



Predicting Burnout at Work from Personality Traits and Work Factors

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Abstract

Burnout is defined as a chronic, negative, work-related psychological state; it is predictive of job dissatisfaction, low levels of productivity, and job turnover. Burnout is particularly common for individuals working in people-oriented professions, including healthcare and education. Previous research has established links between burnout and a variety of work factors, such as a lack of control and autonomy at work. Research has also established links between personality traits, such as negative emotionality, and susceptibility to burnout. In the current study, we measured burnout, fourteen specific work factors, and five broad personality traits for two samples of workers: (1) faculty and instructional staff at the University of Wisconsin-Eau Claire, and (2) Mayo Clinic physicians and nurses. Results indicate nearly half of Mayo respondents, and a third of UWEC respondents, scored high in burnout. In both samples, scoring low in agreeableness and high in negative emotionality predicted higher burnout scores. Among Mayo physicians and nurses, reports of emotional distress at work and work-life imbalance were the most consistent predictors of burnout after controlling for personality traits. Among UWEC faculty and instructional staff, fairness at work was the most consistent negative predictor of burnout after controlling for personality.

Introduction

Burnout can be defined as a chronic, negative, work-related psychological state. The characteristics of burnout include three dimensions: emotional exhaustion, depersonalization, and low personal accomplishment. Emotional exhaustion is the most common characteristic presented and it presents itself as a reduction of mental energy. Depersonalization is exhibited as a lack of empathy and a cynical attitude when dealing with clients or patients. The third burnout dimension is when an individual has a negative self-perception, typically with one's own work, known as low personal accomplishment (Lee et al., 2013). Symptoms associated with burnout are physical (e.g., chronic fatigue, headaches), emotional (e.g., feeling cynical and bitter not only about work but life in general, feeling as though you have failed in life), and behavioral (e.g., difficulty concentrating, nightmares) (Rozman et al., 2018).

Although burnout is not a disorder included in the DSM-5, it is a significant concern for employees across professions. Burnout is often high in jobs that are people-oriented, such as human services, educational, and health care occupations. People oriented professions typically require a high level of engagement through personal and emotional contact that can produce

stress (Maslach & Leiter, 2016). Previous research indicates that job stress may diminish an individual's physical health, psychological well-being, and work performance. When individuals are at a critical point where they cannot recover from work demands, stress can cause acute fatigue and increase the risk of burnout.

Burnout is common in many different professions; however, burnout is particularly high in health care, where one in three physicians experience burnout. Burnout is accompanied by job dissatisfaction, increased risk of suicide or drug abuse and dependency, and increased risk of psychopathology. Equally as important is the observation that burnout is linked to lower quality patient care, lower patient satisfaction, decreased levels of patient safety, and greater risk of making medical errors (Brown, Slater, & Lofters, 2019; West, Dyrby, Satele, & Shanafelt, 2012).

The healthcare field is experiencing many changes that may increase employee burnout and jeopardize the prosperity of healthcare organizations (Shanafelt & Noseworthy, 2017). Although organizations are experiencing changes such as fluctuating reimbursement, increased productivity expectation, and large-scale electronic health record adoption, physicians are still required to provide higher quality and more efficient care (Melnick & Powsner, 2016). Organization restructuring can also impact nurses, by increasing their increases in workload, bringing in higher paid nurses who simultaneously have fewer and less-developed skills, and staff changes by replacement of longer tenured nurses with less tenured nurses. A decrease in qualified nurses to care for patients has caused an increase in workload. This can lead to stress due to the increase of patients that need to be cared for at the same number of hours and turnover of patients. Across studies, restructuring and the changes it brings to the organization can lower engagement, reduce morale, increase cynicism and anger (Burke & Greenglass, 2001). Predictably, physicians' and nurses' wellness are critical for empathic, quality care (Melnick & Powsner, 2016).

There is projected shortage of primary care physicians in the near future, which would not only affect fellow physicians but the organization as well. The projected shortage may be due to an increasingly aging U.S. population. Another possible contributor could be an increase in access to medical care with the immediate need for specific specialists while the availability of residency positions decreases. The combination of physician shortage and burnout among physicians could lead to a reduction in clinical hours, low organizational commitment, and intent to leave their medical practice, and the outcome could pose a threat and cost to society (Shanafelt et al., 2016; Maslach & Leiter, 2008). Therefore, it is important to not only address physicians and allied health care workers' burnout but also to recognize it as a system issue.

People fail to realize that anyone can be at risk of developing burnout. The negative effects of burnout can have an impact on many aspects of an individual's life, including their social, home, and work life. Undeniably, most people want to enjoy the work they do and find meaning and purpose in doing it. In the society we live in today, work is essential to survival. Money can't buy happiness, but it can buy security and safety. It not only affects the individual and those around them, but it can also have a negative impact on the organization by decreasing productivity, increasing absenteeism and job abandonment. People who develop burnout are more likely to retire early or abandon their jobs causing the organization to find and train someone new. That is

time, money, and resources the organization has to use, so it is in their interest to prevent burnout among their employees.

Interventions to reduce occupational burnout can increase a person's level of engagement. Engagement is defined as an energetic state of involvement with personally fulfilling activities that enhance one's sense of professional efficacy. Engagement leads researchers to consider the factors in the work environment that enhance individuals' energy, capability, and reliance; promotes absorption with work tasks; and facilitates efficiency and success on the job (Maslach & Leiter, 2008). Therefore, engagement is often viewed as a desirable outcome at work, while burnout is undesirable.

Numerous studies have been conducted to identify potential predictors of burnout, so that corporations can work to mitigate those factors. A particular finding indicates burnout to a certain degree is predicted by individuals' long-standing, maladaptive personality traits that can predispose them to react negatively to work stressors. Specifically, emotional exhaustion is negatively correlated with extroversion and negative emotionality, depersonalization is negatively correlated with disagreeableness and negative emotionality, and personal accomplishments are positively related to extroversion, conscientiousness, and agreeableness, and negatively related to negative emotionality (Ghorpade, Lackritz, & Singh, 2007).

Another line of research has shown the organization and work factors play critical roles in whether employees stay engaged or experience burnout. Specifically, high job demands coupled with low job resources are associated with an increased probability of burnout. Shanafelt and Noseworthy (2016) grouped work factors that are tied to burnout into seven dimensions: workload and job demands, efficiency and resources, flexibility/control over work, work-life integration, organizational values, social support/community at work, and the degree of perceived meaning from work. Although the seven dimensions serve as a good foundation, additional research has documented a host of work factors that also act as drivers of burnout: perceived unfairness and injustice at work, lack of opportunities for growth, lack of challenge, physical demands of the job, the inability to speak up about errors without fearing the consequences, and being given work tasks without enough resources to complete them (Henkens & Leenders, 2010; Carmeli & Gittell, 2008; Maslach & Leiter, 2008). Sincere efforts to prevent burnout must include a personality assessment alongside a comprehensive measure of the many work factors that have been shown to predict burnout.

In the current study, we move beyond what is already known by including both personality and work factors as predictors of burnout; thus, we can measure and hold personality traits constant, before we analyze links between (1) work factors, and (2) burnout and engagement. We predict that personality traits, particularly neuroticism and disagreeableness, will account for a statistically significant proportion of variance in burnout and engagement in both Mayo physicians and nurses as well as our comparison sample of UWEC faculty and instructional staff. Our primary aim, however, is to document in each sample which work factors continue to predict burnout (and engagement) after controlling for employee personality traits.

Method

Participants

Table 1 displays information on the samples. As displayed in Table 1, the majority of both employee samples were between the ages of 30-50, female, and white.

Table 1. *Characteristics of the Samples*

	<i>Mayo Physicians and Allied Health Care Workers</i>	<i>UWEC Faculty and Instructional Staff</i>
Number of Participants	589	140
<i>Age (years)</i>		
Under 30	89 (15.1%)	2 (1.4%)
30-50	356 (60.4%)	77 (55%)
Over 30	140 (23.8%)	60 (42.9%)
<i>Gender</i>		
Women	477 (81%)	83 (59.3%)
Men	103 (17.5%)	52 (37.1%)
Other/Unreported	9 (1.6%)	3 (2.1%)
<i>Race/Ethnicity</i>		
Asian	17 (2.9%)	7 (5%)
Black	3 (.5%)	0
Hispanic/Latino	10 (1.7%)	3 (2.1%)
White	538 (91.3%)	121 (86.4%)
Other/Unreported	19 (3.6%)	9 (6.4%)
<i>Years in Current Position</i>		
0-5	307 (52.1%)	62 (44.3%)
6-10	145 (24.6%)	17 (12.2%)
Over 11	135 (22.9%)	60 (42.9%)
<i>Hours Worked in the Past 7 Days</i>		
Less than 20	30 (5.1%)	4 (2.9%)
49-20	431 (73.2%)	59 (42.1%)
69-50	114 (19.3%)	64 (45.8%)
Over 70	13 (2.2%)	13 (9.3%)
<i>Payment Method</i>		
Salary	242 (41.1%)	136 (97.8%)
Hourly	338 (57.4%)	1 (.7%)
Other/Unreported	9 (1.5%)	2 (2.1%)

Outcome Variables

Burnout. To measure burnout, we used two items from the Maslach Burnout Inventory Manual fourth edition (Maslach, Jackson, & Leiter, 1996-2016) that measure two dimensions of burnout: emotional exhaustion and depersonalization. The items were formulated as statements of work-related feelings (e.g., “I feel burned out from my work,” and “I have become more callous toward people since I took this job”) and were rated on a 7-point scale (ranging from *never* to *every day*). High levels of burnout are established as scores of 4 and above (West et al., 2012).

Engagement. The PERMA-Profilier (Butler & Kern, 2014) includes five pillars of assessment: Positive emotion, Engagement, Relationships, Meaning, and Accomplishment (PERMA). We used three items of the engagement pillar that measure two dimensions of engagement: Absorption and Interest. The items are framed as statements of engagement in the work field (e.g., “At work, how often do you become absorbed in what you are doing?” and “To what extent do you feel excited about and interested in your work?”) on an 11-point scale ranging from never to completely.

Predicted Variables

Personality. The BFI-2 Short (Soto & John, 2017) consists of 30-items that conceptualize personality structure by assessing the Big Five personality factors. Table 2 displays the Big Five statistics for our two samples. The “Big Five” refer to openness (with facets of aesthetic sensitivity, intellectual curiosity, and creative imagination), extraversion (sociability, assertiveness, and energy level), agreeableness (compassion, respectfulness, and trust), conscientiousness (organization, productivity, and responsibility), and negative emotionality (anxiety, depression, and emotional volatility). The items are framed as perceptions of how much one might agree or disagree. Each domain includes positively worded items, for example “Is original; comes up with new ideas”, and negatively worded items of “Has few artistic interests.” The items were rated on a 5-point scale from strongly disagree to strongly agree. The scoring for the negatively worded items were reversed in the data analysis phase.

Table 2. *Descriptive Statistics and Measures of the Big Five Personality Domains.*

Personality Trait	Sample Item	Mayo Clinic		UWEC	
		α	$M(SD)$	α	$M(SD)$
Openness	<i>Is original; comes up with new ideas.</i>	.67	3.61 (0.68)	.74	4.00 (0.68)
Conscientiousness	<i>Is reliable, can always be counted on.</i>	.69	4.25 (0.58)	.76	3.80 (0.74)
Extraversion	<i>Is outgoing, sociable.</i>	.73	3.48 (0.76)	.69	3.20 (0.76)
Agreeableness	<i>Assumes the best about people.</i>	.76	4.23 (0.59)	.74	4.01 (0.65)
Negative Emotionality	<i>Tends to feel depressed, blue.</i>	.77	2.43 (0.76)	.85	2.68 (0.89)

Work Factors

The fourteen work factors included in this study came from a variety of different sources, as shown in Table 3. The fourteen work factors were workload, emotional distress, moral distress, work-life balance, role clarity, role competence, control and autonomy, skill discretion, meaning in work, psychological safety, shared goals and values, positive leader behavior, fairness, and employee-organization values alignment.

Table 3. *Descriptions of Work Factors Measured in the Study.*

Work Factor and Sample Item	Adapted/Derived From	Mayo Clinic		UWEC	
		α	$M(SD)$	α	$M(SD)$
Workload (1-7) <i>How hard did you have to work (mentally and physically) to accomplish your level of performance?</i>	NASA-TLX (Hart, 2006)	.79	5.59 (1.01)	.66	5.45 (0.89)
Emotional Distress (5 items, 1-5) <i>My work puts me in emotionally disturbing situations.</i>	COPSOQ (Pejtersen et al., 2010)	.81	2.86 (0.89)	.78	2.56 (0.80)
Moral Distress (1 item, 0-10) <i>I experience distress at work over having to do things I feel are unethical.</i>	Moral Distress Thermometer (Wocial & Weaver, 2012)	n/a	3.38 (2.95)	n/a	2.66 (2.53)
Work-Life Balance (3 items, 1-5) <i>My current working hours/patterns suit my personal circumstances.</i>	Work-Related Quality of Life scale (Fontinha et al., 2018)	.84	2.97 (1.01)	.82	2.85 (1.02)
Role Clarity (2 items, 0-4) <i>My job responsibilities are clearly defined.</i>	(Royal & Rossi, 1996)	.89	3.44 (0.82)	.84	3.13 (1.05)
Role Competence (3 items, 1-7) <i>I am confident about my ability to do my job.</i>	Psychological Empowerment at Work (Spreitzer, 1996)	.89	6.00 (0.94)	.88	6.03 (0.91)
Control and Autonomy (3 items, 1-7) <i>I have significant autonomy in determining how I do my job.</i>	Psychological Empowerment at Work (Spreitzer, 1996)	.92	4.88 (0.58)	.94	5.63 (1.22)
Skill Discretion (6 items, 1-5) <i>My work provides a variety of challenges.</i>	The Job Content Questionnaire (JCQ) (Karasek et al., 1998)	.73	3.73 (0.58)	.78	3.78 (0.57)
Meaning in Work (3 items, 1-7) <i>The work I do is very important to me.</i>	Psychological Empowerment at Work (Spreitzer, 1996)	.94	5.97 (1.08)	.93	5.86 (1.14)

Psychological Safety (9 items, 1-5) <i>I feel safe being myself at work.</i>	(Edmondson, 1999)	.86	3.66 (0.71)	.90	3.56 (0.86)
Shared Goals and Values (2 items, 1-5) <i>In my work unit, we share a common vision.</i>	(Carmeli & Gittel, 2009)	.91	3.85 (0.80)	.81	3.56 (1.05)
Positive Leader Behavior (9 items, 1-5) <i>My direct supervisor provides helpful feedback and coaching on my performance.</i>	Mayo Clinic Participatory Management Leadership Index (Shanafelt et al., 2020)	.94	3.71 (0.86)	.91	3.65 (1.00)
Fairness (6 items, 1-7) <i>I feel that my job responsibilities are fair.</i>	Distributive Justice (Niehoff & Moorman, 1993)	.87	4.86 (1.30)	.88	4.15 (1.42)
Values Alignment (3 items, 1-5) <i>Our organizational goals and values fit well with my goals and values.</i>	Stanford Values Alignment Scale (Shanafelt et al., 2021)	.87	2.58 (1.06)	.84	2.42 (0.98)

Procedure

We used an anonymous online questionnaire for this study. Data was collected using a secure online survey through Qualtrics. Study researchers sent out an email invitation that included a link to the survey. In the survey, employees answered questions about their 1) level of burnout and engagement at work, 2) perceptions of the imposed demands and available resources of their work, and 3) personality. The survey concluded with a brief demographics section that included questions about participants' current occupation (full-time/part-time, typical hours worked, length of time in current position). This study was approved by the Institutional Review Boards of the participating organizations.

Results

Of the 2,000 physicians and nurses in the Mayo Clinic Northwest Wisconsin region invited to participate, 589 (response rate, 29%) completed the survey. Of the 586 faculty and instructional staff at UWEC and UWEC-Barron County invited to participate, 140 (response rate, 28%) completed the survey. The demographic characteristics of the 589 Mayo Clinic physicians and nurses and 140 UWEC faculty and instructional staff are shown in Table 1. Among the Mayo Sample, 242 (41.1%) are presumed to be physicians indicated by salary pay and 338 (57.4%) are speculated to be nurses given they are hourly pay. The amount of time worked in the last week varied among the two samples, for Mayo Clinic respondents 45% worked less than 40 hours and 55% worked 40 hours or more, whereas 11% of UWEC respondents worked less than 40 hours

and 89% worked 40 hours or more.

Descriptive statistics for burnout are shown in Figure 1. Composite burnout scores (0 to 6) averaged 3.36 (SD= 1.63) for the Mayo Clinic sample (Figure 1A) and 2.97 (SD= 1.63) for the UWEC sample (Figure 1B). Nearly half of Mayo Clinic physicians and nurses, and one third of UWEC respondents, scored high in burnout (scored 4 and above). Responses to individual items for burnout are shown in Figure 2. In both samples (Figure 2A & 2B), responses to the burnout items suggest stronger feelings of burnout than emotional callousness. Descriptive statistics for engagement are shown in Figure 2. Mayo Clinic physicians and nurses reported a moderate level of engagement at work (M= 5.96, SD=1.92). Whereas UWEC faculty and instructional staff experience a moderate to high level of engagement at work (M= 6.77, SD= 1.63).

Figure 1. Descriptive Statistics for Burnout Among Samples.

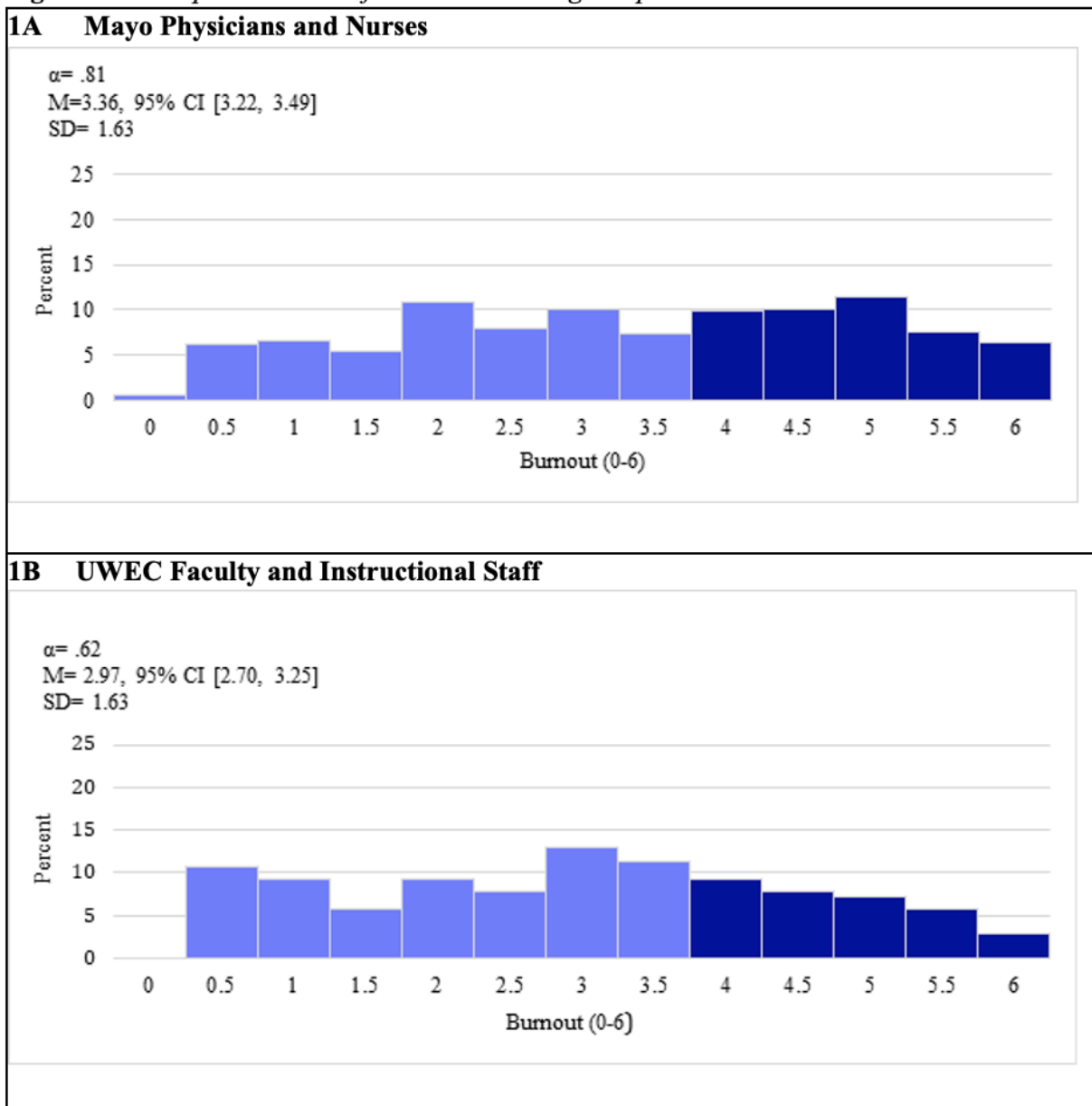


Figure 2. Responses to the Burnout Items.

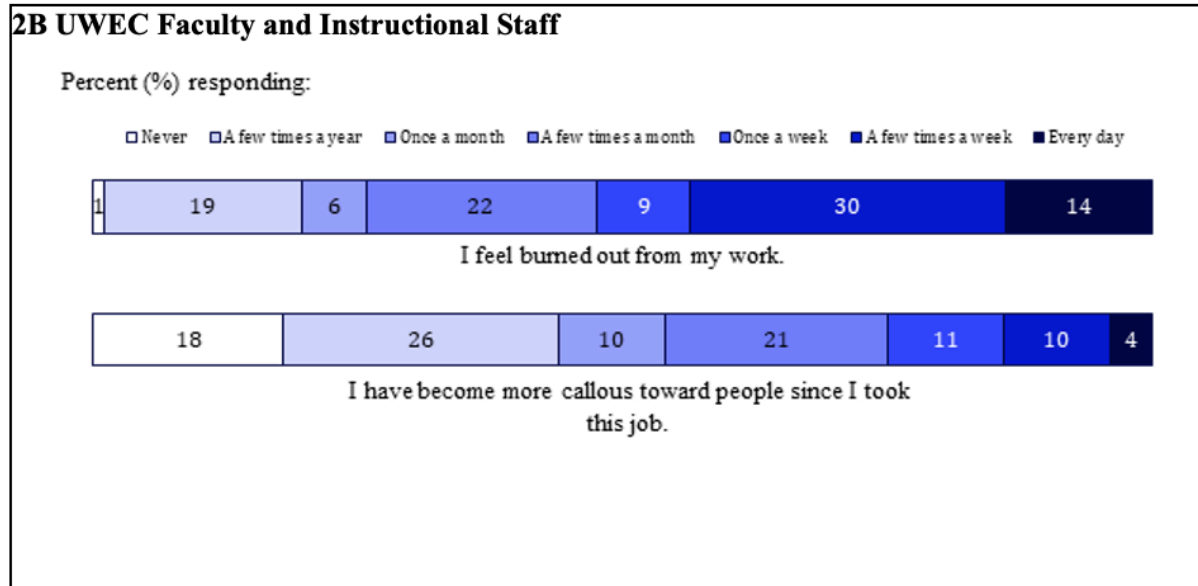
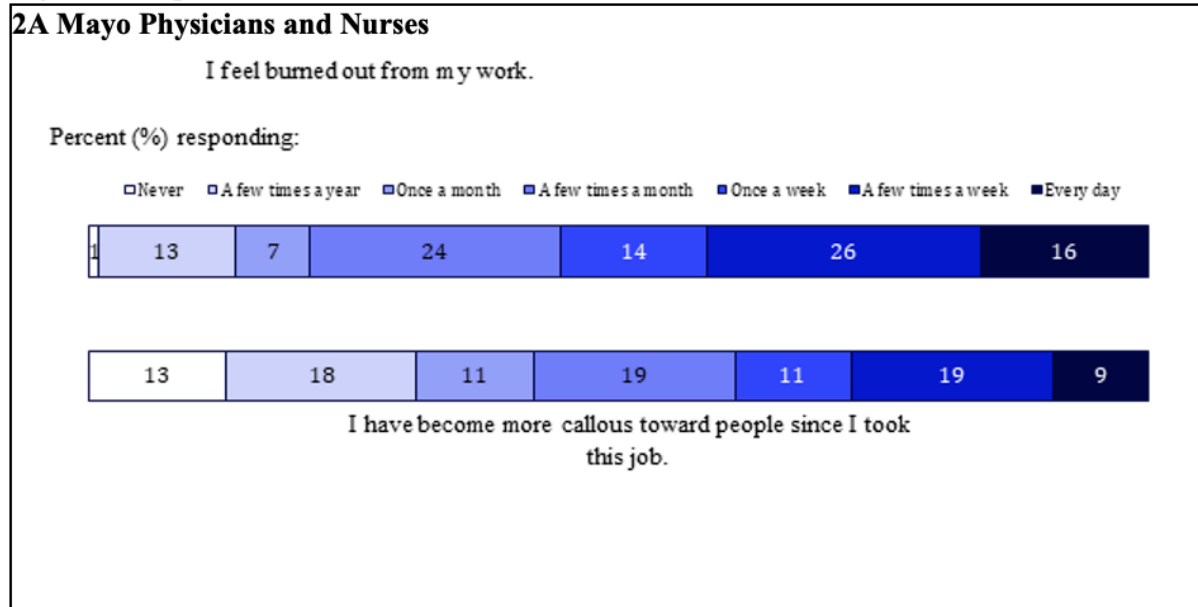
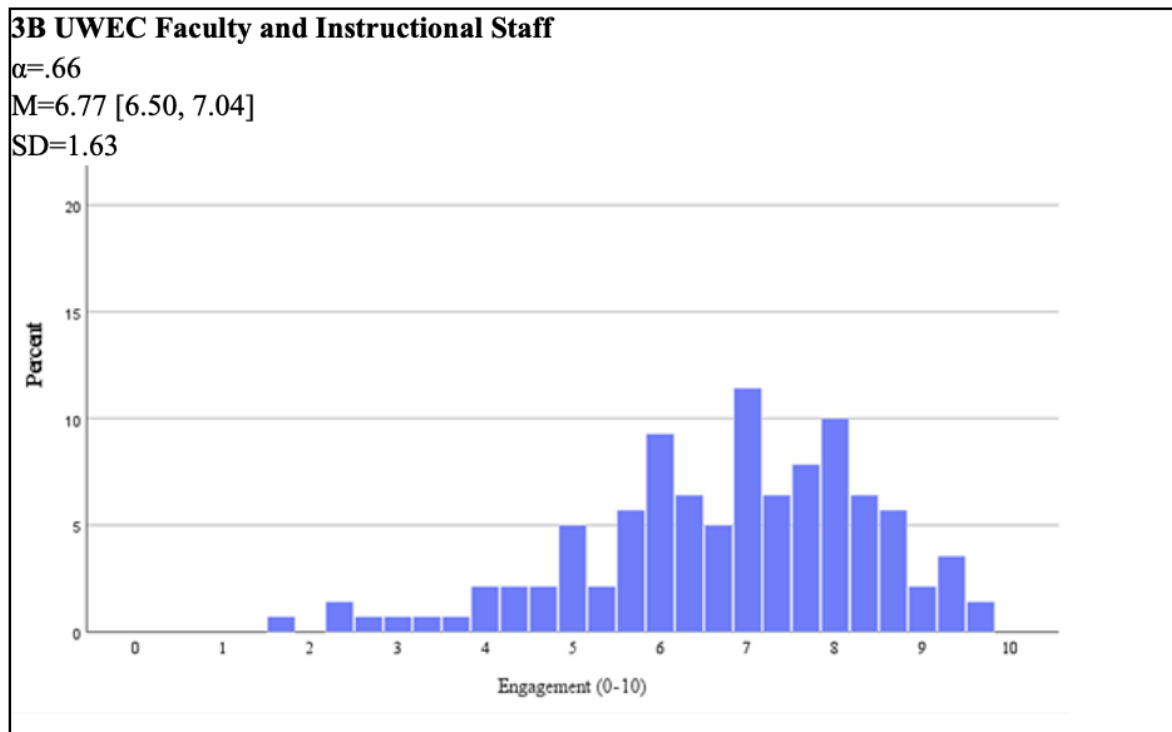
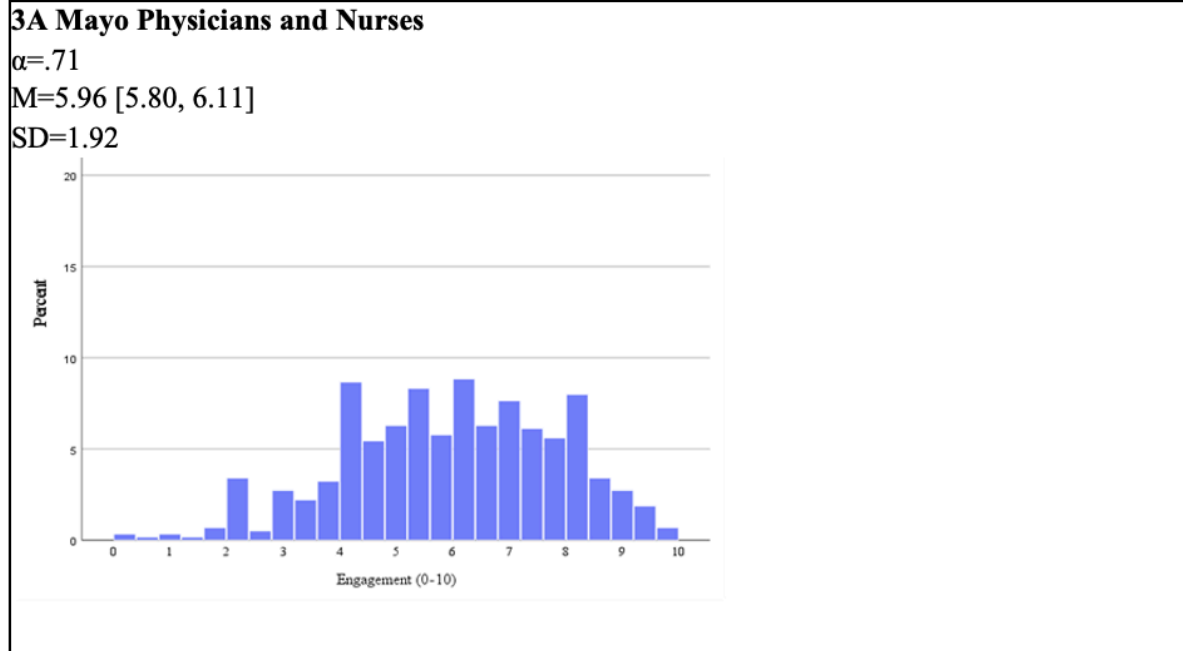


Figure 3. *Descriptive Statistics for Engagement Among Samples.*



Descriptive statistics for the personality traits measured (1-5 scale) are shown in Table 2. As shown in the table, Mayo Clinic physicians and nurses perceived themselves as quite conscientious and agreeable. UWEC faculty and staff perceived themselves as quite agreeable and open. Both samples scored themselves below the theoretical midpoint for negative emotionality.

Associations between employee personality traits and burnout are shown in Table 4. Employees' personality scores were tied to their level of burnout. In the Mayo sample, all five broad personality factors were tied to burnout. In the UWEC sample, the link between burnout and conscientiousness was similar in magnitude but not statistically; the negative association between burnout and agreeableness and the positive association between burnout and negative emotionality were statistically significant.

Associations between employee personality traits and engagement are shown in Table 5. In the Mayo Clinic sample, all five broad personality factors were tied to engagement. In the UWEC sample, all personality factors except openness were tied to engagement.

Table 4. *Associations Between Employee Personality Traits and Burnout.*

	Mayo (r, 95% CI)	UWEC (r, 95% CI)
Openness	-.10 [-.18, -.02]	.09 [-.06, .26]
Conscientiousness	-.12 [-.20, -.14]	-.15 [-.31, .03]
Extraversion	-.07 [-.15, -.02]	.00 [-.17, .17]
Agreeableness	-.19 [-.27, -.11]	-.30 [-.45, -.12]
Negative Emotionality	.36 [.28, .42]	.41 [.26, .53]

Table 5. *Associations Between Employee Personality Traits and Engagement.*

	Mayo (r, 95% CI)	UWEC
Openness	.15 [.07, .22]	-.03 [-.20, .14]
Conscientiousness	.18 [.10, .26]	.27 [.10, .41]
Extraversion	.18 [.10, .26]	.17 [.01, .33]
Agreeableness	.27 [.19, .34]	.22 [.05, .37]
Negative Emotionality	-.20 [-.28, -.12]	-.25 [-.40, -.09]

The links between work factors and burnout are shown in Table 6 and links between work factors and engagement are shown in Table 7. Employees' ratings of the various work factors were correlated with their levels of burnout and engagement. These are listed in order of magnitude for Mayo Clinic (strongest to weakest regardless of direction).

Table 6. Links Between Work Factors and Burnout.

	Correlation with Burnout (<i>r</i>, 95% CI)	
	Mayo Clinic	UWEC
Emotional Distress	.52 [.46, .58]	.49 [.35, .61]
Work-Life Interface	-.50 [-.55, -.43]	-.50 [-.61, -.36]
Fairness	-.47 [-.53, -.40]	-.59 [-.69, -.47]
Values Alignment	-.42 [-.49, -.35]	-.37 [-.50, -.21]
Moral Distress	.37 [.30, .44]	.38 [.23, .51]
Control and Autonomy	-.37 [-.44, -.29]	-.39 [-.53, -.24]
Psychological Safety	-.37 [-.44, -.20]	-.50 [-.62, -.37]
Meaning in Work	-.36 [-.43, -.29]	-.44 [-.56, -.30]
Shared Goals	-.33 [-.40, -.26]	-.53 [-.64, -.40]
Positive Leader Behavior	-.31 [-.38, -.23]	-.40 [-.53, -.26]
Role Clarity	-.28 [-.35, -.20]	-.44 [-.56, -.29]
Workload	.26 [.18, .33]	.24 [.07, .39]
Skill Discretion	-.24 [-.32, -.16]	-.37 [-.50, -.22]
Role Competence	-.22 [-.29, -.14]	-.17 [-.33, .00]

Table 7. Links Between Work Factors and Engagement.

	Correlation with Engagement (<i>r</i>, 95% CI)	
	Mayo Clinic	UWEC
Meaning in Work	.56 [.50, .61]	.51 [.38, .63]
Skill Discretion	.40 [.33, .47]	.31 [.15, .45]
Values Alignment	.38 [.31, .45]	.22 [.06, .37]
Fairness	.36 [.29, .43]	.21 [.05, .37]
Shared Goals	.35 [.28, .42]	.30 [.14, .45]
Psychological Safety	.33 [.26, .40]	.25 [.08, .40]
Work-Life Interface	.28 [.20, .35]	.23 [.06, .38]
Role Competence	.27 [.19, .34]	.18 [.01, .33]
Positive Leader Behavior	.27 [.19, .34]	.22 [.06, .37]
Emotional Distress	-.26 [-.34, -.19]	-.09 [-.25, .08]
Role Clarity	.25 [.17, .32]	.21 [.05, .37]
Control and Autonomy	.24 [.17, .32]	.13 [-.04, .29]
Moral Distress	-.23 [-.30, -.15]	-.12 [-.28, .05]
Workload	.06 [-.02, .14]	.11 [-.06, .27]

Regression models predicting burnout among Mayo Clinic physicians and nurses is shown in Table 8 and regression models predicting burnout among UWEC faculty and staff can be found in Table 9. We regressed burnout on the five personality dimensions and fourteen work factors. In subsequent models, we added work factors one by one (model by model), in order of the magnitude each work factor correlated with burnout. We continued this process until the addition of any given work factor no longer accounted for additional variance in the prediction. The included tables capture the results of these analyses. The final model for the Mayo Clinic sample accounted for 49% of the variance in burnout ($R^2 = .485$). Of the five personality traits in the Mayo sample, two significantly accounted for 14% of the variance in levels of burnout ($R^2 = .14$): Agreeableness and Negative Emotionality. After controlling for personality reports of emotional distress at work and work-life imbalance were the most consistent predictors of burnout among the Mayo clinic sample ($p < .001$). Other work factors that contributed, but less consistently, were perceptions of Justice/Fairness, Values Alignment, Meaning in Work, and Workload. In the final model for the UWEC sample, 49% of the variance accounted for burnout. The five personality traits accounted for 21% of the variance in levels of burnout ($R^2 = .21$). Agreeableness was negatively correlated, and Negative Emotionality was positively correlated and were statistically significant independent predictors. After controlling for personality, perceived fairness at work was a consistent negative predictor of burnout in the UWEC sample ($p < .001$). Other work factors that contributed, but less consistently, were perceptions of Shared Goals and Meaning in Work.

Table 8. Regression Results: Predicting Burnout among Mayo Clinic Physicians and Nurses.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>P</i>
Openness	-.03	.407	-.098	.005	-.086	.010	-.078	.020	-.076	.022	-.060	.065	-.058	.073
Conscientiousness	-.01	.847	.021	.564	.050	.156	.042	.223	.043	.217	.051	.132	.038	.262
Extraversion	.07	.080	.054	.138	.038	.274	.031	.373	.035	.305	.069	.046	.064	.062
Agreeableness	-.10	.019	-.071	.049	-.081	.018	-.075	.028	-.063	.067	-.030	.373	-.037	.273
Negative Emotionality	.35	<.001	.248	<.001	.210	<.001	.207	<.001	.208	<.001	.209	<.001	.203	<.001
Emotional Distress			.484	<.001	.364	<.001	.332	<.001	.320	<.001	.315	<.001	.282	<.001
Work-Life Interface					-.295	<.001	-.236	<.001	-.227	<.001	-.223	<.001	-.205	<.001
Fairness							-.124	.003	-.068	.139	-.045	.324	-.031	.486
Values Alignment									-.109	.008	-.076	.062	-.087	.033
Meaning in Work											-.176	<.001	-.198	<.001
Workload													.099	.005
ΔR^2	.144		.226		.071		.008		.007		.023		.006	
Total R^2	.144		.370		.441		.449		.456		.479		.485	

Table 9. Regression Results: Predicting Burnout among UWEC Faculty and Instructional Staff.

	Model 1		Model 2		Model 3		Model 4	
	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>P</i>
Openness	.095	.231	.062	.354	.047	.471	.034	.597
Conscientiousness	.046	.605	.068	.368	.053	.475	.055	.454
Extraversion	.064	.428	.015	.823	.024	.725	.042	.534
Agreeableness	-.193	.022	-.126	.077	-.097	.171	-.066	.348
Negative Emotionality	.373	<.001	.285	<.001	.258	.001	.264	<.001
Fairness			-.502	<.001	-.391	<.001	.363	<.001
Shared Goals					-.211	.009	-.157	.058
Meaning in Work							-.168	.024
ΔR^2	.212		.232		.028		.020	
Total R^2	.212		.444		.472		.492	

Regression models predicting engagement among Mayo Clinic physicians and nurses are shown in Table 10 and regression models predicting engagement for UWEC faculty and instructional staff are shown in Table 11. Burnout regression steps were replicated for the regression analysis of engagement in both samples. The final model for the Mayo Clinic sample accounted for 39% of the variance in engagement scores ($R^2 = .393$). Of the five personality traits, two significantly accounted for the variance in levels of engagement ($R^2 = .11$): Extraversion was positively correlated, and Agreeableness was negatively correlated. After accounting for personality traits, the most consistent predictors being Meaning in Work ($p < .001$), Skill Discretion ($p = .008$), and Fairness ($p = .016$). Other work factors that contributed, but less consistently, were perceptions of Values and Alignment, and Shared Goals. The final model for the UWEC sample accounted for 32% of the variance in engagement scores ($R^2 = .318$), with the only independent predictors being Conscientiousness ($p = .048$) and Meaning in Work ($p < .001$).

Table 10. Regression Model: Predicting Engagement among Mayo Nurses and Physicians.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>
Openness	.073	.073	.025	.477	.026	.467	.027	.437	.025	.457	.023	.494	.035	.312
Conscientiousness	.069	.109	.037	.327	.024	.517	.027	.460	.027	.448	.026	.464	.021	.550
Extraversion	.088	.042	.003	.943	.002	.962	.015	.689	.032	.381	.036	.330	.035	.334
Agreeableness	.200	<.001	.086	.023	.082	.027	.071	.054	.079	.030	.079	.030	.079	.030
Negative Emotionality	-.085	.052	-.060	.114	-.055	.144	-.039	.294	-.024	.520	-.016	.665	-.009	.815
Meaning in Work			.507	<.001	.434	<.001	.410	<.001	.391	<.001	.382	<.001	.377	<.001
Skill Discretion					.167	<.001	.103	.011	.105	.009	.096	.017	.108	.008
Values Alignment							.167	<.001	.078	.086	.062	.175	.049	.288
Fairness									.152	<.001	.131	.003	.109	.016
Shared Goals											.080	.044	.066	.101
Emotional Distress													-.077	.048
ΔR^2	.109		.219		.021		.021		.014		.004		.004	
Total R^2	.109		.329		.350		.371		.385		.389		.393	

Table 11. Regression Model: Predicting Engagement among UWEC Faculty and Instructional Staff.

	Model 1		Model 2	
	β	p	β	p
Openness	-.071	.396	-.014	.855
Conscientiousness	.167	.079	.166	.048
Extraversion	.105	.224	.064	.401
Agreeableness	.151	.088	.024	.768
Neuroticism	-.098	.321	-.066	.451
Meaning in Work			.469	<.001
ΔR^2	.122		.196	
Total R^2	.122		.318	

Discussion

Personality alone accounted for roughly 14% of the variance in burnout among Mayo Clinic employees and roughly 21% of the variance in burnout among UWEC faculty and instructional staff. This pattern is also exhibited for engagement, where personality alone accounted around 11% in the Mayo Clinic sample and 12% in the UWEC sample. These findings demonstrate the importance of accounting for personality when measuring levels of burnout and engagement. In both samples, individuals who are lower in agreeableness and lower in negative emotionality are more likely to express high levels of burnout. For engagement, only extraversion and agreeableness contributed to the variance in the Mayo Clinic sample.

An additional 35% of the variance in burnout in the Mayo Clinic sample and an additional 28% of the variance in burnout in the UWEC sample was explained by contributing work factors. In the Mayo Clinic sample, after controlling for personality, reports of emotional distress at work and work-life imbalance were the most consistent predictors of burnout. For the UWEC sample, after controlling for personality, perceived fairness at work was a consistent negative predictor of burnout. An additional 28% of the variance in engagement in the Mayo Clinic sample and an additional 20% of the variance in engagement in the UWEC sample was explained by work factors. In the Mayo Clinic sample, the most consistent predictors of engagement are Agreeableness, Meaning in Work, Skill Discretion, and Fairness. In the UWEC sample, the only independent predictors were conscientiousness and meaning in work.

Mayo Clinic has a strong history of organizational efforts to combat burnout and enhance engagement (Shanafelt & Noseworthy, 2017; DeChant et al., 2019; Dieser, Edginton, & Ziemer, 2017). We know of no parallel efforts out of UWEC for their faculty and instructional staff. Perhaps the university prioritizes students' well-being over that of faculty and instructional staff. However, students' and patients' quality of care and learning might actually have strong parallels. If faculty and instructional staff are more engaged and less burned out, they might display higher quality teaching as well as compassion toward their students, both of which would likely foster better learning. Further investigation is needed to get a better understanding of the outcome associated with faculty and instructional staff burnout throughout the educational system.

Our results suggest a need for strategies to mitigate burnout in health care as well as in higher education, and they also direct our attention to strategies that may be most effective. While we do not discourage individuals from personally working to strengthen specific work resources highlighted by these analyses, we do think that the nature of the work factors shown by our analyses to predict burnout implies the need for institution-level solutions.

For example, focus groups could be used to identify the specific areas from which negative perceptions of workplace conditions are originating. At Mayo, these focus groups would likely want to attend to the specific situations in which physicians and nurses feel that they are being placed under levels of emotional distress that fall outside of their general job description. Mayo could then hold sessions that could teach employees about ways in which they can better manage and cope with their emotional distress as it was reported in the previously held focus groups. Focus groups at UWEC could attend to the ways in which faculty and instructional staff feel that what is being asked of them is unfair. UWEC could then implement a way for faculty to semi-anonymously report instances in which they believe that they were treated unfairly.

Previous research lends support to the idea that the issues affecting work-life balance likely stem from the fact that skilled nurses and physicians have recently been in short supply despite increasing demands for quality healthcare amidst the COVID-19 pandemic. Additionally, the limited number of professionals who *are* available to give treatment increasingly lack the skills necessary to deliver effective care. Tentatively, a solution for this issue could be waitlisting patients based on the urgency of their presenting issues. This would mean that potentially fewer patients would receive care, but it might decrease the workload placed upon any one physician or nurse, which could reduce burnout and promote a higher quality of care.

Our data were collected at an unusual time in global history. It is possible that levels of burnout were higher than they would have been prior to the COVID-19 pandemic, especially in the case of Mayo physicians and nurses on the front lines of patient care. A possible future direction would include the associated differences between physicians and nurses using the same study design used in this study. Additionally, this data might look very different a few years down the line as the United States continues to move past the COVID pandemic. Additionally, the work factors that are less predictive of burnout today may later rise to the top amidst evolving economic and occupational conditions.

In conclusion, we have shown that employees who are relatively high in disagreeableness and negative emotionality are at increased risk of burnout. Yet, even after accounting for those individual risk factors, specific aspects of the work environment, notably *fairness* and *work-family balance*, contribute importantly to the prediction of burnout, and *meaning in work* contributes importantly to the prediction of engagement. Mayo Clinic and UWEC should put concerted effort toward enhancing these work factors for their employees, thereby reducing burnout, and enhancing engagement, and thereby potentially enhancing patient care and student learning.

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