of individuals from all frontline clinical healthcare roles including hospitalists, physician assistants (PAs), anesthesiologists, certified registered nurse anesthetists (CRNAs), surgeons, nurses, and general practitioners.

The target number of participants I wanted to survey for this study was based on general SEM guidelines proposed in the literature. On the high side of these proposed sample sizes, researchers suggest a ratio of observation that is 20-1, or 20 participants for each estimated parameter (Kline, 2015). That would make our target sample 240 participants (12 parameters x 20 participants). Other researchers have suggested ratios as low as 10-1 (Schreiber et al., 2006) or 5-1 (Bentler & Chou, 1987). Considering these estimates, my sample of 196 participants was suitable for an SEM.

Procedure

Figure 8

Study procedure from IRB approval through final write up of results



Data Collection

After applying for and receiving IRB approval from Embry-Riddle and the participating medical centers, the final survey was created using Qualtrics[®] and REDCap survey software and distributed via an email link to an online survey. At one of the medical institutions, the survey was distributed at multiple working group meetings (i.e., monthly meeting for anesthesiologists). The survey consists of 85 items and took roughly 8-10 minutes to complete. The survey included demographic items as well as items that correspond to each of our target constructs. Though medical teams are often dynamic and consistently changing, participants were asked to mentally

refer to the team that they have most recently been a part of during their work in the hospital as they complete the survey. The data was collected and subsequently cleaned and screened to remove outliers and deal with any missing data. Once the data was clean, a confirmatory factor analysis (CFA) was conducted, followed by a full SEM. The output data was then be interpreted and the results are written up and discussed in this document. Figure 8 depicts a flow chart of the study procedure.

Measures

The following sections discuss each of the scales that were utilized to measure our target constructs. Table 4 depicts the operational definition for each construct and the paper it is referencing. Table 5 identifies each construct, the tool that was used to measure it, and the reference for each tool.

Burnout. Burnout was measured using the original Maslach Burnout Inventory – Human Services Survey (MBI: Maslach et al., 1986a). Having been established over 20 years ago and cited by more than 500 studies, the MBI is considered the gold standard questionnaire for the measurement of burnout. The reliability of the MBI is also consistently high (Maslach, 2001). The survey (Appendix A) contains 22 questions that use three general subscales: emotional exhaustion (EE), depersonalization (DE), and personal accomplishment (PE). The MBI defines burnout as scoring high in the range (27 or more points) on the EE, high in the range (13 or more points) for depersonalization (DP), and low in the range (31 or fewer points) for personal accomplishment (PA).

The MBI is scored using a 7-point Likert scale ranging from 0 “never” to 6, “every day”. The subscales are calculated separately, and their scores are not to be combined. Each score is

then coded as low, average, or high by using numerical cutoff points. These cutoff points are depicted in Appendix A.

Psychological Safety. Psychological safety was measured using Edmondson's 7-item (1999a) psychological safety scale (Appendix B). The participant was asked to score each item using a 5-point Likert scale ranging from 5 "strongly agree" to 1, "strongly disagree". The participant's scores were then averaged, taking into consideration that 3 items are reverse scored. There are no distinct cutoffs for scoring this scale. A higher combined score indicates a higher level of psychological safety.

In Edmondson's studies (1999; 2002), this scale displayed internal consistency reliability and discriminant validity, and predicted team learning behavior and team performance—as rated by independent observers.

Perceived Autonomy. Perceived autonomy was measured using Breugh's 9-item (1985) Work Autonomy Scale (Appendix D). Breugh's (1985) instrument validly measures work method autonomy (i.e., the degree of choice individuals have regarding the procedures/methods they utilize in completing their work), work scheduling autonomy (i.e., the extent to which workers feel they can control the scheduling/sequencing/timing of their work), and work criteria autonomy (i.e., the degree to which workers have the ability to modify/choose the criteria used for evaluating their performance). The participant was asked to score each item using a 5-point Likert scale ranging from 5 "strongly agree" to 1, "strongly disagree".

In terms of reliability, the work autonomy scales were found to be internally consistent and reasonably stable. The results of an exploratory factor analysis of the items comprising the autonomy scales also supported their use. The correlations between the three autonomy facet measures and several theoretically-linked variables (e.g., job satisfaction) provided additional

evidence of the validity of Breugh's scales. Breugh and Becker (1987) later conducted a CFA on the scale and found that the goodness-of-fit measures were excellent and that the self-reported autonomy of participants predictably covaried with experimental manipulations.

A participant's final score is a composite score calculated by adding their responses to each of the survey items. There are no distinct cutoffs for scoring this scale. A higher combined score indicates a higher level of perceived autonomy.

Team Outcome Effectiveness. Team outcome effectiveness was measured using Gibson and colleagues' (2003) 26-item Team Outcome Effectiveness Scale. This survey consists of five sub-scales concerning: Goals, Customers, Timeliness, Quality, and Productivity (Appendix E). Additionally, this survey was specifically created to provide a widely generalizable measure of team effectiveness which can be applied across an organization and across multiple contexts. Gibson's (2003) research shows this scale to be sensitive to variation in teams, and insensitive to the source of evaluation.

TOE was measured on a 7-point Likert scale from 1 (very inaccurate) to 7 (very accurate). A participant's final score is a composite score calculated by adding their responses to each of the survey items, with 186 being the highest possible score and 26 being the lowest possible score. There are no distinct cutoffs for scoring this scale. A higher combined score indicates a higher level of team outcome effectiveness.

Emotional Intelligence. Emotional intelligence (EI) was measured using the shortened Workgroup Emotional Intelligence Profile (WEIP-S; Jordan & Lawrence, 2009) because of the tool's brevity (16-items), validity, and focus on the interactions of team members (Appendix F). The tool is scored using a 7-point Likert scale ranging from 1 (strongly disagree), to 7, (strongly agree). The items relate to 4 domains: 1) an individual's ability to discuss their own emotions

(Own Aware), 2) the ability to control emotional responses (Own Manage), 3) the ability recognize others' feelings (Other Aware), and 4) the ability to positively influence others' emotional states (Other Manage). This measure has been analyzed by a series of tests and demonstrated construct validity, discriminate validity, construct replication across samples, acceptable to good model fit for each of the emotional intelligence constructs, as well as a good fit for a model consisting of all four self-reported emotional abilities (Jordan & Lawrence, 2009).

A participant's final scores are domain scores calculated by averaging their responses to survey items within each of the four domains. There are no distinct cutoffs for scoring this scale. Higher scores in each of the domains indicate higher levels of emotional intelligence.

Table 4*Summary of study constructs and operational definitions*

<i>Construct</i>	<i>Operational Definition</i>	<i>Reference</i>
Burnout	Burnout is defined as a psychological syndrome which is comprised of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with other people in some capacity.	Maslach et al., 1986
Psychological Safety	A shared belief held by members of a team that the team is safe for interpersonal risk taking.	Edmondson, 1999
Perceived Autonomy	A job-related resource that potentially enables employees to cope more effectively with stressful situations because they can more readily use their available coping resources and skills.	Fried & Ferris, 1987
Team Outcome Effectiveness	A metric which views team behaviors, attitudes, and performance in terms of	Gibson et al., 2003

the final outcomes (i.e, controlling costs, improving productivity and quality, job satisfaction, organization commitment, and absenteeism).

Emotional Intelligence

Trait EI is a personality trait which concerns emotion-related self-perceptions measured via self – report.

Mayer & Salovey,
1997

Table 5*Summary of measurement methods*

<i>Construct</i>	<i>Measurement</i>	<i>Reference</i>
Burnout	22-item Maslach Burnout Inventory (MBI)	Maslach et al., 1986a
Psychological Safety	7-item Psychological Safety Scale	Edmondson, 1999
Perceived Autonomy	9-item Work Autonomy Scale	Breaugh et al., 1985
Team Outcome Effectiveness	26-item Team Outcome Effectiveness Scale	Gibson et al., 2003
Emotional Intelligence	16-item shortened Workgroup Emotional Intelligence Profile (WEIP-S)	Jordan & Lawrence, 2009

Data Analysis

The present study utilized a large-sample correlational survey design analyzed using a full SEM. Using this approach, I was able to examine the covariation among our observed variables to better understand their underlying latent constructs (i.e., factors). SEM leverages CFA, which is used when the researcher has some knowledge of the underlying variable structure based on knowledge of theory, empirical research, or both. Using this method, I was able to postulate relations between the observed measures and underlying factors a priori and then tested this hypothesized structure statistically (Klem, 2000). For example, in this study I hypothesized that emotional intelligence would have a direct effect on each of the endogenous latent variables (TOE, PS, PA), as well as burnout.

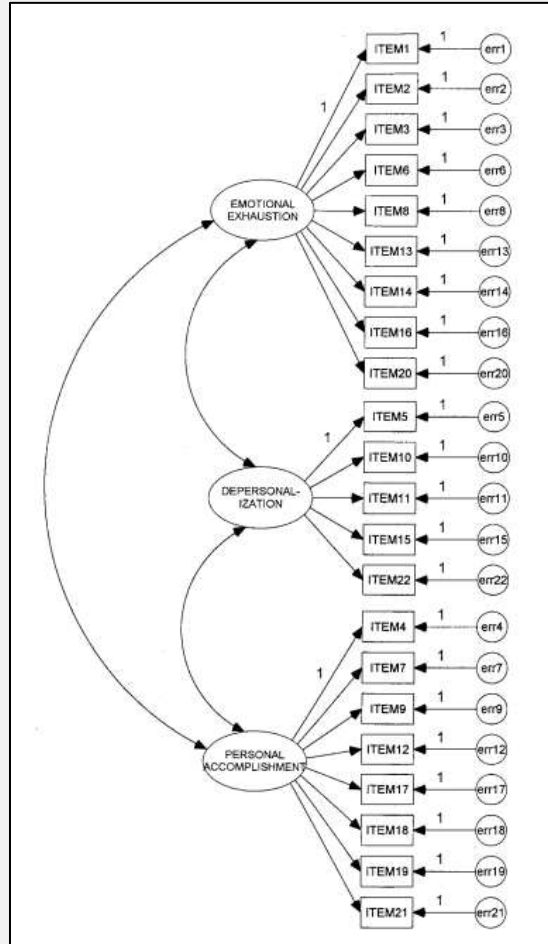
It is important to distinguish between exogenous and endogenous latent variables when conducting an SEM. Exogenous latent variable act as independent variables in the model, as they effectively “cause” fluctuations in the values of other latent variables. The changes observed in the value of exogenous variables are not explained by the model, rather they are explained by

factors outside of the model such as gender, age, and socioeconomic status. Endogenous latent variables act as the dependent variables in an SEM as they are influenced by exogenous variables either directly or indirectly. Fluctuation in the values of endogenous variables is explained within the model because all of the variables that influence them are included in the model specifications (Ullman & Bentler, 2003). The exogenous variables in this study are burnout and emotional intelligence, while the rest are endogenous.

Due to the strong assumption of multivariate normality required for an SEM, and the fact that outliers can severely distort model fit, the first step in the analysis was to clean up the data. I utilized the Analysis of Moment Structures (AMOS) program to examine skewness, kurtosis and other outlier information (Byrne, 2016). I first created a path diagram using AMOS. Figure 9 illustrates an example of an AMOS path diagram (a visual portrayal of relations between variables) depicting Maslach's three-factor model of burnout. Measured (or observed) variables are shown in rectangles, and unmeasured (latent) variables are shown as ellipses. The model for burnout depicts three latent constructs (Emotional Exhaustion, Depersonalization, and Personal Accomplishment). Items 1-22 depict the 22 observed variables (the items on the survey).

Figure 9

AMOS hypothesized model for Maslach Burnout Inventory (Byrne, 2016)



These items serve as indicators for their associated latent variables. There are also error terms associated with each observed variable which are depicted as circles to the right of each item. The one-way arrows depict structural regression coefficients, indicating the impact of one variable on another. Therefore, the one-way arrows leading from the latent variables to their respective observational indicators describe a relationship in which the scores on the latter are caused by the former.

Similarly, the one-way arrows from the error to the items indicate that the observed variable is influenced by random measurement error. The intercorrelation of the latent variables is indicated by the curved two-way arrows. The 1's assigned to the factor loadings are associated with model identification issues and the scaling of unobservable factors, while those associated with error terms represent known values.

In assessing the fit of individual parameters in the model, there are three elements which I had to determine. These include 1) the feasibility of the parameter estimates, 2) the appropriateness of the standard errors, and 3) the statistical significance of the parameter estimates. In AMOS, factor loading estimates are reported as regression weights. For each parameter, the AMOS output provided us with its estimated value, standard error, and critical ratio (statistical significance). This is depicted in Figure 10.

Figure 10

Statistical parameter estimates for a hypothesized model of MBI structure (Byrne 2016)

Regression Weights:	Estimate	S.E.	C.R.
ITEM20 <- - - - - EMOTIONAL_EXHAUSTION	0.820	0.044	18.561
ITEM16 <- - - - - EMOTIONAL_EXHAUSTION	0.755	0.048	15.817
ITEM14 <- - - - - EMOTIONAL_EXHAUSTION	0.927	0.057	16.240
ITEM13 <- - - - - EMOTIONAL_EXHAUSTION	1.009	0.053	19.168
ITEM8 <- - - - - EMOTIONAL_EXHAUSTION	1.204	0.054	22.338
ITEM6 <- - - - - EMOTIONAL_EXHAUSTION	0.812	0.052	15.554
ITEM3 <- - - - - EMOTIONAL_EXHAUSTION	0.983	0.052	18.750
ITEM2 <- - - - - EMOTIONAL_EXHAUSTION	0.921	0.048	19.162
ITEM1 <- - - - - EMOTIONAL_EXHAUSTION	1.000		
	.		
	.		
	.		
Covariances:			
EMOTIONAL_EXHAUS <> PERSONAL_ACCOMPL	-0.254	0.037	-6.842
EMOTIONAL_EXHAUS <> DEPERSONAL-IZAT	0.688	0.077	8.912
DEPERSONAL-IZAT <> PERSONAL_ACCOMPL	-0.184	0.028	-6.514
Variances:			
EMOTIONAL_EXHAUSTION	1.657	0.153	10.848
DEPERSONAL-IZATION	0.723	0.104	6.955
PERSONAL_ACCOMPLISHMENT	0.174	0.034	5.149
err20	0.954	0.062	15.333
err16	1.363	0.085	16.020
err14	1.897	0.119	15.937
err13	1.281	0.085	15.115
err8	0.886	0.068	13.095
err6	1.655	0.103	16.068
err3	1.322	0.087	15.269
err2	1.067	0.071	15.118
err1	1.095	0.074	14.832

I chose SEM as the method for this dissertation because this study collected actual data and used it to test hypotheses based on a phenomenon, which in this case, is my theoretical model of burnout and team variables. Additionally, SEM was appropriate for this study because it is a confirmatory technique used to test a hypothesis-driven model, determine model fit, and provide explicit estimate of error variance parameters (Ullman & Bentler, 2003). Other models such as those rooted in general linear model and regression assume that errors in the explanatory (independent) variables vanish. To assume this when there is error in the explanatory variables may lead to inaccuracy in the measurement (Hoyle, 1995). Finally, an SEM was well suited to analyze data for inferential purposes, as opposed to other multivariate procedures which are descriptive by nature (i.e., exploratory factor analysis) which makes hypothesis testing difficult (Hoyle, 1995).

The first thing I did was run a CFA to assess the covariance between the observed variables and shed light on the nature of their underlying factors or latent constructs, as well as determine goodness of model fit (Ullman & Bentler, 2003). The CFA process allowed me to validate whether the data supported the relationships between the latent variables and their observed variable indicators. After the CFA validated the directional relationship between latent variables, the SEM analysis was conducted. The following CFA and full SEM analysis process were utilized in this study (Byrne, 2016):

1. Constructed path diagram in AMOS by connecting observed variables to their latent variable constructs without implying directionality.

2. Conducted CFA to determine fit of model, using model fit indices, including Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and Root Mean Square Error of Approximation (RMSEA).
3. Assessed model for normality and outliers.
4. Assessed reliability and validity of model.
5. Completed post-hoc analysis and model re-specification, as required, in accordance with CFA results. This step was completed prior to running full SEM, to adjust for any issues determined with reliability and validity of the constructs as originally modeled.
6. Modified the path diagram in SPSS AMOS used for CFA to indicate directionality of hypotheses by changing the solid lines to be arrows flowing in the direction of the expected relationship.
7. Performed full SEM analysis to evaluate model fit, using same analysis techniques as listed in Step 2.
8. Performed hypothesis testing by evaluating standard regression weights, t-values, and p-values.
9. Completed a post-hoc analysis by reviewing modification indices (MI) to evaluate the model for potential new relationships that may be validated through additional research and could result in re-specification of the model.
10. Made required modifications until desired model fit is achieved. Report whether each hypothesis is supported or is not.

Chapter 3 Summary

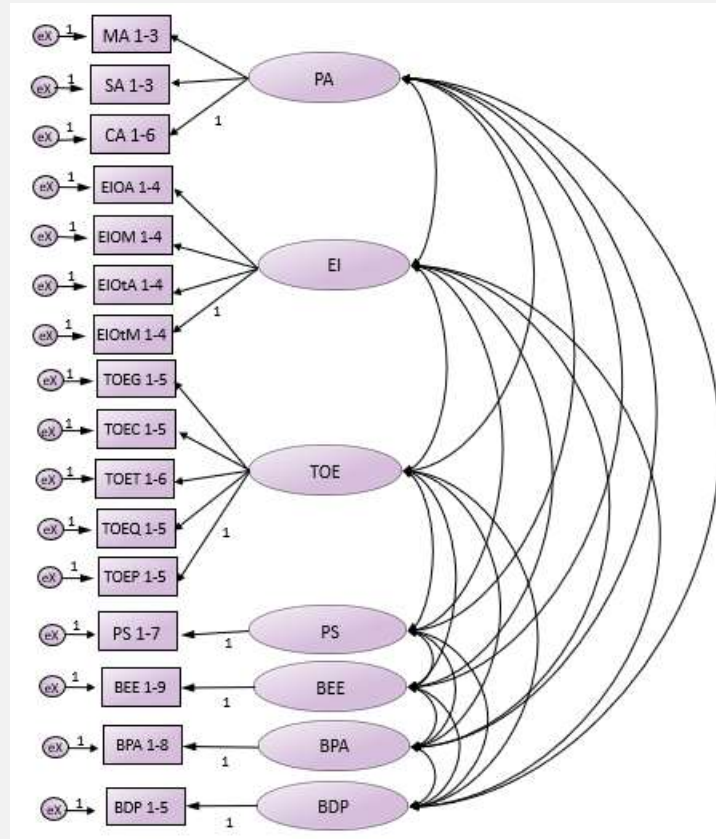
The chapter presented the methodology for data collection in this study as well as the various scales that were used. These metrics were used to investigate the team and individual factors that influence burnout among healthcare providers.

Chapter 4: Results

This study examined the extent to which certain factors of the team and individual team members influence burnout in healthcare providers.

Figure 11

Proposed CFA Model



Note. EI = Emotional Intelligence; EIOA = EI (Own Aware); EIOM = EI (Own Manage); EIOtA = EI (Other Aware); EIOtM = EI (Other Manage); TOE = Team Outcome Effectiveness; TOEG = TOE (Goals); TOEC = TOE (Customers); TOET = TOE (Timeliness); TOEQ = TOE (Quality); TOEP = TOE (Productivity); PA = Perceived Autonomy Scale; MA = Method Autonomy; SA = Schedule Autonomy; CA = Criteria Autonomy; PS = Psychological Safety Scale; BEE = Burnout Emotional Exhaustion; BPA = Burnout Personal Accomplishment; BDP = Burnout Depersonalization.

Present Study

Originally three medical centers were selected as the sample population for this study. Due to time restrictions, Medical Center 3 was unable to receive IRB approval and therefore is not represented in this study. After receiving IRB approval, I worked with Medical Center 1 (MC1) and Medical Center 2 (MC2) to distribute surveys.

Summary of Initial Data Screening. Survey responses were placed in Microsoft Excel for initial data screening before being exported to SPSS for analysis. In total, 245 responses were received. Then, 50 responses were removed for missing 10% or more of the survey questions, leaving 195 responses. Surveys missing 10% or more data were removed because in order to run modification indices (MI) for an SEM, you must have no missing data. Data can be imputed, however Dong & Peng (2013) suggest that you not impute more than 10% of missing data on a survey.

Demographics. The demographic data collected for this study included institutional affiliation, clinical role, clinical team, years in team, and years in healthcare. The complete demographic characteristics for this study can be found in Table 6 and Table 7.

Institution. MC1 represented a significant majority of survey responses (92.7%) compared to MC2 (7.3%).

Clinical Role. The majority of respondents were physicians (40.3%) with nurses representing the second most (32.5%) followed by advanced practice providers (18.8%) and other (7.95%).

Clinical Team. The vast majority of respondents identified with the perioperative clinical team (73.8%) while hospitalists (11.5%), palliative care (7.9%), and other (6.3%) made up less than a quarter of respondents.

Years in Team. Respondents indicated a range of years in their clinical team from zero to 40, with a mean of 8.1 years.

Years in Healthcare. Respondents indicated a range of years working in healthcare from 2 to 45, with a mean of 17 years.

Table 6

Summary of Demographic Characteristics

Characteristics	Subgroup Category	Frequency (N = 191)	Percentage
Institution	MC1	177	92.7%
	MC2	14	7.3%
Clinical Role	Physician	77	40.3%
	Nurse	62	32.5%
	Advanced Practice Provider	36	18.8%
	Other	15	7.9%
Clinical Team	Perioperative	141	73.8%
	Hospitalist	22	11.5%
	Palliative Care	15	7.9%
	Other	12	6.3%

Table 7

Summary of Demographic Characteristics: Experience

Characteristics	N	Minimum	Maximum	Mean	Std. Deviation
Years in Team	180	0	40	8.1	7.42
Years in Healthcare	180	2	45	17	10.35

Descriptive Statistics. In this section I present the descriptive statistics for each of the constructs including mean, standard deviation (SD), kurtosis, and skewness. The present study surveyed healthcare providers to gain insight on the influence of emotional intelligence on the three constructs of team outcome effectiveness, psychological safety, perceived autonomy, as well as the influence of these four constructs on burnout.

Team Outcome Effectiveness (TOE) scores across all subscales were relatively high with an average composite score of 140.97/186 (75%) with a standard deviation of 25.78. Average scores for each subscale were over 5 (Slightly accurate) while TOE Goals and TOE Customers trended toward 6 (Mostly accurate). The result implies that participants feel slightly to mostly positive about their team's effectiveness across subscales. TOE Customers had the highest average scores (5.85) and average composite scores (28.65) with a standard deviation of 5.01. TOE Productivity had the lowest average scores (5.25) and average composite scores (25.89) with a standard deviation of 6.34. Table 8 displays the descriptive statistics for TOE.

Table 8*Descriptive Statistics for Constructs and Item Questions: Team Outcome Effectiveness*

Constructs	Item Questions	Mean (N = 191)	Average Score for Construct	Average Sum Mean for Construct	SD	Average SD for Construct	Skewness	Kurtosis
TOE	26	-	5.48	140.97		25.78	-1.425	4.465
TOEG	TOEG1	5.60			1.24		-1.407	2.117
	TOEG2	5.70			1.10		-1.678	4.040
	TOEG3	5.64	5.65	28.11	1.12	5.72	-1.412	2.979
	TOEG4	5.57			1.12		-1.506	3.297
	TOEG5	5.76			1.14		-1.651	4.044
TOEC	TOEC1	5.79			.97		-.885	.258
	TOEC2	5.83			.93		-.960	.635
	TOEC3	5.98	5.85	28.65	1.03	5.01	-1.373	2.222
	TOEC4	6.02			.95		-1.226	1.522
	TOEC5	5.65			1.15		-.981	.951
TOET	TOET1	5.72			1.11		-1.337	2.392
	TOET2	4.75			1.76		-.387	-.978
	TOET3	5.69	5.32	31.79	1.19	7.05	-1.473	2.474
	TOET4	5.08			1.74		-.606	-.781
	TOET5	5.29			1.46		-1.120	.684
	TOET6	5.40			1.42		-1.353	1.665
TOEQ	TOEQ1	5.37			1.22		-.652	-.137
	TOEQ2	6.04			1.01		-1.350	2.833
	TOEQ3	5.95	5.36	26.51	1.09	5.66	-1.047	.678
	TOEQ4	5.00			1.57		-.882	.096
	TOEQ5	4.44			1.70		.011	-1.148
TOEP	TOEP1	4.76			1.82		-.340	-1.132
	TOEP2	5.74			1.24		-1.253	1.578
	TOEP3	5.15	5.25	25.89	1.64	6.34	-.504	-.971
	TOEP4	5.24			1.29		-.620	.011
	TOEP5	5.37			1.39		-1.026	.584

Note. TOE = Team Outcome Effectiveness; TOEG = TOE (Goals); TOEC = TOE (Customers); TOET = TOE (Timeliness); TOEQ = TOE (Quality); TOEP = TOE (Productivity).

Note. TOE was measured on a 7-point Likert scale from 1 (very inaccurate) to 7 (very accurate). A participant's final score is a composite score calculated by adding their responses to each of the survey items, with 186 being the highest possible score and 26 being the lowest possible score. There are no distinct cutoffs for scoring this scale. A higher combined score indicates a higher level of team outcome effectiveness. The highest composite score for each subscale is 35, except for TOET, which is 42.

Perceived Autonomy (PA) was scored on a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree). Possible composite scores range from 9 (lowest) to 45 (highest). The average composite score for all participants across subscales was 27.06/45 (60%) with an SD of 6.76. The average score across subscales was 3.01, which falls on Neither Agree or Disagree. These results indicate that when averaged across subscales, participants were generally neutral in their perception of their work autonomy. Method Autonomy had the highest mean score (3.54; SD 3.04) followed by Criteria Autonomy (2.77; SD 2.55) and Schedule Autonomy (2.71; SD 2.84). This result tells us that participants perceived slightly greater method autonomy (the degree of choice individuals have regarding the procedures/methods they utilize in completing their work) than criteria autonomy (the degree to which workers have the ability to modify/choose the criteria used for evaluating their performance) or scheduling autonomy (the extent to which workers feel they can control the scheduling/sequencing/timing of their work) which both indicated average scores on the disagree side of neutral. Table 9 displays the descriptive statistics for PA.

Table 9*Descriptive Statistics for Constructs and Item Questions: Perceived Autonomy*

Constructs	Item Questions	Mean (N = 191)	Average Score for Construct	Average Sum for Construct	SD	Average SD for Construct	Skewness	Kurtosis
PA Total	9	-	3.01	27.06	-	6.76	.108	.350
MA	MA1	3.54			1.07		-.777	-.164
	MA2	3.49	3.54		1.08	3.04	-.679	-.358
	MA3	3.59		10.60	1.04		-.670	-.179
SA	SA1	2.41			1.21		.510	-.764
	SA2	3.08	2.71		1.15	2.84	-.280	-.984
	SA3	2.65		8.11	1.10		.303	-.681
CA	CA1	2.60			.94		.231	-.542
	CA2	2.72	2.77		1.01	2.55	.172	-.703
	CA3	3.01		8.34	1.05		-.319	-.801

Note. PA = Perceived Autonomy Scale; MA = Method Autonomy; SA = Schedule Autonomy; CA = Criteria Autonomy; PS = Psychological Safety Scale; BEE = Burnout Emotional Exhaustion; BPA = Burnout Personal Accomplishment; BDP = Burnout Depersonalization.

Note. PA was measured on a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree). A participant's final score is a composite score calculated by adding their responses to each of the survey items, with 45 being the highest possible score and 9 being the lowest possible score. There are no distinct cutoffs for scoring this scale. A higher combined score indicates a higher level of team outcome effectiveness. The highest possible composite score for each subscale is 15.

Psychological Safety (PS) was scored on a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree). Possible composite scores range from 7 (lowest) to 35 (highest). The average composite score for all participants across subscales was 20.76/35 (59%) with an SD of 4.39. The average score across subscales was 3.21 which trends slightly to the agree side of Neither Agree or Disagree. These results indicate that when averaged across subscales, participants were generally neutral in their perception of their psychological safety. Within the construct of PS, PS5 (It is difficult to ask other members of this team for help) was rated the highest (3.80; SD 1.05) and PS4 (It is safe to take a risk on this team) was rated the lowest (2.63; SD 1.02). Table 10 displays the descriptive statistics for PS.

Table 10

Descriptive Statistics for Constructs and Item Questions: Psychological Safety

Constructs	Item Questions	Mean (N = 191)	Average Score for Construct	Average Sum Mean for Construct	SD	Average SD for Construct	Skewness	Kurtosis
PS	7	-			-		-.125	.331
	PS1	2.96			1.09		-.253	-.725
	PS2	3.31			1.18		-.593	-.716
	PS3	3.04	3.21	20.76	1.17	4.39	-.042	-1.062
	PS4	2.63			1.02		-.011	-.949
	PS5	3.80			1.05		-1.007	.530
	PS6	3.18			1.12		-.211	-.894
	PS7	3.56			.92		-.690	.443

Note. PS = Psychological Safety Scale

The EI construct is composed of 4 separate constructs including Own Aware (EIOA), Own Manage (EIOM), Other Aware (EIOtA), and Other Manage (EIOtM). The different constructs assess an individual's awareness and management ability of their own emotions and the emotions of others. The constructs were assessed separately, and a composite EI score was calculated by adding the average score of each subscale. Emotional Intelligence (EI) scores across all subscales were slightly higher than neutral with a composite score of 19.83/28 (67%) and a standard deviation of 3.12. The overarching EI score average was 4.96 which falls almost exactly on the *Somewhat agree* choice option. The result implies that participants across subscales were somewhat in agreeance with the emotional intelligence questions but did not feel particularly strong in either direction. It is also worth noting that EIOA had the lowest mean and the highest variance (4.38; SD 1.53), while EIOM had the highest mean and the lowest variance (5.67; SD .83). These results imply that participants were significantly better at managing their own emotions than being aware of them in the first place. Average scores for EI Other Aware (4.92; 1.48) and EI Other Manage (4.88; SD 1.02) were very similar and fell on the lower side between the two EI *Own* variables. Table 11 displays the descriptive statistics for EI.

Table 11*Descriptive Statistics for Constructs and Item Questions: Emotional Intelligence*

Constructs	Item Questions	Mean (N = 191)	Average Score for Construct	SD	Average SD for Construct	Skewness	Kurtosis
EI	16	-	19.85*	-	3.12	-.593	1.980
EIOA	EIOA1	4.40	4.38	1.63	1.53	-.597	-.693
	EIOA2	4.52		1.62		-.696	-.367
	EIOA3	4.16		1.67		-.315	-.849
	EIOA4	4.42		1.66		-.565	-.680
EIOM	EIOM1	5.57	5.67	1.20	.83	-1.282	2.639
	EIOM2	5.23		1.35		-1.148	1.184
	EIOM3	5.93		.93		-1.342	3.792
	EIOM4	5.94		.91		-1.349	3.323
EIOtA	EIOtA1	4.92	4.92	1.23	1.48	-.660	.441
	EIOtA2	4.74		1.24		-.771	.806
	EIOtA3	5.12		1.10		-.457	.385
	EIOtA4	4.91		1.13		-.615	1.257
EIOtM	EIOtM1	5.04	4.88	1.16	1.02	-.688	.855
	EIOtM2	5.06		1.10		-.679	1.136
	EIOtM3	4.68		1.22		-.507	.418
	EIOtM4	4.74		1.14		-.315	.572

Note. EI = Emotional Intelligence; EIOA = EI (Own Aware); EIOM = EI (Own Manage); EIOtA = EI (Other Aware); EIOtM = EI (Other Manage).

* 19.83 is the *sum* of the average scores for each subscale.

Burnout is composed of 3 separate constructs including Emotional Exhaustion (BEE), Depersonalization (BDP), and Personal Accomplishment (BPA). Burnout was assessed using a 7-point Likert scale which questioned participants about the frequency with which they experience each item. These frequencies range from Never (0) to Every Day (6). Table 12 displays the descriptive statistics for Burnout. The composite score for BEE was 23.85 which indicates a moderate level of burnout (moderate cutoff range for BEE: 19 - 26). The BEE item with the highest average score was BEE2 (3.93; "I feel used up at the end of the work day"). The BEE item with the lowest average score was BEE8 (1.38; "I feel like I'm at the end of my rope").

The composite score for BPA was 36.61 which also indicates a moderate level of burnout (moderate cutoff range for BPA: 34 - 39). The highest BPA item was BPA5 (5.17; "I can easily create a relaxed atmosphere with patients"). The lowest BPA items was BPA6 (3.99; "I feel exhilarated after working closely with patients").

The composite score for BDP was 5.59 which is just on the threshold of a low and moderate level of burnout (moderate cutoff range for BDP: 6 - 9). The highest item score for BDP was BDP3 (1.78; "I worry that this job is hardening me emotionally") while the lowest score was BDP 4 (.30; "I don't really care what happens to some patients"). Item BDP 3 also had the highest amount of variance than any other item (SD 1.90) while BDP4 had the lowest variance of any item (.85) and is the only item which no participant indicated the most severe response "Every Day".

These results tell us that providers report a moderate level of emotional exhaustion and diminished feelings personal accomplishment, as well as a slightly lower level of depersonalization. It is also noteworthy that the construct of BEE displayed the highest amount of variance (SD 12.59) compared to BPA (SD 8.43) and BDP (SD 5.73).

Table 12*Descriptive Statistics for Constructs and Item Questions: Burnout*

Constructs	Item Questions	Mean (N = 191)	Average Score for Construct	Average Sum Mean for Construct	SD	Average SD for Construct	Skewness	Kurtosis
Burnout	22	-		-	-	-	-	-
BEE	BEE1	3.64			1.63		-.264	-.982
	BEE2	3.93			1.58		-.399	-.613
	BEE3	3.53			1.85		-.317	-1.079
	BEE4	1.90			1.83		.639	-.779
	BEE5	2.80	2.67	23.85	1.85	12.59	.329	-1.131
	BEE6	2.86			1.88		.265	-1.097
	BEE7	1.49			1.60		.991	.040
	BEE8	1.38			1.77		1.212	.438
	BEE9	2.50			1.95		.316	-1.254
BPA	BPA1	5.02			1.36		1.622	2.384
	BPA2	5.08			1.30		1.822	3.576
	BPA3	4.76			1.47		1.152	.743
	BPA4	3.84	4.57	36.53	1.58	8.43	.419	-.445
	BPA5	5.17			1.16		1.610	2.743
	BPA6	3.99			1.74		.619	-.598
	BPA7	4.09			1.76		.690	-.607
	BPA8	4.58			1.43		.884	.079
BDP	BDP1	.99			1.53		1.484	1.171
	BDP2	1.46			1.85		1.205	.249
	BDP3	1.78	1.12	5.59	1.90	5.73	.913	-.401
	BDP4	.30			.85		3.263	10.852
	BDP5	1.07			1.60		1.690	1.922

Note. BEE = Burnout Emotional Exhaustion; BPA = Burnout Personal Accomplishment; BDP = Burnout Depersonalization. Response options included 0 = Never; 1 = A few times a year; 2 = Monthly; 3 = Few times a month; 4 = Every week; 5 = A few times a week; 6 = Every Day. BPA items were reverse coded since the phrasing was positive (e.g., “I can easily understand how my patients feel about things”) a lower score is indicative of higher burnout.

An initial evaluation of normality was carried out using skewness and kurtosis values from SPSS output as shown in the descriptive statistics table for each construct (Tables 8 – 12). Items

displayed both positive and negative skewness values. Out of 80 items, 24 were positively skewed (30%). Positive skewness values for items ranged from TOEQ (.011) to BDP4 (3.263). Negative skewness values ranged from PS4 (-.11) to TOEG2 (-1.678).

For kurtosis, items also displayed both positive and negative values. Out of 80 items, 45 (56%) had positive kurtosis (leptokurtic) and 35 (43%) had negative kurtosis (platykurtic). Positive skewness values ranged from TOEP4 (.011) to BDP4 (10.852). Negative kurtosis values ranged from TOEQ1 (-.137) to BEE9 (-1.254).

Generally, skewness values between +1 and -1 and kurtosis values between +7 and -7 are considered acceptable to meet the assumption of normality (Byrne, 2016). Considering this, 22 (28%) of survey items did not meet the criteria. However, Singh and Sharma (2016) suggest that normality is acceptable with absolute values of skewness between +2 and -2. Given the most liberal acceptable cutoffs, only item BDP4 (“I don't really care what happens to some patients”) did not meet the criteria for normal data, as its kurtosis value was 10.852.

Confirmatory Factor Analysis (CFA). SPSS was utilized for the CFA process which included initial data screening and analysis and an evaluation of the results. Covariances were added between all latent variables in the proposed model, and each observed variable was loaded onto only one factor. Finally, error terms associated with the observed variables were uncorrelated.

Missing data. Out of the 245 total responses received, 51 cases were removed from further analysis for missing 10% or more data points as statistical guidance articles have stated that bias is likely in analyses with more than 10% missing (Dong & Peng, 2013). The remainder of the cases that were missing less than 10% of their total responses had missing values replaced with valid

values from similar observations in the sample. The new values were retained for the analysis. A sample of 195 cases were retained for further analysis.

Outliers. Outliers were assessed by examining distance from the centroid (Mahalanobis distance) values from AMOS output. Outliers were classified as Mahalanobis distance (D^2) values that were distinct from other values. Following this process, an additional 4 cases were removed due to distinctly outlying D^2 values. After deleting cases due to missing data and D^2 values, a sample of 191 cases were retained and used to conduct the CFA process.

Model Evaluation. An evaluation of the CFA model fit was performed using Goodness-of-fit (GOF) indices. The results of the model fit summary are presented in Table 13.

Table 13

Model Fit Indices for CFA Models

Construct	CFI	NFI	RMSEA	Chi-Square	Acceptable (Yes/No)
Burnout	.819	.760	0.106	654.882	No
TOE	.864	.818	0.108	948.369	No
EI	.944	.904	0.944	216.461	No
PA	.972	.950	.078	52.217	Yes
PS	.928	.890	.088	35.19	No

Note. Standard values are as follows: CFI \geq .90; NFI \geq .90; RMSEA \leq .08

A comparison of these results indicates that the model fit was unacceptable for four of the five constructs due to low CFI for burnout (0.819) and TOE (0.864), and high RMSEA for EI (0.944) and PS (0.088). PA was the only construct that indicated a good fit on all indicators. Goodness of Fit (GFI) and Adjusted Goodness of Fit (AGFI) could not be calculated for CFA models due to missing data. The missing data was later imputed for the structural equation

modeling. The next step in the analysis is checking the reliability and validity of the model. Construct Reliability (CR) was calculated by inputting standard regression weights (factor loadings) and the error variances from Amos output into Microsoft Excel for analysis. Average variance explained (AVE) and maximum shared variance (MSV) were also reported. AVE should be at least .50 for acceptable discriminate validity while MSV must not exceed AVE. If either of these values did not fit these criteria, it is indicated below. CR, AVE and MSV could not be calculated for psychological safety, because the construct has no sub-scales to correlate. Table 14 shows this analysis for each construct.

Table 14

Reliability Analysis and Validity – CFA Models

Constructs (CFA)	Item Questions	Factor Loadings ($\geq .5$)	CR ($\geq .7$)	α	AVE	MSV
Emotional Intelligence	EIOA1	0.882	.946	.881	.816	.135
	EIOA2	0.965				
	EIOA3	0.817				
	EIOA4	0.942				
	EIOM1	0.513	.767		.466*	.244
	EIOM2	0.487				
	EIOM3	0.804				
	EIOM4	0.846				
	EIOtA1	0.835	.881		.649	.244
	EIOtA2	0.837				
	EIOtA3	0.807				
	EIOtA4	0.74				
	EIOtM1	0.74	.910		.717	.213
	EIOtM2	0.847				
	EIOtM3	0.862				
	EIOtM4	0.928				
Burnout	BEE1	0.822	.926	.789	.587	.349
	BEE2	0.768				
	BEE3	0.737				
	BEE4	0.632				
	BEE5	0.942				
	BEE6	0.864				

	BEE7	0.573				
	BEE8	0.802				
	BEE9	0.685				
	BPA1	0.593	.868		.452*	.154
	BPA2	0.681				
	BPA3	0.784				
	BPA4	0.632				
	BPA5	0.659				
	BPA6	0.654				
	BPA7	0.72				
	BPA8	0.64				
	BDP1	0.648	.789		.450*	.349
	BDP2	0.928				
	BDP3	0.777				
	BDP4	0.441				
	BDP5	0.412				
Perceived Autonomy	MA1	0.934	.934	.871	.826	.232
	MA2	0.909				
	MA3	0.882				
	SA1	0.604	.787		.557	.483
	SA2	0.744				
	SA3	0.867				
	CA1	0.674	.816		.599	.483
	CA2	0.879				
	CA3	0.755				
Psychological Safety	PS1	0.697	X	.787	X	X
	PS2	0.608				
	PS3	0.641				
	PS4	0.607				
	PS5	0.391				
	PS6	0.566				
	PS7	0.608				
Team Outcome Effectiveness	TOEG1	0.91	.968	.959	.859	.534
	TOEG2	0.929				
	TOEG3	0.946				
	TOEG4	0.957				
	TOEG5	0.891				
	TOEC1	0.871	.944		.771	.682
	TOEC2	0.882				
	TOEC3	0.915				
	TOEC4	0.925				
	TOEC5	0.792				
	TOET1	0.753	.882		.555	.823*
	TOET2	0.668				
	TOET3	0.809				
	TOET4	0.708				
	TOET5	0.807				
TOET6	0.716					
TOEQ1	0.78	.878		.594	.787*	
TOEQ2	0.856					

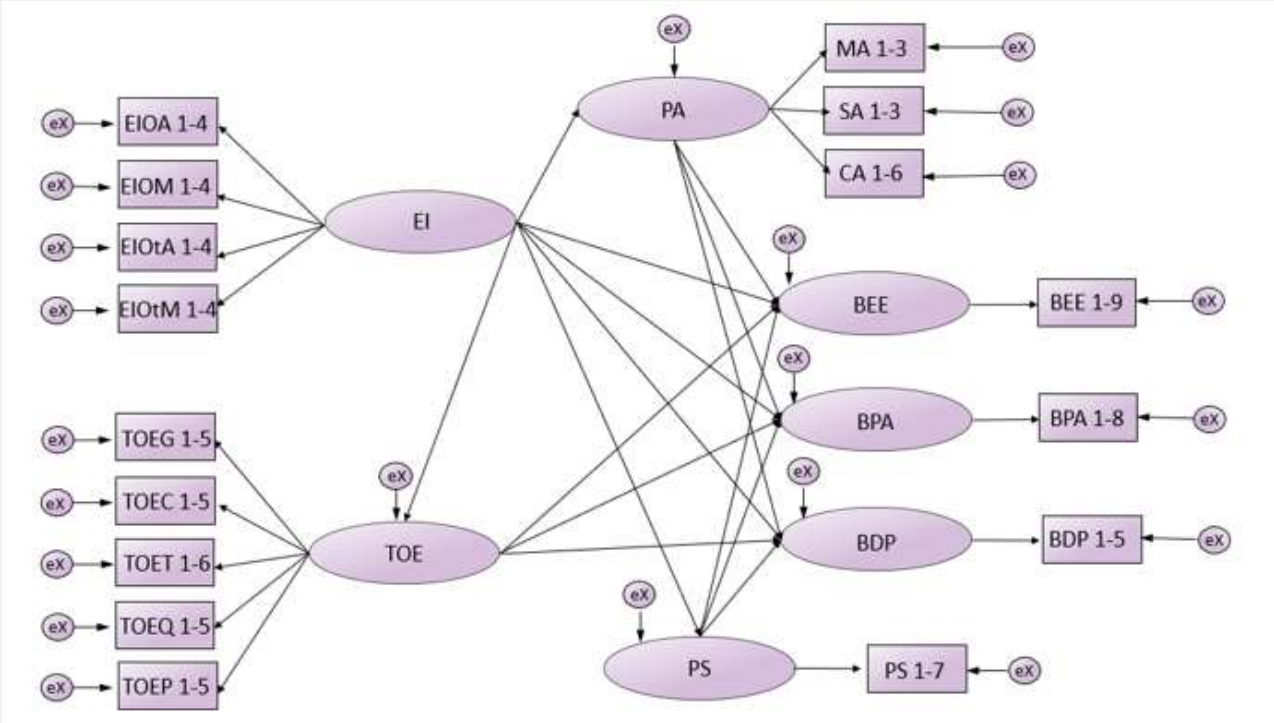
TOEQ3	0.888			
TOEQ4	0.668			
TOEQ5	0.629			
TOEP1	0.445	.841	.526	.823*
TOEP2	0.799			
TOEP3	0.628			
TOEP4	0.786			
TOEP5	0.885			

Note. * Indicates construct did not meet statistical criteria.

Structural Equation Modeling (SEM). After completing the CFA, an SEM was conducted using IBM SPSS AMOS v27. The SEM model allows the application of structural theory by detailing related constructs and the type of each relationship, as opposed to the CFA which is used as a measurement model that represents all constructs and the relationships between them (Hair et al. 2015).

Figure 12

Initial SEM Model (Hypothesized model)



Note. EI = Emotional Intelligence; EIOA = EI (Own Aware); EIOM = EI (Own Manage); EIOtA = EI (Other Aware); EIOtM = EI (Other Manage); TOE = Team Outcome Effectiveness; TOEG = TOE (Goals); TOEC = TOE (Customers); TOET = TOE (Timeliness); TOEQ = TOE (Quality); TOEP = TOE (Productivity); PA = Perceived Autonomy Scale; MA = Method Autonomy; SA = Schedule Autonomy; CA = Criteria Autonomy; PS = Psychological Safety Scale; BEE = Burnout Emotional Exhaustion; BPA = Burnout Personal Accomplishment; BDP = Burnout Depersonalization.

The structural model depicted in Figure 12 was developed from the initial CFA model by deleting covariances between factors, fixing residual items to dependent variables, and inserting on-way arrows to represent hypotheses.

Model Evaluation. Evaluation of the SEM model followed the same process used in the CFA model to assess normality, as well as the same goodness-of-fit indices for model fit. As shown in Table 15, the model fit indices displayed unacceptable results which shows that the model fit was unacceptable. GI and AGFI values were not assessed in this model because of missing values in the data.

Table 15*Fit Indices for Proposed SEM Model*

Metrics	Standard Values	Proposed Model	Acceptable (Yes/No)
CFI	≥ 0.90	.590	No
RMSEA	≤ 0.08	.092	No
GFI	≥ 0.90	-	N/A
AGFI	≥ 0.90	-	N/A
NFI	≥ 0.90	.479	No
ECVI	< other models	43.231*	No
AIC	< other models	8650.627*	No
BIC	< other models	9016.202	Yes
Chi-Squared	-	8140.627	-
DF	-	3065	-

* Asterisk indicates that the value was higher than that of the independent or saturated model.

Hypothesis Testing – SEM Proposed Model. Testing for the various hypotheses for the SEM model was done using AMOS output. Relationships are supported as statistically significant if the absolute value of the Critical Ratio (t-value) is greater than 1.96 and the p-value is less than .05. The standardized regression weights (estimates) were also used to assess the relative strengths of the relationship, while unstandardized regression weights were used to report change in the predicted variables for each unit of change in the predictor. Results of hypotheses testing for the proposed SEM model are shown in Table 16.

Hypothesis 1 (H_1 : Psychological Safety negatively predicts burnout) was partially supported in the sense that was found to negatively predict Emotional Exhaustion with $EE t = -2.31$ and $p = .021$ while also positively predicting Personal Accomplishment PA $t = 2.39$ and $p = 0.02$. The results also show that a one-point increase in psychological safety leads to a decrease in

EE by 0.53 and an increase in PA by 0.34. The effect of psychological safety on the depersonalization subscale of burnout was not significant with $p = 0.152$.

Hypothesis 2 (H₂: Perceived autonomy negatively predicts burnout) was not supported for any of the three burnout subscales.

Hypothesis 3 (H₃: Team outcome effectiveness negatively predicts burnout) was supported for all three subscales of burnout. Emotional Exhaustion and Depersonalization were found to negatively predict burnout with EE $t = -3.7$ and $p < .001$ and DP $t = -4.70$ and $p < 0.001$. Personal Accomplishment displayed a significant positive relationship with $t = 5.80$ and $p < .001$, as hypothesized.

Hypothesis 4 (H₄: Emotional intelligence negatively predicts burnout) was partially supported, as the data showed a significant positive relationship between EI and the personal accomplishment subscale of burnout with PA $t = 2.17$ and $p = .003$.

Hypothesis 5 (H₅: Emotional intelligence positively predicts psychological safety) was supported with $t = 5.03$ and $p \leq .001$. The results also show that a one-point increase in EI leads to an increase in PS by 1.07.

Hypothesis 6 (H₆: Emotional Intelligence positively predicts perceived autonomy) was supported with $t = 4.65$ and $p \leq .001$. The results also show that a one-point increase in EI leads to an increase in PA by 0.93.

Hypothesis 7 (H₇: Emotional intelligence positively predicts team outcome effectiveness) was supported with $t = 4.44$ and $p \leq .001$. The results also show that a one-point increase in EI leads to an increase in TOE by 0.94.

Table 16*Hypotheses Testing for Proposed SEM Model*

Hypotheses	Estimates	t-value	p-value	Result
H ₁ : Psychological Safety negatively predicts Burnout.				
EE	-0.525	-2.307	0.021	S
DP	0.256	1.431	0.152	NS
PA	0.335	2.386	0.017	S
H ₂ : Perceived Autonomy negatively predicts Burnout.				
EE	-0.126	-1.161	0.246	NS
DP	0.078	0.895	0.371	NS
PA	0.024	0.375	0.708	NS
H ₃ : Team Outcome Effectiveness negatively predicts Burnout.				
EE	-0.379	-3.7	***	S
DP	-0.429	-4.704	***	S
PA	0.452	5.769	***	S
H ₄ : Emotional Intelligence negatively predicts Burnout.				
EE	0.171	0.5	0.617	NS
DP	-0.414	-1.473	0.141	NS
PA	0.484	2.165	0.03	S
H ₅ : Emotional Intelligence positively predicts Psychological Safety.	1.077	5.03	***	S
H ₆ : Emotional Intelligence positively predicts Perceived Autonomy.	0.935	4.648	***	S
H ₇ : Emotional Intelligence positively predicts Team Outcome Effectiveness.	0.943	4.435	***	S

Note. S = Supported; NS = Not Supported;

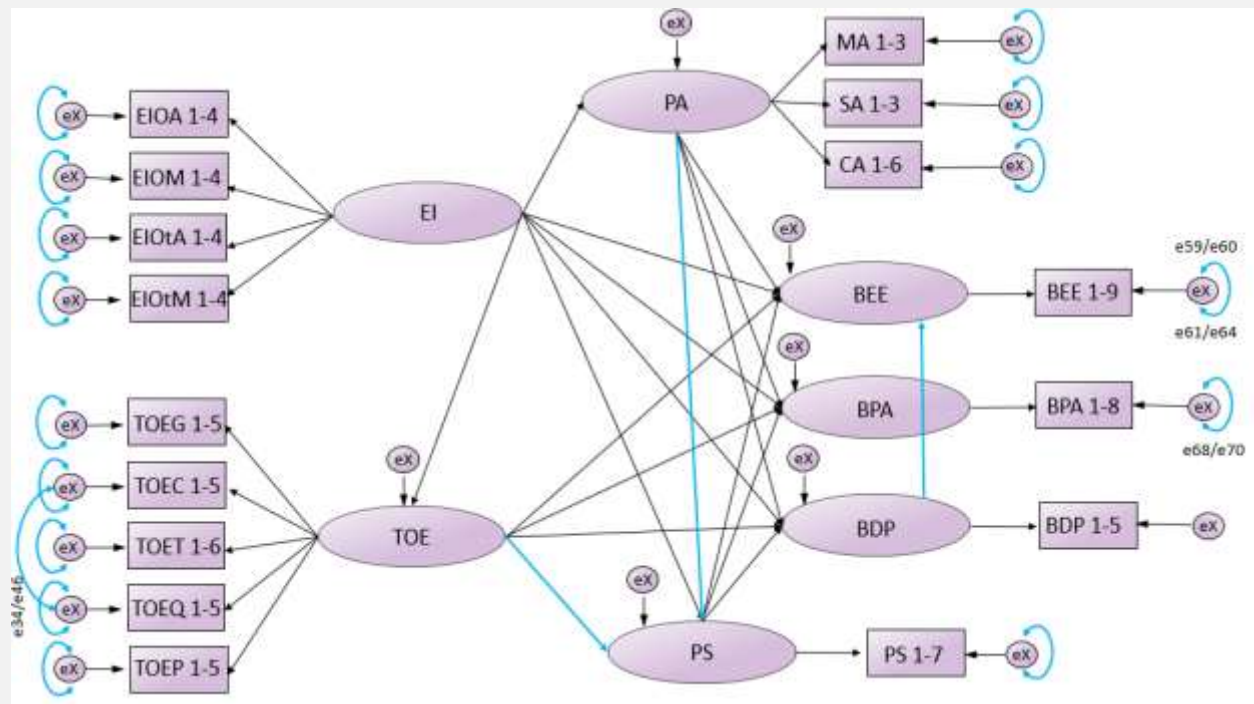
Note. *** $p < .001$. ** $p < .05$ *Hypothesis in reverse direction

Exploratory SEM Model. Considering the poor fit and several unsupported hypotheses in the proposed model, I began conducting exploratory analyses by respecifying the model. To view modification indices (MI), GFI, and AGFI, missing values in the dataset were replaced with valid values from similar observations in the sample. After rerunning the SEM with these imputed values, MIs were consulted to determine potential covariances which may improve model fit. In following this process, the model was respecified to covary items within their respective subscales,

except for within the burnout subscales which were covaried only between specific items in the subscales. In addition, some items which indicated a high correlation value were covaried across subscales (i.e., item 34 and item 45 in the TOE construct). Finally, one-way arrows were inserted between TOE and PS; PA and PS, and BDP and BEE. The exploratory SEM model is shown in Figure 13.

Figure 13

Exploratory SEM Model



Note. Straight blue arrows and curved blue double arrows indicate new relationships which I included in this respecified SEM model but were not included in the proposed model.

Model fit for exploratory SEM Model. Though there was significant improvement in the exploratory SEM model over the proposed SEM model, the model did not have a satisfactory model fit. The RMSEA value entered acceptable territory (RMSEA = 0.065), however the CFI did

not reach .90 (CFI = .80). In addition, several items that were covaried due to statistical correlation, did not appear to be related on a theoretical level. In other words, after a surface level assessment, I determined that some of these survey items were not similar questions and therefore should not be covaried in the model. Model fit statistics for the exploratory model are presented in Table 17.

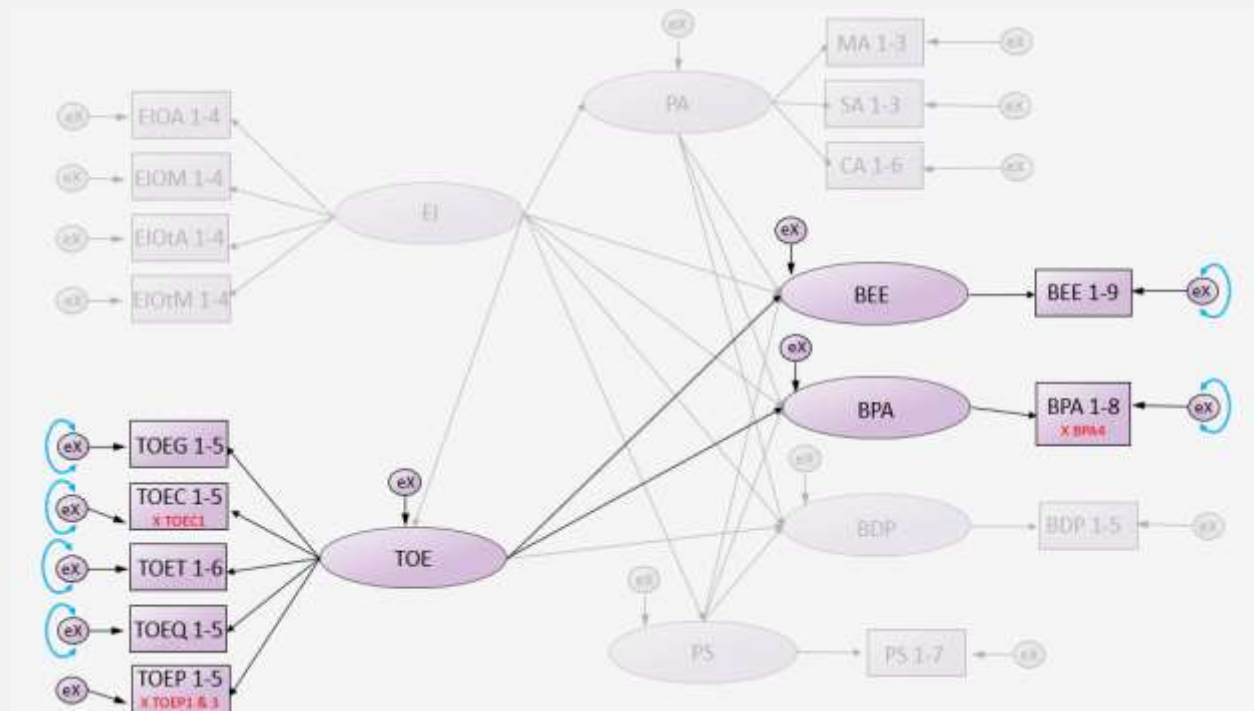
Table 17
Fit Indices for Exploratory SEM Model

Metrics	Standard Values	Exploratory Model	Acceptable (Yes/No)
CFI	≥ 0.90	.802	No
RMSEA	≤ 0.08	.065	Yes
GFI	≥ 0.90	.593	No
AGFI	≥ 0.90	.558	No
NFI	≥ 0.90	.647	No
ECVI	< other models	30.142	Yes
AIC	< other models	5867.282	Yes
BIC	< other models	6710.136	Yes
Chi-Squared	-	5347.282	-
DF	-	2980	-

Final SEM Model. I made one final attempt to achieve model fit through exploratory analysis by sequentially removing items, hypotheses (one-way arrows), and eventually entire constructs due to factor loading below .50. I continued this process until I reached acceptable CFI and RMSEA values. As a result of this process, the constructs of emotional intelligence, perceived autonomy, psychological safety, and the depersonalization subscale of burnout were removed from the model. In addition, several items on the remaining constructs were removed including TOEC1, TOEP1, TOEP3, and BPA4. Finally, errors were covaried for each subscale except for the productivity subscale of team outcome effectiveness (TOEP). Reliability analysis showed that each latent construct within the final SEM met the composite reliability standards of $\geq .70$ (TOE: .944; BEE: .922; BPA: .822).

Figure 14

Final SEM Model



Note. Blue double arrows indicate new relationships which I included in the final SEM model but were not included in the proposed model. Red text within the construct subscale boxes indicates items that were removed due to low factor loadings.

Model fit for Final SEM Model. The RMSEA and CFI values for the fit of the final SEM model were acceptable (RMSEA = 0.068; CFI = .903). ECVI, AIC and BIC values were also acceptable when compared to the independent and saturated models. However, GFI, AGFI, and NFI values were still not acceptable after all modifications (GFI = .744; AGFI = .706; NFI = .815). It is also worth noting that to achieve acceptable CFI and RMSEA values, 4/7 constructs from the original model had to be removed, including PA, PS, EI, and one of the three subscales for burnout:

depersonalization. Therefore, less than half of the survey items (39/80) are represented in the final model. Model fit statistics for the final SEM model are presented in Table 18.

Table 18

Fit Indices for Final SEM Model

Metrics	Standard Values	True Model	Acceptable (Yes/No)
CFI	≥ 0.90	.903	Yes
RMSEA	≤ 0.08	.068	Yes
GFI	≥ 0.90	.744	No
AGFI	≥ 0.90	.706	No
NFI	≥ 0.90	.815	No
ECVI	< other models	7.324	Yes
AIC	< other models	1473.553	Yes
BIC	< other models	1800.969	Yes
Chi-Squared	-	1271.551	-
DF	-	679	-

Hypotheses Testing – Final SEM Model. Testing for the various hypotheses for the final SEM model was done using AMOS output. Relationships are supported as statistically significant if the absolute value of the Critical Ratio (t-value) is greater than 1.96 and the p-value is less than .05. The standardized regression weights (estimates) were also used to assess the relative strengths of the relationship, while unstandardized regression weights were used to report change in the predicted variables for each unit of change in the predictor. Results of hypotheses testing for the final SEM model are shown in Table 19. Due to the deletion of PA, PS, EI, and burnout: depersonalization, the only hypothesis tested for the final SEM was Hypothesis 3.

Hypothesis 3 (H₃: Team outcome effectiveness negatively predicts burnout) was supported for each of the two remaining burnout subscales (EE & PA). The influence of TOE on burnout EE was supported ($p < .001$), and absolute $t > 1.96$ ($t = -5.52$), and data indicates that a one-point

increase in TOE leads to a 0.60 decrease in EE. The positive influence of TOE on burnout PA was also supported ($p < .001$), and absolute $t > 1.96$ ($t = 5.30$), and data indicates that a one-point increase in TOE leads to a 0.43 increase in EE, implying that higher TOE score have a positive influence on providers' perception of their personal accomplishment. R-squared values indicate that TOE explained ~19% of the variance in Emotional Exhaustion and ~25% of the variance in Personal Accomplishment. These data points are presented in Table 19.

Table 19

Hypotheses Testing for True SEM Model

Hypotheses	Estimates	R ²	t-value	p-value	Result
H ₃ : Team Outcome Effectiveness negatively predicts Burnout.					
EE	-0.603	.187	-5.523	***	S
PA	0.433	.247	5.296	***	S

Chapter Summary

This chapter presented results from the study. Demographic characteristics were summarized and showed that most respondents were from Medical Center 1, were physicians or nurses, and were in a perioperative clinical team. In terms of descriptive statistics, the mean, standard deviation (SD), kurtosis and skewness were presented for the latent factors that were postulated to influence providers' level of burnout.

The CFA measurement model of individual and team variables showed an unacceptable model fit with some convergent validity issues for Emotional Intelligence (Own Manage), Burnout (Depersonalization) and Burnout (Personal Accomplishment), as well as some discriminant validity issues with Team Outcome Effectiveness subscales for Productivity, Timeliness, and Quality.

The initial SEM depicting the proposed model did not have satisfactory model fit. Four hypotheses were supported (H₃, H₅, H₆, H₇), one hypothesis was not supported (H₂) and two hypotheses were partially supported (H₁, H₄).

I conducted a second, exploratory SEM, which demonstrated more desirable CFI and RMSEA values, but still did not indicate an acceptable model fit.

The final SEM model demonstrated acceptable CFI and RMSEA values, however this required the deletion of all constructs except for team outcome effectiveness, burnout emotional exhaustion and burnout personal accomplishment. The one remaining hypothesis (H₃) was supported for this model.

Chapter 5: Discussion

Overview

The current study examined the influence of individual and team characteristics on burnout in healthcare providers. Specifically, this research focused on the impact of a provider's emotional intelligence, perceived autonomy, psychological safety, and perceptions of team effectiveness on their level of experienced burnout as measured by the three separate constructs of emotional exhaustion, depersonalization, and feelings of personal accomplishment.

Survey data for the study was collected with an electronic questionnaire developed using both REDCap (used for Medical Center 1) and Qualtrics (used for Medical Center 2) and from a sample of participants recruited through convenience sampling of medical providers who were accessible through our project champions at each site. Next, the data analysis was conducted using CFA and SEM and the results of the study were presented in the previous chapter. This is the final chapter, and it presents a discussion of the results, asserts conclusions, and provides recommendations for future research.

Summary of Findings

Demographics. The demographic data collected for this study included institutional affiliation, clinical role, clinical team, years in team, and years in healthcare. In terms of which site respondents came from, MC1 represented a significant majority (92.7%) compared to MC2 (7.3%). This was not surprising to me because MC1 had a significant amount of buy-in and resources that they were able to dedicate to the study, as well as a site champion who worked closely with various heads of department and had previously spearheaded institution-wide studies.

The majority of respondents were also physicians (40.3%) with nurses representing the second most (32.5%) followed by advanced practice providers (18.8%) and other (7.95). These results are simply a product of the convenience sampling.

The vast majority of respondents identified with the perioperative clinical team (73.8%) while hospitalists (11.5%), palliative care (7.9%), and other (6.3%) made up less than a quarter of respondents.

Because our champion at MC1 was a perioperative provider himself, it is no surprise that providers involved in preoperative, intraoperative, and postoperative treatment were represented more than hospitalists who care for patients outside of pre-op, operating rooms, and intensive care units.

Respondents indicated a range of years in their clinical team from zero to 40, with a mean of 8.1 years. On average, providers who responded to this survey had a little over eight years of experience in the clinical team they referenced for their responses.

Respondents also indicated a range of years working in healthcare from 2 to 45, with a mean of 17 years. This figure indicates that most respondents in this study are, overall, well established in their careers. Previous research has shown that providers

Model Results. The model used in this study comprised 3 exogenous variables: perceived autonomy (PA), psychological safety (PS) and team outcome effectiveness (TOE). Emotional intelligence and burnout were endogenous variables. There were 7 hypotheses in the initial model outlined again below.

- H₁ Psychological Safety negatively predicts Burnout.
- H₂ Perceived Autonomy negatively predicts Burnout.
- H₃ Team Outcome Effectiveness negatively predicts Burnout.
- H₄ Emotional Intelligence negatively predicts Burnout.
- H₅ Emotional Intelligence positively predicts Psychological Safety.
- H₆ Emotional Intelligence positively predicts Perceived Autonomy.
- H₇ Emotional Intelligence positively predicts Team Outcome Effectiveness.

Four hypotheses were supported (H₃, H₅, H₆, H₇), one hypothesis was not supported (H₂) and two hypotheses were partially supported (H₁, H₄). In the final SEM model, which achieved adequate values for CFI and RMSEA, the only remaining hypothesis (H₃) was supported.

Emotional Intelligence. Emotional intelligence refers to an ability to recognize the meanings of emotions and their relationships, and to reason and problem-solve on the basis of them (Mayer et al., 1999). In this study I utilized a measure of emotional intelligence to quantify some of the personal characteristics that clinicians exhibit on an individual level and to examine how it influences the exogenous variables of perceived autonomy, psychological safety, and team outcome effectiveness as well as the endogenous variable of burnout. The results showed that emotional intelligence negatively predicts all three exogenous variables, however it does not negatively predict any of the aspects of burnout. However, it did positively predict the personal accomplishment subscale of burnout, which is in the hypothesized direction and therefore provides partial support for H₄. This finding is consistent with previous a study by Năstasă & Fărcaș (2015), which also found a medium to large statistically significant correlation between emotional intelligence and the personal accomplishment aspect of burnout. Hypotheses H₅-H₇

were supported however. As Spânu and colleagues (2012) posit, the ability to utilize various emotions to create effective solutions to work challenges provides healthcare providers the opportunity to counteract feelings of dissatisfaction, bitterness, and mistrust. This ability is useful not only to mitigate burnout, but to manage oneself and one's team/work environment. It is likely that an individual who possesses high emotional intelligence is going to be more well-equipped to deal with negative environmental conditions which may threaten autonomy, psychological safety, or perceptions of team effectiveness. In a sense, an individual with high EI may be more capable of mentally insulating themselves from these perceptions regardless of the ground truth. For this reason, those with high EI may view these conditions through a filter that is more positive than those with low EI.

Perceived Autonomy. According to Deci and Ryan's (1985; 1991) self-determination theory, perceived autonomy is described as a psychological resource alongside competence and relatedness. According to self-determination theory, when the social context is autonomy supportive, people are motivated to internalize the regulation of important activities. Alternatively, when the context is controlling, self-determined motivation is undermined. Previous research has found that the amount perceived autonomy a provider has predicts burnout as it directly relates to physician's experience of exhaustion and cynicism (Portoghese et al., 2014). Lack of autonomy can come from a physician's long work shifts, increased use of EHRs and computers, and large number of administrative duties which are also reported as the top causes of burnout (Peckham & Grisham, 2017). Because of these previous findings, I was very surprised to see that H₂ (perceived autonomy negatively predicts burnout) was not supported by the data. Perceived autonomy has previously been shown to be one of the strongest predictors of burnout (Fernet et al., 2013; Madathil et al., 2014). The average score across PA subscales was

3.01, which falls on Neither Agree or Disagree. These results indicate that when averaged across subscales, participants were generally neutral in their perception of their work autonomy.

Psychological Safety. Psychological safety is considered a team variable, which Edmondson (1999) defines as a shared belief held by members of a team that the team is safe for interpersonal risk taking. Vévoda and colleagues (2016) assert that psychological safety at work is a factor that can be modified by employers, and that by introducing preventative measures related to the psychosocial environment, employers may indirectly influence the health of their employees, including the level of burnout they experience. In this way, psychological safety acts as a protective factor regarding burnout.

My first hypothesis (H₁: Psychological safety negatively predicts burnout) was partially supported by the data in the sense that emotional exhaustion decreased, and personal accomplishment increased when psychological safety increased. Vévoda and colleagues (2016) also found a significant negative relationship between psychological safety and burnout, however the relationships were with depersonalization and emotional exhaustion, with only a moderate positive statistical relationship with personal accomplishment.

Hypothesis 5 was also supported by the results of this study (H₅: Emotional Intelligence positively predicts psychological safety). Harper and White (2013) discovered in a study of 108 project teams that having individuals on the team who have above average emotional perception and emotional management improves member perceptions of psychological safety. This was also found by Zhou and colleagues (2020) in a recent study on decision making teams. However, Zhou concluded that the direction was opposite, in that improved psychological safety improves team emotional intelligence, and as result improves team decision making performance.

Regardless, the positive relationship between the two constructs seems to be moderately well established and is supported by the results of this study.

Team Outcome Effectiveness. For the purpose of this study, I studied team effectiveness in terms of the various outcomes that teams produce. This metric is called team *outcome* effectiveness and it is defined in terms of performance effectiveness (i.e. controlling costs, improving productivity and quality), employee attitudes about their quality of work life (i.e. job satisfaction, organization commitment), and employee behavior (absenteeism).

Hypothesis 3 (H3: Team outcome effectiveness negatively predicts burnout) was fully supported in both the initial SEM model, as well as the final SEM model. Though there is a dearth of research that examines the interaction between team effectiveness and burnout, these results are consistent with a study by Moore (2013), who studied this interaction within veterinary clinic teams. Moore found that a coordinated team environment was associated with increased professional efficacy (personal accomplishment) as well as decreased cynicism (depersonalization). If you have ever been on a dysfunctional team, it may be easy to see why someone would feel burnt out after an extended period of time. When your team is constantly using too many resources, running behind schedule, missing deadlines, performing poorly, and underdelivering, it can be difficult to stay positive. Feelings of personal accomplishment may wane as feelings of exhaustion and helplessness set in.

Burnout. Burnout is defined as a psychological syndrome which is comprised of emotional exhaustion, depersonalization, and diminished personal accomplishment that can occur among individuals who work with other people in some capacity (Maslach et al., 1986, p.192). Previous research has shown that there are multiple categories of factors which lead to the development of burnout including personal characteristics, social characteristics, and

job/work characteristics (Campayo & de Juan Ladrón, 2006). This data from this study supports this assertion in that constructs related to the individual such as psychological safety and emotional intelligence as well as constructs related to work such as team outcome effectiveness do have an influence on burnout.

In general, an individual who is experiencing a high level of psychological safety, has a positive view of their team's effectiveness, and has a higher level of emotional intelligence will in turn experience lower levels of burnout.

The proposed influence of each variable on the emotional exhaustion aspect of burnout was supported in all hypotheses except for H₂ (Perceived autonomy) and H₄ (Emotional Intelligence). The proposed influence of each variable on the depersonalization aspect of burnout was supported in all hypotheses except for H₁ (Psychological Safety), H₂ (Perceived autonomy), and H₄ (Emotional Intelligence). The proposed influence of each variable on the personal accomplishment aspect of burnout was supported in all hypotheses except for H₂ (Perceived autonomy).

It is important to note, however, that the level of provider burnout I captured in the results of this study we moderate and did not trend toward either side of the spectrum. For the most part, providers experienced what could be referred to as a *normal* amount of burnout as their BEE scores on average trended toward "a few times a month", BPA scores trended toward "Monthly" and their BDP scores trended toward "a few times a year". The smaller sample size used in this study, the lack of variation in the burnout data, and the poor fit of the SEM model must all be taken into consideration when interpreting the results of this analysis in terms of its reliability.

Conclusions

This research studied the individual and team variables that influence burnout in healthcare providers. A review of the results in the preceding sections in this chapter indicate that emotional intelligence, psychological safety, and team outcome effectiveness predicted one or more aspects of the burnout phenomenon, while perceived autonomy did not. In addition, the present study found that emotional intelligence significantly and positively predicted psychological safety, perceived autonomy, and team outcome effectiveness.

Theoretical Applications. This study makes two important contributions to the literature. First, the present study is the first to attempt to model the relationship between emotional intelligence, psychological safety, perceived autonomy, team outcome effectiveness, and burnout in healthcare providers. Each of these constructs have been studied beside burnout at one or multiple points previously (save TOE), however no previous research has attempted to model their relationship to one another statistically.

Second, this is the first study to examine the impact of team outcome effectiveness on burnout. Though Moore (2013) studied the influence of team effectiveness on burnout in veterinary clinics, they used an in-house team effectiveness survey which measured factors such as coordinated team environment, toxic team environment, team engagement, and individual engagement. Using Gibson's validated Team Outcome Effectiveness scale (2003), I was able to assess team effectiveness in terms of team output asking questions such as: Does the team meet its goals? Are the team's customers happy with the team's performance? Does the team operate in a timely fashion? Does the team output quality work? Is the team productive? Though there is still some debate on the correct metric for assessing team effectiveness, I believe focusing on the shared outcomes of the team is most reflective of the construct.

Practical Applications. Each of the metrics used in this study were validated tools, therefore this same survey may be used in other hospitals to measure these constructs. In fact, one was to substitute the word patient and tailor the demographic section, this amalgam of surveys could be used in any context to measure five variables which have each been shown to influence an individual in completing their work. Another practical implication of this study is that hospitals can use these results to plan targeted interventions to alleviate burnout. For example, if a hospital determines that burnout is an issue among their staff, this paper recommends that the hospital focus on increasing team effectiveness, increasing psychological safety, and perhaps emphasizing emotional intelligence in their educational material, training, or hiring process.

Limitations of the Study. One of the main limitations of this study was a small sample size. The SEM analysis works best with a large sample size, and though our sample size was technically sufficient for the analysis (Bentler & Chou, 1987), Kline's (2015) recommendation of 20 participants per parameter may have allowed us to avoid some of our model fit issues. In addition, due the large discrepancy in the amount of participants I was able to recruit from each site (MC1 = 92.7%; MC2 = 7.3%), a meaningful comparison between the two sites was infeasible. A third limitation of this study is the convenience sampling method which was utilized out of necessity. It is possible that those who chose to fill out the survey voluntarily did so because they had strong feelings toward burnout, and perhaps were experiencing high levels of burnout themselves and wanted the hospital to know. Another limitation is the possible effect of this survey being distributed to healthcare providers almost a year and a half into the ongoing coronavirus pandemic (COVID-19). There is a high likelihood that providers may have been

experiencing significantly higher levels of burnout at the time of this survey than they were pre-pandemic, though I do not have the data to make a comparison.

Further Research. Future studies on burnout and the factors that influence it should look deeper into team effectiveness, especially team outcome effectiveness. There could be a great deal of positive aspects to your job, but if you are on a team that is constantly coming up short, the present study shows that you are likely to experience burnout. Team outcome effectiveness was the variable in this model that has been studied the least, yet it had the most significance on burnout. Additionally, I would like to see other constructs analyzed with burnout using an SEM. Some of the constructs I would be most interested to see are self-esteem, conscientiousness, and personality measures, as these characteristics may influence how providers view their work, which may affect their perceived level of burnout as emotional intelligence does. Finally, it would be interesting to determine the influence of world events on burnout in healthcare providers. While writing this dissertation the world has experienced the COVID-19 pandemic, the 2020 election, and now one of the most significant European conflicts since World War II. It seems unlikely that healthcare professionals are able to completely insulate themselves from these significant events while caring for patients, and it would be interesting to see if increased adherence to media results in increased burnout.

Appendices

Appendix A: Burnout Scale Maslach's Burnout Inventory (MBI; Maslach et al., 1986)

<ul style="list-style-type: none"> • Burnout: Emotional Exhaustion <ul style="list-style-type: none"> ○ I feel emotionally drained from my work ○ I feel used up at the end of the workday ○ I feel fatigued when I get up in the morning and have to face another day on the job ○ Working with people all day is really a strain for me ○ I feel burned out from my work ○ I feel frustrated by my job ○ Working with people directly puts too much stress on me ○ I feel like I'm at the end of my rope ○ I feel I'm working too hard on my job • Burnout: Personal Accomplishment <ul style="list-style-type: none"> ○ R: I can easily understand how my patients feel about things ○ R: I deal very effectively with the problems of my patients ○ R: I feel I'm positively influencing other people's lives through my work ○ R: I feel very energetic ○ R: I can easily create a relaxed atmosphere with my patients ○ R: I feel exhilarated after working closely with my patients ○ R: I have accomplished many worthwhile things in this job ○ R: In my work, I deal with emotional problems very calmly • Burnout: Depersonalization <ul style="list-style-type: none"> ○ I feel I treat some patients as if they were impersonal 'objects' ○ I've become more callous toward people since I took this job ○ I worry that this job is hardening me emotionally ○ I don't really care what happens to some patients ○ I feel patients blame me for some of their problems 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Response Options (7-point Likert Scale)</th> </tr> <tr> <td>Never</td> <td>0</td> </tr> <tr> <td>A few times a year</td> <td>1</td> </tr> <tr> <td>Monthly</td> <td>2</td> </tr> <tr> <td>A few times a month</td> <td>3</td> </tr> <tr> <td>Every week</td> <td>4</td> </tr> <tr> <td>A few times a week</td> <td>5</td> </tr> <tr> <td>Every day</td> <td>6</td> </tr> </table>	Response Options (7-point Likert Scale)		Never	0	A few times a year	1	Monthly	2	A few times a month	3	Every week	4	A few times a week	5	Every day	6
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A few times a month	3																
Every week	4																
A few times a week	5																
Every day	6																

Subscale ¹	Category	Cut-off Scores
EE (Score: 0 - 54)	High	≥ 27
	Moderate	19 - 26
	Low	0 - 18
DP (Score: 0 - 30)	High	≥ 10
	Moderate	6 - 9
	Low	0 - 5
PA (Score: 0 - 48)	High	0 - 33
	Moderate	34 - 39
	Low	≥ 40

Appendix B: Edmondson's Psychological Safety Scale (Edmondson, 1999)

Psychological Safety

- R: If you make a mistake on this team, it is often held against you
- Members of this team are able to bring up problems and tough issues.
- R: People on this team sometimes reject others for being different
- It is safe to take a risk on this team
- R: It is difficult to ask other members of this team for help
- No one on this team would deliberately act in a way that undermines my efforts.
- Working with members of this team, my unique skills and talents are valued and utilized

**Response Options
(5-Point Likert Scale)**

Strongly Disagree	1
Disagree	2
Neither Agree or Disagree	3
Agree	4
Strongly Agree	5

Appendix C: Work Autonomy Scale (Breugh, 1985)

Method Autonomy

1. I am allowed to decide how I go about getting my job done (the methods to use).
2. I am able to choose the way to go about my job (the procedures to utilize).
3. I am free to choose the method(s) to use in carrying out my work.

Scheduling Autonomy

1. I have control over the scheduling of my work.
2. I have some control over the sequencing of my work activities (when I do what).
3. My job is such that I can decide when to do particular work activities.

Criteria Autonomy

1. My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others.
2. I am able to modify what my job objectives are (what I am supposed to accomplish).
3. I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives).

Response Options (5-Point Likert Scale)	
Strongly Agree	5
Agree	4
Neither Agree or Disagree	3
Disagree	2
Strongly Disagree	1

Appendix D: Team Outcome Effectiveness Scale (Gibson et al., 2003)

<ul style="list-style-type: none"> • Team Outcome Effectiveness: Goals <ul style="list-style-type: none"> ○ This team fulfills its mission ○ This team accomplishes its objectives ○ This team meets the requirements set for it ○ This team achieves its goals ○ This team serves the purpose it is intended to serve 	<table border="1"> <thead> <tr> <th colspan="2" style="text-align: center;">Response Options (7-point Likert Scale)</th> </tr> </thead> <tbody> <tr> <td>Very Inaccurate</td> <td style="text-align: right;">1</td> </tr> <tr> <td>Mostly Inaccurate</td> <td style="text-align: right;">2</td> </tr> <tr> <td>Slightly Inaccurate</td> <td style="text-align: right;">3</td> </tr> <tr> <td>Uncertain</td> <td style="text-align: right;">4</td> </tr> <tr> <td>Slightly Accurate</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Mostly Accurate</td> <td style="text-align: right;">6</td> </tr> <tr> <td>Very Accurate</td> <td style="text-align: right;">7</td> </tr> </tbody> </table>	Response Options (7-point Likert Scale)		Very Inaccurate	1	Mostly Inaccurate	2	Slightly Inaccurate	3	Uncertain	4	Slightly Accurate	5	Mostly Accurate	6	Very Accurate	7
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Mostly Inaccurate	2																
Slightly Inaccurate	3																
Uncertain	4																
Slightly Accurate	5																
Mostly Accurate	6																
Very Accurate	7																
<ul style="list-style-type: none"> • Team Outcome Effectiveness: Customers <ul style="list-style-type: none"> ○ This team's patients are satisfied ○ This team's patients are happy with the team's performance ○ This team is responsive to its patients ○ This team fulfills the needs of its patients ○ This team responds to external demands 																	
<ul style="list-style-type: none"> • Team Outcome Effectiveness: Timeliness <ul style="list-style-type: none"> ○ This team meets its deadlines ○ R: This team wastes time ○ This team provides services on time ○ R: This team is slow ○ This team adheres to its schedule ○ This team finishes its work in a reasonable amount of time 																	
<ul style="list-style-type: none"> • Team Outcome Effectiveness: Quality <ul style="list-style-type: none"> ○ This team has a low error rate ○ This team does high quality work ○ This team consistently provides high quality output ○ This team is consistently error free ○ R: This team needs to improve the quality of its work 																	
<ul style="list-style-type: none"> • Team Outcome Effectiveness: Productivity <ul style="list-style-type: none"> ○ R: This team uses too many resources ○ This team is productive ○ R: This team is wasteful ○ Inputs used by this team are appropriate for the outputs achieved ○ This team is efficient 																	

Appendix E: Short version of the Workgroup Emotional Intelligence Profile (WEIP-S; Jordan & Lawrence, 2009)

<p>Awareness of Own Emotions</p> <p>1. I can explain the emotions I feel to team members.</p> <p>2. I can discuss the emotions I feel with other team members.</p> <p>3. If I feel down, I can tell team members what will make me feel better.</p> <p>4. I can talk to other members of the team about the emotions I experience.</p> <p>Management of Own Emotions (Own Manage)</p> <p>5. I respect the opinion of team members, even if I think they are wrong.</p> <p>6. When I am frustrated with fellow team members, I can overcome my frustration.</p> <p>7. When deciding on a dispute, I try to see all sides of a disagreement before I come to a conclusion.</p> <p>8. I give a fair hearing to fellow team members' ideas.</p> <p>Awareness of Others' Emotions (Other Aware)</p> <p>9. I can read fellow team members 'true' feelings, even if they try to hide them.</p> <p>10. I am able to describe accurately the way others in the team are feeling</p> <p>11. When I talk to a team member I can gauge their true feelings from their body language.</p> <p>12. I can tell when team members don't mean what they say.</p> <p>Management of Others' Emotions (Other Manage)</p> <p>13. My enthusiasm can be contagious for members of a team.</p> <p>14. I am able to cheer team members up when they are feeling down.</p> <p>15. I can get fellow team members to share my keenness for a project.</p> <p>16. I can provide the 'spark' to get fellow team members enthusiastic.</p>	<p>Response Options (7-Point Likert Scale)</p> <table border="0"> <tr> <td>Strongly Disagree</td> <td style="text-align: right;">1</td> </tr> <tr> <td>Disagree</td> <td style="text-align: right;">2</td> </tr> <tr> <td>Somewhat Disagree</td> <td style="text-align: right;">3</td> </tr> <tr> <td>Neither Agree or Disagree</td> <td style="text-align: right;">4</td> </tr> <tr> <td>Somewhat Agree</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Agree</td> <td style="text-align: right;">6</td> </tr> <tr> <td>Strongly Agree</td> <td style="text-align: right;">7</td> </tr> </table>	Strongly Disagree	1	Disagree	2	Somewhat Disagree	3	Neither Agree or Disagree	4	Somewhat Agree	5	Agree	6	Strongly Agree	7
Strongly Disagree	1														
Disagree	2														
Somewhat Disagree	3														
Neither Agree or Disagree	4														
Somewhat Agree	5														
Agree	6														
Strongly Agree	7														

Appendix F: Item descriptions for the study survey

Construct	Subscale	Item	Item Description
Emotional Intelligence (16 Items)	Own Aware	EIOA1	I can explain the emotions I feel to team members
		EIOA2	I can discuss the emotions I feel with other team members
		EIOA3	If I feel down, I can tell team members what will make me feel better
		EIOA4	I can talk to other members of the team about the emotions I experience
	Own Manage	EIOM1	I respect the opinion of team members, even if I think they are wrong
		EIOM2	When I am frustrated with fellow team members, I can overcome my frustration
		EIOM3	When deciding on a dispute, I try to see all sides of a disagreement before I come to a conclusion
		EIOM4	I give a fair hearing to fellow team members' ideas
	Other Aware	EIOtA1	I can read fellow team members' 'true feelings', even if they try to hide them
		EIOtA2	I am able to describe accurately the way others in the team are feeling
		EIOtA3	When I talk to a team member I can gauge their true feelings from their body language
		EIOtA4	I can tell when team members don't mean what they say
	Other Manage	EIOtM1	My enthusiasm can be contagious for members of a team
		EIOtM2	I am able to cheer team members up when they are feeling down
		EIOtM3	I can get fellow team members to share my keenness for a project
		EIOtM4	I can provide the 'spark' to get fellow team members enthusiastic
Burnout (22 Items)	Emotional Exhaustion	BEE1	I feel emotionally drained from my work
		BEE2	I feel used up at the end of the work day
		BEE3	I feel fatigued when I get up in the morning and have to face another day on the job
		BEE4	Working with people all day is really a strain for me
		BEE5	I feel burned out from my work
		BEE6	I feel frustrated by my job
		BEE7	Working with people directly puts too much stress on me
		BEE8	I feel like I'm at the end of my rope
		BEE9	I feel I'm working too hard on my job
	Personal Accomplishment	BPA1	I can easily understand how my patients feel about things (RC)
		BPA2	I deal very effectively with the problems of patients (RC)
		BPA3	I feel I'm positively influencing other people's lives through my work (RC)
		BPA4	I feel very energetic (RC)
		BPA5	I can easily create a relaxed atmosphere with patients (RC)
		BPA6	I feel exhilarated after working closely with patients (RC)
		BPA7	I have accomplished many worthwhile things in this job (RC)
BPA8	In my work, I deal with emotional problems very calmly (RC)		
BDP1	I feel I treat some patients as if they were impersonal 'objects'		

	Depersonalization	BDP2	I've become more callous toward people since I took this job	
		BDP3	I worry that this job is hardening me emotionally	
		BDP4	I don't really care what happens to some patients	
		BDP5	I feel my patients blame me for some of their problems	
	Method Autonomy	MA1	I am allowed to decide how I go about getting my job done (the methods to use)	
		MA2	I am able to choose the way to go about my job (the procedures to utilize)	
		MA3	I am free to choose the method(s) to use in carrying out my work	
Perceived Autonomy (9 Items)	Schedule Autonomy	SA1	I have control over the scheduling of my work	
		SA2	I have some control over the sequencing of my work activities (when I do what)	
		SA3	My job is such that I can decide when to do particular work activities	
	Criteria Autonomy	CA1	My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others	
		CA2	I am able to modify what my job objectives are (what I am supposed to accomplish)	
		CA3	I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives)	
	Psychological Safety (7 Items)		PS1	If you make a mistake on this team, it is often held against you (RC)
			PS2	Members of this team are able to bring up problems and tough issues
			PS3	People on this team sometimes reject others for being different (RC)
		PS4	It is safe to take a risk on this team	
		PS5	It is difficult to ask other members of this team for help	
		PS6	No one on this team would deliberately act in a way that undermines my efforts	
		PS7	Working with members of this team, my unique skills and talents are valued and utilized	
Team Outcome Effectiveness (26 Items)	Goals	TOEG1	This team fulfills its mission	
		TOEG2	This team accomplishes its objectives	
		TOEG3	This team meets the requirements set for it	
		TOEG4	This team achieves its goals	
		TOEG5	This team serves the purpose it is intended to serve	
	Customers	TOEC1	This team's patients are satisfied	
		TOEC2	This team's patients are happy with the team's performance	
		TOEC3	This team is responsive to its patients	
		TOEC4	This team fulfills the needs of its patients	
		TOEC5	This team responds to external demands	
	Timeliness	TOET1	This team meets its deadlines	
		TOET2	This team wastes time (RC)	
		TOET3	This team provides services on time	
		TOET4	This team is slow (RC)	
		TOET5	This team adheres to its schedule	
		TOET6	This team finishes its work in a reasonable amount of time	
	Quality	TOEQ1	This team has a low error rate	

	TOEQ2	This team does high quality work
	TOEQ3	This team consistently provides high quality output
	TOEQ4	This team is consistently error free
	TOEQ5	This team needs to improve the quality of its work (RC)
	TOEP1	This team uses too many resources (RC)
Productivity	TOEP2	This team is productive
	TOEP3	This team is wasteful (RC)
	TOEP4	Inputs used by this team are appropriate for the outputs achieved
	TOEP5	This team is efficient

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Burnout Survey

Please complete the survey below.

Thank you!

To be conducted at

[REDACTED]

Who is conducting the study? Logan Cisick, a doctoral student at Embry Riddle Aeronautical University is conducting this study with the assistance of [REDACTED]

What is the purpose of the research? The purpose of this research is to better understand workplace culture and burnout within the hospital. You will be asked to complete a questionnaire which will take approximately 10 minutes to complete. In addition, you will have an opportunity to engage in an OPTIONAL focus group discussion that will be scheduled after survey completion if you choose to participate.

Who is asked to participate? Participants must be 18 or older, employed at [REDACTED], and work with patients firsthand on a regular basis in a clinical capacity. This includes medical doctors, registered nurses, etc.

Do you have to be in this study? You do not have to participate if you don't want to. You may also leave the study at any time. If you decide to stop taking part in this research study, it will not affect your relationship with the [REDACTED] staff or doctors. Whether you participate or not will have no effect on your legal rights or the quality of your health care. If you are a medical student, fellow, faculty, or staff at the Medical Center, your status will not be affected in any way.

What are the Research Procedures? 1) You will be asked to complete a questionnaire which will take approximately 10 minutes to complete. 2) In addition, you will have an opportunity to engage in an OPTIONAL focus group discussion that will be scheduled after survey completion if you choose to participate, that should take approximately 1 hour to complete.

What are the Risks and Benefits? The risks of participating in this study are no more than what is experienced in daily life. For the focus group, although there will be no name or face associated with your video feed, there is a possibility that your identity may be disclosed to other participants if your voice is recognized. The researchers will do everything they can to protect the identity of focus group participants.

You may not receive any personal benefits from being in this study. We hope the information learned from this study will help us better understand common work processes within the hospital, leading to the development of possible interventions to improve daily work tasks and patient safety.

Costs and Compensation There will be no costs and no compensation.

Confidentiality Your individual information will be protected in all data resulting from this study. Your responses to this survey will be anonymous. No personal information will be collected other than basic demographic descriptors. The online survey system will not save IP address or any other identifying information. In order to protect the anonymity of your responses, I will keep your responses in a password-protected file on a password-protected computer. Information we learn about you in this study will be handled in a confidential manner. If we publish the results of the study in a scientific journal or book, we will not identify you.

Contact Information for questions or comments:

The [redacted] oversees research on human subjects. HRPP and Institutional Review Board (IRB) representatives will answer any questions about your rights as a research subject, and take any concerns, comments or complaints you may wish to offer. You can contact the HRPP by calling the office at [redacted].

Before you agree to participate, make sure you have read (or been read) the information provided above; your questions have been answered to your satisfaction; and you have freely decided to participate in this research.

This form is yours to keep.

[Attachment: "Information Sheet.docx"]

Thank you for participating in this study on behalf of your institution. This survey will cover constructs related to the individual as well as the team in order to better understand their impact on burnout within the hospital. There will be a few demographic questions for you to answer before the survey begins. The research team will make every effort to keep your identity anonymous, however, you may choose to skip the role and/or unit questions if you are concerned about being identified by these responses.

1) What Institution do you work for? [redacted]
 [redacted]
 [redacted]

2) What is your clinical role?
 Hospitalist
 Nurse
 Anesthesiologist
 Surgeon
 CRNA
 Physician Assistant
 General Practitioner
 Other (please indicate below)

3) If you selected "Other" for the previous question, please indicate your role here _____

4) In which unit do you work most? _____

5) How many years have you been working in the unit? _____

6) How many years have you been working in healthcare? _____

Please answer the questions below in regards to the frequency with which you experience each item:

	Never	A few times a year	Monthly	A few times a month	Every week	A few times a week	Every day
7) I feel emotionally drained from my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8) I feel used up at the end of the work day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9) I feel fatigued when I get up in the morning and have to face another day on the job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10) Working with people all day is really a strain for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11) I feel burned out from my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12) I feel frustrated by my job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Never	A few times a year	Monthly	A few times a month	Every week	A few times a week	Every day
13) Working with people directly puts too much stress on me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14) I feel like I'm at the end of my rope	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15) I feel I'm working too hard on my job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16) I can easily understand how my patients feel about things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17) I deal very effectively with the problems of patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18) I feel I'm positively influencing other people's lives through my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Never	A few times a year	Monthly	A few times a month	Every week	A few times a week	Every day
19) I feel very energetic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20) I can easily create a relaxed atmosphere with patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21) I feel exhilarated after working closely with patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22) I have accomplished many worthwhile things in this job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23) In my work, I deal with emotional problems very calmly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	A few times a year	Monthly	A few times a month	Every week	A few times a week	Every day
24) I feel I treat some patients as if they were impersonal 'objects'	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25) I've become more callous toward people since I took this job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26) I worry that this job is hardening me emotionally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27) I don't really care what happens to some patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28) I feel my patients blame me for some of their problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer the questions below in regards to your level of agreement with each item:

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
29) I am allowed to decide how I go about getting my job done (the methods to use)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30) I am able to choose the way to go about my job (the procedures to utilize)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31) I am free to choose the method(s) to use in carrying out my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32) I have control over the scheduling of my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33) I have some control over the sequencing of my work activities (when I do what)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
34) My job is such that I can decide when to do particular work activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35) My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36) I am able to modify what my job objectives are (what I am supposed to accomplish)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37) I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For the rest of the survey there will be questions that refer to a "team". For these questions please refer to the team that you work with most often in the unit you previously indicated in the demographic portion of the survey (Question 3).

Please answer the questions below in regards to your level of agreement with each item:

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
38) If you make a mistake on this team, it is often held against you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39) Members of this team are able to bring up problems and tough issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40) People on this team sometimes reject others for being different	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41) It is safe to take a risk on this team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42) It is difficult to ask other members of this team for help	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43) No one on this team would deliberately act in a way that undermines my efforts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44) Working with members of this team, my unique skills and talents are valued and utilized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer the questions below in regards to your level of agreement with each item:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
45) I can explain the emotions I feel to team members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46) I can discuss the emotions I feel with other team members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47) If I feel down, I can tell team members what will make me feel better	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48) I can talk to other members of the team about the emotions I experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49) I respect the opinion of team members, even if I think they are wrong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
50) When I am frustrated with fellow team members, I can overcome my frustration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51) When deciding on a dispute, I try to see all sides of a disagreement before I come to a conclusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52) I give a fair hearing to fellow team members' ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53) I can read fellow team members 'true feelings', even if they try to hide them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54) I am able to describe accurately the way others in the team are feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
55) When I talk to a team member I can gauge their true feelings from their body language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56) I can tell when team members don't mean what they say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57)							

- My enthusiasm can be contagious for members of a team
- 58) I am able to cheer team members up when they are feeling down
- 59) I can get fellow team members to share my keenness for a project
- 60) I can provide the 'spark' to get fellow team members enthusiastic

Please answer the questions below in regards to the accuracy of each item:

	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
61) This team fulfills its mission	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
62) This team accomplishes its objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
63) This team meets the requirements set for it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
64) This team achieves its goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65) This team serves the purpose it is intended to serve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
66) This team's patients are satisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
67) This team's patients are happy with the team's performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
68) This team is responsive to its patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
69) This team fulfills the needs of its patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
70) This team responds to external demands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
71) This team meets its deadlines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
72) This team wastes time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
73) This team provides services on time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
74) This team is slow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
75) This team adheres to its schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
76) This team finishes its work in a reasonable amount of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
77) This team has a low error rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
78) This team does high quality work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
79) This team consistently provides high quality output	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
80) This team is consistently error free	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

		Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
81)	This team needs to improve the quality of its work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
82)	This team uses too many resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
83)	This team is productive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
84)	This team is wasteful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
85)	Inputs used by this team are appropriate for the outputs achieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
86)	This team is efficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 87) You have reached the end of the survey, thank you for your participation.
- Yes, I would like to participate in the focus group
 No, I would not like to participate in the focus group

If you would like to participate in an OPTIONAL focus group in which we will discuss these concepts further, please select 'yes' and enter your email address below so that we may reach out to schedule a time for the focus group. The session will take approximately 1 hour and it will be conducted over Microsoft Teams without names or video feed in order to preserve anonymity. Please email gisickl@my.erau.edu if you have any additional questions.

- 88) If you selected "Yes" please include your email address here:

Intro

Study Introduction. Thank you for participating in this study on behalf of your institution. This survey will cover constructs related to the individual as well as the team in order to better understand their impact on burnout within the hospital. After providing informed consent below, there will be a few demographic questions for you to answer before the survey begins.

Informed Consent

Study Description.

INFORMED CONSENT FORM

The Impact of Individual and Team-Level Variables on Burnout in Healthcare Providers

Purpose of this Research: I am asking you to take part in a research project for the purpose of collecting data to better understand workplace culture and burnout within the hospital. You will be asked to complete a questionnaire which will take approximately 10 minutes to complete. In addition, you will have an opportunity to engage in an **OPTIONAL** focus group discussion that will be scheduled after survey completion if you choose to participate.

Risks or discomforts: The risks of participating in this study are no more than what is experienced in daily life.

Benefits: While there are no benefits to you as a participant, your participation in this research would help us better understand common work processes within the hospital, leading to the development of possible interventions to improve daily work tasks and patient safety.

Confidentiality of records: Your individual information will be protected in all data resulting from this study. Your responses to this survey will be anonymous. No personal information will be collected other than basic demographic descriptors. The online survey system will not save IP address or any other identifying information. In order to protect the anonymity of your responses, I will keep your responses in a password-protected file on a password-protected computer. No one other than the researcher will have access to any of the responses. Information collected as part of this research may be used or distributed

for future research studies without additional consent from you.

Compensation: There will be no compensation for completing this survey.

Contact: If you have any questions or would like additional information about this study, please contact Logan Gisick, gisickl@my.erau.edu, or the faculty member overseeing this project, Dr. Joseph Keebler, keeblerj@erau.edu. For any concerns or questions as a participant in this research, contact the Embry-Riddle Institutional Review Board (IRB) at 386-226-7179 or via email teri.gabriel@erau.edu.

Voluntary Participation: Your participation in this study is completely voluntary. You may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Should you wish to discontinue the research at any time, information that has already been collected will be discarded.

Consent: By selecting Agree below, I certify that I am employed at [REDACTED], a resident of the U.S., and I am 18 years of age or older. By checking AGREE below, I certify that I understand the information on this form, and voluntarily agree to participate in the study. If you do not wish to participate in the study, simply close the browser or check DISAGREE which will direct you out of the study. Please print a copy of this form for your records. A copy of this form can also be requested from Logan Gisick, gisickl@my.erau.edu.

Consent Agreement. Please select one of the options below:

- Agree
- Disagree

Demographics

Q1. What institution do you work for?

- [REDACTED]
- [REDACTED]
- [REDACTED]

Q2. What is your clinical role?

- Hospitalist
- Nurse
- Anesthesiologist
- Surgeon
- CRNA
- Physician Assistant
- General Practitioner
- Other: please indicate below

Q3. In which unit do you work most?

Q4. How many years have you been working in the unit?

Q5. How many years have you been working in healthcare?

Burnout Matrix

Block 1. Please answer the questions below in regards to the frequency with which you experience each item:

	Frequency						
	Never	A few times a year	Monthly	A few times a month	Every week	A few times a week	Every day
I feel emotionally drained from my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel used up at the end of the work day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel fatigued when I get up in the morning and have to face another day on the job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Frequency

	Never	A few times a year	Monthly	A few times a month	Every week	A few times a week	Every day
Working with people all day is really a strain for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel burned out from my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel frustrated by my job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working with people directly puts too much stress on me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I'm at the end of my rope	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I'm working too hard on my job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can easily understand how my patients feel about things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I deal very effectively with the problems of patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I'm positively influencing other people's lives through my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel very energetic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can easily create a relaxed atmosphere with patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel exhilarated after working closely with patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have accomplished many worthwhile things in this job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In my work, I deal with emotional problems very calmly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I treat some patients as if they were impersonal 'objects'	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Frequency

	Never	A few times a year	Monthly	A few times a month	Every week	A few times a week	Every day
I've become more callous toward people since I took this job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry that this job is hardening me emotionally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't really care what happens to some patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel my patients blame me for some of their problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Perceived Autonomy Matric

Block 2. Please answer the questions below in regards to your level of agreement with each item:

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
I am allowed to decide how I go about getting my job done (the methods to use)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to choose the way to go about my job (the procedures to utilize)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am free to choose the method(s) to use in carrying out my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have control over the scheduling of my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have some control over the sequencing of my work activities (when I do what)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job is such that I can decide when to do particular work activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to modify what my job objectives are (what I am supposed to accomplish)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Referent Team

Referent Team. For the rest of the survey there will be questions that refer to a "team". For these questions please refer to the team that you work with most often in the unit you previously indicated in the demographic portion of the survey (Question 3).

Psychological Safety Matrix

Block 3. Please answer the questions below in regards to your level of agreement with each item:

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
If you make a mistake on this team, it is often held against you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Members of this team are able to bring up problems and tough issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People on this team sometimes reject others for being different	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
It is safe to take a risk on this team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is difficult to ask other members of this team for help	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No one on this team would deliberately act in a way that undermines my efforts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working with members of this team, my unique skills and talents are valued and utilized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Emotional Intelligence Matrix

Block 4. Please answer the questions below in regards to your level of agreement with each item:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
I can explain the emotions I feel to team members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can discuss the emotions I feel with other team members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I feel down, I can tell team members what will make me feel better	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can talk to other members of the team about the emotions I experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I respect the opinion of team members, even if I think they are wrong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
When I am frustrated with fellow team members, I can overcome my frustration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When deciding on a dispute, I try to see all sides of a disagreement before I come to a conclusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I give a fair hearing to fellow team members' ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can read fellow team members 'true feelings', even if they try to hide them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to describe accurately the way others in the team are feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I talk to a team member I can gauge their true feelings from their body language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can tell when team members don't mean what they say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My enthusiasm can be contagious for members of a team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to cheer team members up when they are feeling down	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can get fellow team members to share my keenness for a project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
I can provide the 'spark' to get fellow team members enthusiastic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Team Outcome Effectiveness Matrix

Block 5. Please answer the questions below in regards to the accuracy of each item:

	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
This team fulfills its mission	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team accomplishes its objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team meets the requirements set for it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team achieves its goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team serves the purpose it is intended to serve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team's patients are satisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team's patients are happy with the team's performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team is responsive to its patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team fulfills the needs of its patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team responds to external demands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team meets its deadlines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
This team wastes time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team provides services on time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team is slow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team adheres to its schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team finishes its work in a reasonable amount of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team has a low error rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team does high quality work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team consistently provides high quality output	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team is consistently error free	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team needs to improve the quality of its work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team uses too many resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team is productive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team is wasteful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inputs used by this team are appropriate for the outputs achieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This team is efficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Optional Focus Group

Optional focus Group. You have reached the end of the survey, thank you for your participation.

If you would like to participate in an OPTIONAL focus group in which we will discuss these concepts further, please select 'yes' and enter your email address below so that we may reach out to schedule a time for the focus group. The session will take approximately 1 hour and it will be conducted over Microsoft Teams without names or video feed in order to preserve anonymity. Please email gisickl@my.erau.edu if you have any additional questions.

- Yes, I would like to participate in the focus group
- No, I would not like to participate in the focus group

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