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Chapter 18

How Healthcare Worker Well-Being Intersects with Safety Culture, Workforce Engagement, and Operational Outcomes

Kathryn C. Adair, Kyle Rehder, and J. Bryan Sexton

Since 2001, the Job-Demands-Resources Model has accurately and repeatedly demonstrated that increasing demands without also increasing (or in some cases even reducing) resources creates strain on the workforce (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004). This strain has been reflected in burnout, problems with well-being, low engagement, low safety culture, poor teamwork, and other concerning outcomes. Maslach describes a continuum between the negative experiences of burnout (exhaustion, cynicism, and inefficacy) and the positive experience of engagement (energy, involvement, and efficacy; Maslach & Leiter, 2016). The links between strain, burnout, and engagement are often underrecognized, yet they provide leaders with a clear path to bolster well-being and productivity in their workforces.

Unfortunately, the number and extent of demands placed on healthcare workers have risen in recent years (e.g., increased production pressure, additional administrative burdens, and complex EHR systems). Resources to meet these demands have not kept pace, leaving workers vulnerable to compromises in their well-being.

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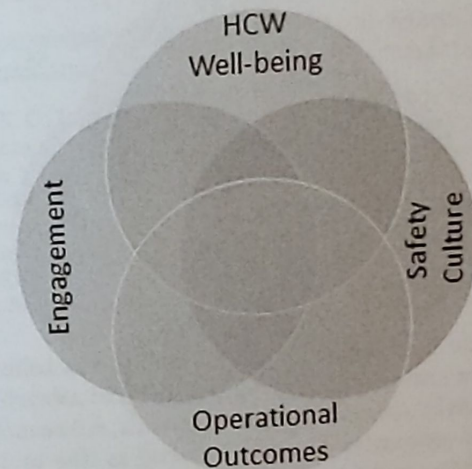
Fortunately, “resources” are not limited to staffing and budgets, but also include the broad range of physical, psychological, social and organizational aspects of ones’ job (Van den Broeck, Vansteenkiste, Witte, Soenens, & Lens, 2010). For example, aspects of the job that support workers in achieving their goals and/or stimulate personal growth, learning, and development may also functionally reduce physical and mental demands of the job. Ultimately, to better address the demands and resources that account for strain, much more focus is needed on the social and organizational environment in which individuals work.

When health care workers (HCWs) experience significant strain, we see it reflected in measures of disengagement (the opposite of engagement), poor safety culture, burnout (the opposite of well-being), and poor operational outcomes (e.g., increased medical errors, lower quality of care, higher standardized mortality ratios; Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Cimiotti, Aiken, Sloane, & Wu, 2012; Shanafelt et al., 2010). As we will see in this chapter, these concepts overlap considerably, and while no studies (to our knowledge) look at all four simultaneously, this chapter will include published and ongoing work highlighting the relationships between well-being, safety culture, engagement, and outcomes. For our purposes in this chapter, we consider the following aspects as separate indicators of well-being which together comprise a multidimensional assessment: emotional exhaustion, work-life balance, depression, and subjective well-being (Andresen, Malmgren, Carter, & Patrick, 1994; Lyubomirsky & Lepper, 1999; Maslach & Jackson, n.d.; Sexton et al., 2017). Measures of each of these constructs were selected for brevity, strong psychometric properties, and responsiveness to interventions (Adair, Kennedy, & Sexton, 2019; Rehder et al., 2019; Sexton & Adair, 2019).

18.1 Burnout, Safety Culture, and Workforce Engagement Are Linked

In the early days of the patient safety movement, around the release of the Institute of Medicine’s report “To Err is Human,” in 2000 (Institute of Medicine (US) Committee on Quality of Health Care in America, 2000), compelling links between HCW burnout and safe delivery of care were hypothesized but untested. Anecdotal stories of struggling HCWs making more errors certainly seemed logical: when we are emotionally exhausted, feeling like we are no longer good at our jobs, and cynical to the current processes in place in healthcare, it is natural to expect the quality of our work to suffer. Decades later, we no longer need to be armchair theoreticians about these links. Numerous well conducted studies demonstrate that work settings with higher burnout also have lower levels of safety culture and engagement (e.g., Adair et al., 2018; Henson, 2016; Rehder et al., 2019; Sexton et al., 2018), as well as higher rates of negative operational outcomes (e.g., medical

errors, infections, mortality; Aiken et al., 2002; Cimiotti et al., 2012; Shanafelt et al., 2010). Given the emphasis that contemporary healthcare has placed on improving HCW capacity to improve the care quality, we hope that this chapter will show that well-being acts as an overarching variable that influences ones’ ability to feel engaged with their work (e.g., participate in quality improvement projects, effectively collaborate with colleagues), successfully achieve operational goals (e.g., reducing infection, increasing patient satisfaction), and contribute to a positive safety culture (e.g., discussing errors, speaking up about safety concerns).



Advances in psychometrically sound safety culture and engagement measures, such as the SCORE (Safety, Communication, Operational Reliability, and Engagement) survey, have helped health systems identify the extent of burnout throughout their entities, as well as which units are struggling the most (Sexton et al., 2018). The SCORE survey includes measures of safety culture, workforce well-being, and engagement. Early safety culture assessment from 1995 through 2005 did not include engagement or well-being metrics, but these metrics were integrated more deliberately as rates of burnout rose among HCWs. Today, integrated surveys of safety culture and engagement are much more common, and provide empirical evidence for the concepts in this chapter.

Using several large samples, we have demonstrated that the SCORE domains of safety culture, well-being, and engagement are considerably related. Across 31 hospitals in Michigan, we found medium to large correlations between safety culture domains and emotional exhaustion ($r = .55$ to $.67$; see Table 18.1; Sexton et al., 2017). Significant links between emotional exhaustion and engagement were also identified, although they varied by engagement domain, with associations ranging from .28 (advancement) to .61 (participation in decision-making). These correlations are not surprising to HCWs who have personally experienced emotional exhaustion

up close and found that it can impair one's ability to consistently deliver optimal care. A relatively common comment from HCWs is "Of course burnout is linked to safety and engagement! Did you really need to conduct a study to show that?" and yet these data are invaluable when discussing the topic with reticent leaders who may believe that burnout is measured poorly, isn't their responsibility, or does not contribute to lower patient safety, and therefore they are not responsible for dealing with the issue.

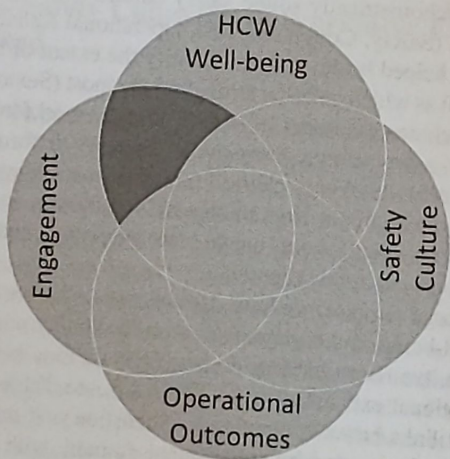
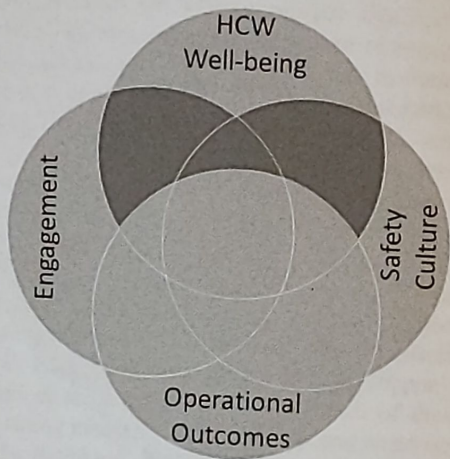


Table 18.1 Work setting level correlation matrix of safety culture and engagement domains across 829 work settings (Cronbach's alphas and ICCs in the diagonal)

Score domain	1	2	3	4	5	6	7	8	9	10	11	12
1 Improvement readiness	0.92, 0.16											
2 Local leadership	0.74	0.94, 0.17										
3 Teamwork climate	0.67	0.57	0.92, 0.19									
4 Safety climate	0.80	0.75	0.73	0.87, 0.17								
5 Personal burnout	-0.619	-0.59	-0.58	-0.64	0.92, 0.15							
6 Burnout climate	-0.61	-0.55	-0.67	-0.67	0.80	0.90, 0.26						
7 Advancement	0.39	0.35	0.34	0.40	-0.28	-0.27	0.89, 0.14					
8 Growth opportunities	0.70	0.62	0.58	0.71	-0.56	-0.56	0.89	0.92, 0.10				
9 Job satisfaction	-0.29	-0.30	-0.19	-0.27	0.33	0.29	-0.13	-0.30	0.88, 0.06			
10 Participation in decision-making	0.70	0.67	0.56	0.75	-0.61	-0.60	0.45	0.70	-0.29	0.88, 0.13		
11 Work-life climate	0.33	0.28	0.35	0.28	-0.51	-0.53	0.09	0.23	-0.23	0.87	0.82, 0.11	
12 Workload	-0.24	-0.26	-0.28	-0.27	0.56	0.53	-0.04	-0.30	0.15	-0.27	-0.50	0.84, 0.12

All correlations are significant at the $p < 0.01$ level, except the correlations between Advancement and Workload ($r = -0.04$, $p = 0.27$) and Advancement and Work-life climate ($r = 0.09$, $p = 0.53$).
 ICC, intraclass correlation.
 Sexton, J. B., Adair, K. C., Leonard, M. W., Frankel, T. C., Proulx, J., Watson, S. R., ... Frankel, A. S. (2017). Providing feedback following Leadership WalkRounds is associated with better patient safety culture, higher employee engagement and lower burnout. *BMJ Qual Saf*, *bmjqs-2016-006399*. <https://doi.org/10.1136/bmjqs-2016-006399>
 Note: The SCORE survey is comprised by two overarching domains (1) Safety Culture (subscales #1-6, and (2) Engagement (subscales #7-12). For more information about the constructs in this table see Adair et al. (2018); Rehder et al. (2019); Schwartz et al. (2019); Sexton et al. (2018); Sexton, Leonard, Frankel, & Adair, (2019)

We have identified links between HCW well-being and workforce engagement across a number of scales. In one large academic health system we collected SCORE's burnout climate domain (i.e., a measure of how emotionally exhausted you assess your colleagues to be), as well as personal emotional exhaustion and work-life balance (Schwartz et al., 2019). Separately, this health system also used the NDNQI (National Database of Nursing Quality Indicators; Montalvo, 2007) nursing engagement survey, which is required to qualify for prestigious Magnet recognition from the American Nurses Credentialing Center. When we aggregated responses for all surveys at the work setting level, we found medium to large negative correlations between all NDNQI domains (e.g., Staffing and Resource Adequacy, Leadership Access, Teamwork) and both burnout variables (see Table 18.2). It is clear that work settings reporting high levels of burnout are less engaged. Moreover, units with better work-life balance reported higher levels of nursing engagement across six out of the seven NDNQI domains. Since the work-life balance scale assesses frequencies of work-life infractions (e.g., skipping a meal, not taking breaks, getting home late, sleeping less than 5 h a night), these correlations suggest that work settings and organizations with cultures and policies that support work-life balance are more likely to have engaged workers.

Press Ganey is a commonly used company that administers and analyzes employee engagement surveys for healthcare settings in the US. In 2016 the health system in the prior analysis also used the Press Ganey work culture survey for assessing employee engagement (items included: "I like the work I do", "My entity makes every effort to deliver safe, error-free care to patients", and "I have confidence in senior

Table 18.2 Spearman correlations between HCW well-being domains, work culture, and national database of nursing quality indicators survey domains at the work setting level

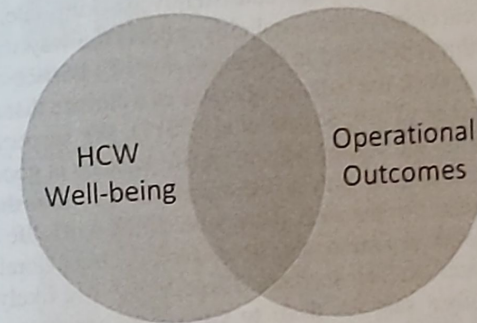
	Burnout Climate	Emotional Exhaustion	Work-life Balance	Work Culture (Press Ganey)
<i>NDNQI</i>				
Staffing and Resource Adequacy	-.63*** N = 71	-.62*** N = 71	.32** N = 70	.71*** N = 58
Autonomy	-.50*** N = 71	-.52*** N = 71	.33** N = 70	.83*** N = 58
Quality Fundamentals	-.53*** N = 71	-.51*** N = 71	.28* N = 70	.81*** N = 58
Professional Relationships	-.52*** N = 70	-.50*** N = 70	.27* N = 69	.70*** N = 57
Leadership Access	-.51*** N = 71	-.52*** N = 71	.28* N = 70	.83*** N = 58
Professional Development	-.48*** N = 70	-.49*** N = 70	.31* N = 69	.82*** N = 57
Teamwork	-.50*** N = 70	-.42*** N = 70	.11 N = 69	.68*** N = 57

Note: Burnout climate, Emotional Exhaustion (Personal burnout) and Work-life balance were measured with the SCORE survey
* $P < .05$, ** $P < .01$, *** $P < .001$

management's leadership'). This allowed us to examine Press Ganey's work culture survey's predictive ability with the NDNQI engagement measures. Assessments of work culture were highly correlated with the NDNQI domains (see Table 18.2). We found that better work culture was also correlated with lower levels of burnout climate ($r = -.59$, $p < .001$) and emotional exhaustion ($r = -.54$, $p < .001$), as measured by SCORE.

It is perhaps not surprising that surveys measuring seemingly similar constructs (work culture and engagement) would be highly correlated, but for those working to improve culture, these data indicate that their efforts are likely to return dividends in the form of higher engagement. The addition of the SCORE well-being domains indicates that other potential dividends are lower rates of emotional exhaustion and burnout climate, as well as better work-life balance. The integration of the safety culture, well-being, and engagement surveys was the beginning of a strong collaboration between Human Resources and Patient Safety/Quality Improvement within this health system.

18.2 Healthcare Worker Well-Being Is Related to Operational Outcomes



Healthcare leaders are intrigued by survey-to-survey correlations, but for many, the impact of burnout is only meaningful when it predicts operational outcomes. Several compelling studies have now established that higher healthcare worker burnout is associated with higher rates of turnover (Willard-Grace et al., 2019), healthcare acquired infections (Cimioti et al., 2012), medication errors (Fahrenkopf et al., 2008), medical errors (Kang, Liem, & Kong, 2013; Panagioti et al., 2018; Shanafelt et al., 2010), lower quality of care (Dyrbye et al., 2013; Panagioti et al., 2018; Shanafelt et al., 2012), lower patient satisfaction (Aiken et al., 2012; Panagioti et al., 2018), and higher standardized mortality ratios (Aiken et al., 2002). This body of research indicates that institutions can now predict which work settings are at higher risk for major medical errors based on their level of HCW burnout. These outcomes are not only emotionally devastating for patients and their families, as well as providers, but they are also incredibly costly.

A recent study estimated that the cost of physician burnout alone was approximately \$4.6 billion annually in the US (Han et al., 2019). This figure is a conservative estimate, as it only accounts for the cost of physician turnover and reduced clinical hours due to burnout, leaving many of the expensive consequences of burnout out of the calculations (e.g., infections, mortality, hospitalizations, and lower hospital reputation due to poor patient satisfaction). Moreover, the study examined only physicians, and while they are quite expensive to turnover, they represent a small percentage of the healthcare workforce. For instance, nurses outnumber physicians four to one (Organisation for Economic Co-operation and Development, 2015), and rates of burnout in nurses range between 30 and 40% (Molina-Praena et al., 2018). The monetary cost of nurse burnout is likely much greater than \$4.6 billion, and there is no price tag that can be put on the human toll that burnout is taking on HCWs, patients, and families.

In prior research we have found work-life balance behaviors (e.g. taking breaks, getting home on time, eating meals) are difficult for many in healthcare due to workload and demanding schedules (Sexton et al., 2017). Although work-life balance is typically discussed as an individual difference, we have found that work settings appear to have work-life balance norms, such that behaviors that support or detract from work-life balance (e.g., consistently working late, not eating lunch) become a part of local cultures that implicitly reflect “the way we do things around here”. Statistically this is revealed in the clustering of variance at the work-setting level, suggesting that work-life balance operates as a climate that differs from group to group (Schwartz et al., 2019; Sexton et al., 2017). We suspect that work setting norms and expectations are behind why work-life balance is good in some groups, and terrible in others. Leaders play a disproportionate role in the development of norms and expectations. For instance, those who model work-life balance by taking breaks and leaving work at a reasonable hours send the behavioral message “It’s ok to take care of yourself” to their workers. These leaders are likely to have workers who feel that it is then safe for them to engage in healthier work-life balance behaviors as well. When leaders model work-life balance, workers are also more likely to perceive that their well-being is genuinely supported, compared to groups where leaders verbally say that work-life balance is supported, yet will repeatedly send emails to their workers at 4:00 am.

Since work-life balance norms play a role in overall work culture rather than just for individuals, and since both are linked to emotional exhaustion (Tables 18.1 and 18.2), we expected to find that work settings with positive work-life balance scores and lower burnout scores (as measured with the SCORE survey), as well as positive work culture scores (as measured with the Press Ganey survey) would also experience lower rates of turnover and medication errors.

In our institutional data we found that work settings with better work-life balance reported lower rates of preventable medication related errors ($r = -.28, p < .05$; Table 18.3; Fig. 18.1), but work-life balance did not predict turnover. Work settings with lower emotional exhaustion scores reported fewer preventable medication related errors ($r = .41, p < .001$), and lower turnover ($r = .25, p < .05$). Surprisingly, Press Ganey’s work culture survey did not predict either outcome. These differential findings reveal a truism about survey measures: surveys vary in terms of their psychometric strengths and their ability to predict outcomes. Across our analyses, we find that the Press Ganey work culture survey predicts responses to other survey

Table 18.3 Spearman correlations between HCW well-being domains, work culture, and operational outcomes at the work setting level

	Burnout Climate	Emotional Exhaustion	Work-life Balance	Work Culture Press Ganey
Turnover	.35** N = 69	.26* N = 69	-.14 (NS) N = 69	-.06 (NS) N = 65
Preventable Medication Related SRS	.35** N = 68	.41*** N = 68	-.28* N = 68	-.15 (NS) N = 64

*P < .05, **P < .01, ***P < .001

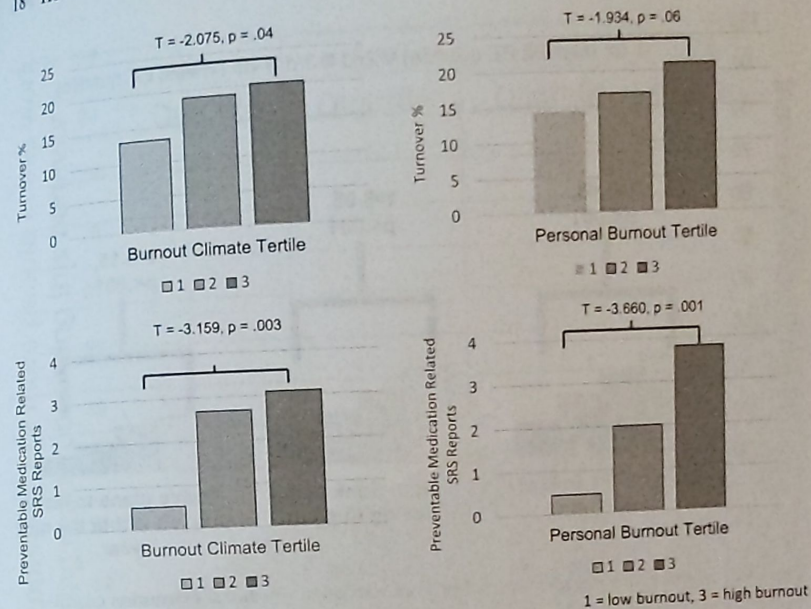


Fig. 18.1 Personal burnout and burnout climate’s associations with turnover and preventable medication related SRS reports

metrics like NDNQI, while other surveys such as SCORE predict responses to NDNQI as well as operational outcomes. Emotional exhaustion, burnout climate, work-life balance, and work culture predict NDNQI survey responses, but only the SCORE domains of emotional exhaustion, burnout climate, and work-life balance predicted operational outcomes in this sample.

In a recently published study, we examined whether work settings with higher rates of emotional exhaustion have workers with greater intentions to leave their positions or report more frequent disruptive behaviors in their teams (see Figs. 18.2, 18.3, and 18.4; Doram et al., 2017; Rehder et al., 2019). In a sample of 7923 HCWs from 16 hospitals within a large health system, HCWs of all roles reported on their emotional exhaustion, intentions to leave their position, and the frequency of six disruptive behaviors¹ taking place in their work setting (e.g., workers turning their backs before a conversation is over).

Work settings higher in burnout had workers who were significantly more likely to report intentions to leave their position (Fig. 18.2). As reported earlier, turnover is incredibly costly to institutions (Han et al., 2019), and frequent vacancies and replacements significantly disrupt the flow of patient care within high turnover

¹Note: The term “disruptive behaviors” is commonly used in the literature to refer to a set of unprofessional actions ranging from prematurely turning one’s back before a conversation is over to physical aggression.

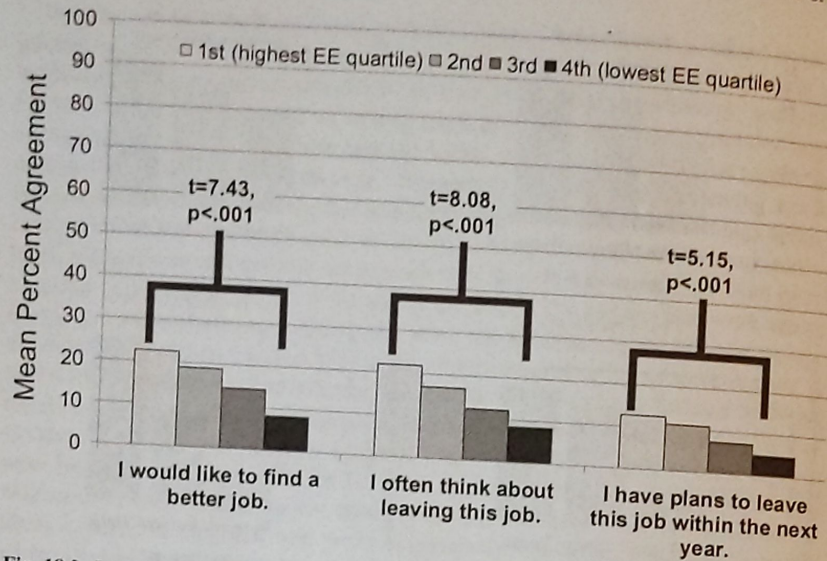


Fig. 18.2 Intention to leave rates across 319 work settings by emotional exhaustion quartiles

work settings. Building the trust, teamwork, and communication processes necessary for consistent patient care is impossible when staff are constantly leaving and joining teams.

We also found that 97.8% of work settings reported the presence of one or more of six disruptive behaviors (see Fig. 18.3 for disruptive behaviors distribution). Disruptive behaviors were significantly more common in work settings high in emotional exhaustion (Fig. 18.4). Individuals who are struggling may be more likely to act out in inappropriate and destructive ways. Unfortunately, disruptive behaviors can drastically destabilize the teamwork and psychological safety within teams and, in turn, undermine patient safety by increasing the risk of harm. Disruptive behaviors have been linked to more frequent adverse medical errors, decreased patient safety, lower quality of care, and higher patient mortality, in addition to organizational outcomes such as cost, staff turnover, and job dissatisfaction (Catron et al., 2016; Dang, Bae, Karlowicz, & Kim, 2016; Rawson, Thompson, Sostre, & Deitte, 2013; Rosenstein & Naylor, 2012; Rosenstein & O'Daniel, 2008).

18.3 Institutional Interventions to Improve Healthcare Worker Well-Being

Health systems, hospitals, and work settings with high rates of emotional exhaustion often have varied institutional approaches for addressing burnout. The leadership, cultures, and structures within these groups can drastically influence the direction of

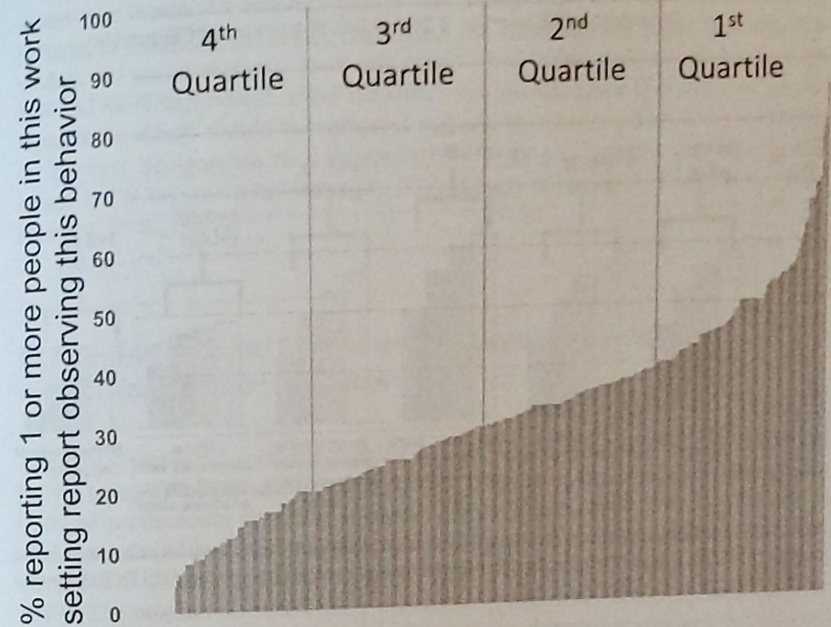


Fig. 18.3 Distribution of disruptive behaviors

the approaches taken. Research indicates that while there are effective, evidence-based approaches for both institutions and individuals to improve well-being, the data currently suggest that institutional interventions, on average, have a greater impact (Panagiotti et al., 2017). Unfortunately, many of these institutional interventions are also resource intensive, which may affect an institution's willingness to implement or sustain such a program. Yet there is almost certainly a positive return on such an investment through improved patient and staff outcomes.

18.3.1 Institutional Changes to the Work Environment to Improve Well-Being

Within the large academic health system mentioned earlier, across a sample of 69 units, we found that work settings with higher rates of burnout (across role type) also have higher rates of staff turnover, as well as higher medication related errors (see Table 18.3). These findings have shifted this health system's priorities to include empowering work settings to improve HCW well-being. Health system leaders provided resources and supported work setting leaders to implement the well-being tools, strategies, and policies they deemed most useful for their groups (e.g., altering scheduling policies, hosting regular potlucks and celebrations). Even

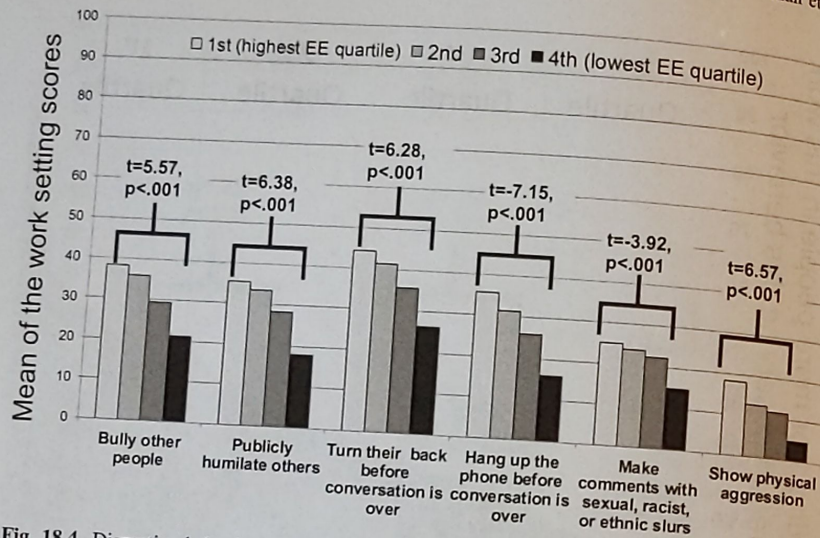


Fig. 18.4 Disruptive behavior rates across 319 work settings by emotional exhaustion quartiles. Figures 18.2, 18.3, and 18.4 are adapted from the dataset used in Doram et al. (2017); Rehder et al. (2019); Sexton et al. (2018)

greater focus was placed on work settings with particularly high emotional exhaustion scores. With these work settings, the typical first step was for well-being and patient safety leaders to hold focus groups (without local leaders present) to hear from the workers about problematic processes, or “pain points” that they felt were giving rise to burnout in their groups. The themes from the focus groups were then given to leaders to take action on what was heard. Importantly, leaders are asked to communicate “we heard you, and this is what we’re doing to fix it” in departmental and local meetings after taking action on focus group findings. This health system’s most recent culture survey indicates that these and other actions have been effective: 78% of the work settings that received this attention saw reductions in their emotional exhaustion scores between the 2017 and 2019 surveys.

Research has also demonstrated reductions in burnout as the result of workflow improvements and changing staffing models. Linzer et al. (2015) studied 34 primary care clinics, and using a cluster randomized control design found that changes to workflow were more powerful in reducing burnout than interventions aimed at improving communication and targeted quality improvement projects. Workflow changes at these sites varied, but included utilizing medical assistants to enter data into the EHR, improving patient flow through the clinic, pairing one medical assistant with each attending, and sharing information to make the clinic more efficient. In addition, a crossover pilot trial of two intensivist staffing models found that a shift work model (one intensivist working 7 day shifts, while other intensivist remained in the ICU at night) resulted in less burnout than the traditional

model (one intensivist working 7 days and taking night call from home; Garland, Roberts, & Graff, 2012). Moreover, patient outcomes did not differ between these models, yet nurses reported more role conflict and house staff reported less autonomy and more supervision under the shift work model. Since this was a small pilot study, these effects should be replicated with a larger sample. This study and others do however demonstrate that improving the work environment can significantly reduce HCW burnout (Garland et al., 2012; Linzer et al., 2015; Lucas et al., 2012; Panagioti et al., 2017).

18.3.2 Institutional Interventions Aimed at Improving Individuals’ Well-Being

There is a small but growing number of well-being interventions for individual HCWs being rolled out and tested at various institutions. One such initiative, a pilot study of professional coaching sessions for physicians across five months (3.5 h total), was found to significantly reduce emotional exhaustion and overall burnout compared to a randomized control group (Dyrbye, Shanafelt, Gill, Satele, & West, 2019). The program included thirty minutes of professional coaching sessions over the phone approximately every two to three weeks. Across the sessions, the following themes were discussed: integrating personal and professional life, optimizing meaning in work, building social support and community at work, improving work efficiency, building leadership skills, addressing workload, and engaging in self-care. Perhaps not surprisingly, physicians with higher burnout were more likely to enroll in the program, indicating it was more appealing to those with greater need. Although the pilot program reduced burnout, it was costly: US\$1400 per physician.

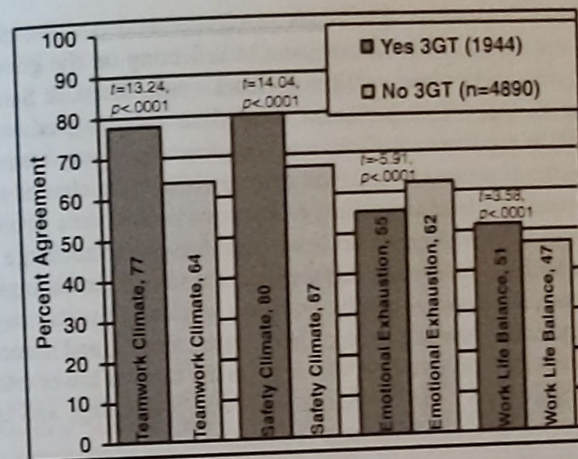
Another promising intervention, the COMPASS program, gave physicians protected time to meet twice a month for one year, in groups of six to ten, to discuss well-being, stress, and professional fulfillment topics (West, Dyrbye, Satele, & Shanafelt, 2015). The goals of the program were to encourage collegiality, to boost mutual support, and to find greater meaning in work, as routes to reducing burnout. Using a randomized controlled design, the COMPASS program was found effective in significantly reducing emotional exhaustion, depersonalization, and overall burnout, while also improving meaning, empowerment, and engagement. Improvements in depersonalization, meaning and engagement were sustained 12 months after the end of the intervention. It appears that having HCWs connect and discuss meaningful work and well-being topics can be quite beneficial, yet the institutional cost of providing this much protected time, particularly for physicians, could be cost prohibitive.

18.4 Interventions Aimed at Individuals to Improve Well-Being

Although many institutions are beginning to invest in well-being interventions for their workers, many are simply not prepared to do so yet. For the workers lacking well-being resources in their institutions, there still is some good news: The field of positive psychology has found evidence that brief, uplifting activities and tools can meaningfully improve well-being. Researchers in healthcare have recently introduced such tools, such as the Three Good Things (3GT) tool, to HCWs (Seligman, Steen, Park, & Peterson, 2005). Originally conceived for depression patients, 3GT simply asks participants to record three good things (large or small) that happened that day each evening for one to two weeks. It is a remarkably brief (2–5 min), straightforward, and (based on evaluations) enjoyable activity that decreases depression symptoms and increase happiness (Seligman et al., 2005). In our research, we found that HCWs participating in 3GT reported reductions in emotional exhaustion and depression symptoms, and gains in work-life balance and happiness from pre to post, and that these gains were sustained at the 6 and 12 month follow-ups (Sexton & Adair, 2019). Moreover, a follow-up study has shown that the improvements are detectable after just two weeks, and still present 12 months later (Adair et al., 2019). The Three Good Things tool is thought to improve well-being through several possible mechanisms. These include increasing the savoring of positive events while reflecting on them, anticipating having to complete the nightly tool and therefore being on the lookout for possible good things to note throughout the day, and becoming aware of the positive nature of events and experiences that had been previously taken for granted. We have identified these possible mechanisms as themes participants consistently express in open-ended questions posed to them about their experience with the tool. Across the days of participation, it is believed that attention paid to positive events in general grows, thereby boosting the frequency of positive emotions, as well as purpose, meaning, and fulfillment.

We recently rolled out an institution-wide initiative to encourage participation in the 3GT tool. A free online version of 3GT was built (see bit.ly/start3gt), and it sends nightly text messages or emails to prompt participation daily for 15 days. The link to enroll in the tool was widely shared among health system leaders and managers with an invitation to participate and or share with colleagues. A year later the health system surveyed all of its 12,716 workers on safety culture and well-being (72% response rate). Due to the timing of the 3GT tool and the system-wide survey, the question “I have participated in the ‘Three Good Things’ intervention” (Yes/No/Not Sure) was added. Those who said they participated in 3GT reported large and significant differences across all survey domains, teamwork, safety climate, emotional exhaustion, and work-life balance, compared to those who said they did not participate in 3GT (see Fig. 18.5). Of course we cannot assume causation from these data, they are suggestive in so far as they reveal associations between participating in 3GT and better safety culture and well-being.

Fig. 18.5 Safety culture and well-being scores based on participation in three good things



18.5 A Possible Mechanism Behind Interventions' Effectiveness

In a field where such a large number of people are suffering from burnout, finding or creating effective interventions is essential. Moreover, identifying an underlying mechanism of action, or similar driving force behind the interventions' effectiveness would be quite valuable, as it would help refine current interventions to enhance that particular mechanism. This knowledge could also inspire and shape the development of future interventions to make them even more meaningful and effective.

The interventions listed above do share one key quality: participants are given the time to *pause and reflect* on what is going well, which can facilitate feeling greater purpose and meaning. Many healthcare workers struggle to find time to go to the bathroom or grab a bite to eat, so it is not surprising that taking the time to deliberately focus on what is going well is an underutilized practice. Research indicates that burnout actually predicts decrements in one's ability to pay attention to positive stimuli in the environment. Using eye-tracking technology, Bianchi and Laurent (2015) found that burnout was associated with increased attention to negative images, and decreased attention to positive images, meaning that those who would benefit most from enjoying positive images were exactly those who were least likely to look at them. Given this attentional bias, there is a large opportunity to deliberately boost positive emotions, purpose, and meaning through interventions designed to give HCWs time (even a small amount of it, as seen in 3GT) to pause and reflect on what is going well.

Awareness of good things, big and small, may help HCWs recalibrate their sense of how things are going, the impact that their work is having, and remind them of the aspects of their job that gives them greater purpose and meaning. By reconnecting with these aspects of their work, individuals are likely to feel more energy to improve themselves, as well as identify and work on areas for improvement in

their institutions. The fields of clinical and positive psychology have repeatedly demonstrated the effectiveness of reflecting on the good to improve mental health issues and general well-being (Duckworth, Steen, & Seligman, 2005). Based on the studies and data presented throughout this chapter, we believe that institutions, HCWs, patients, and patients' families might reap tremendous benefits from institutional programs designed to give HCWs the chance to *pause and reflect* on the good (while also working to improve problematic process and policies). In other words, providing HCWs with opportunities to recharge their batteries offers them additional bandwidth that they can use to make meaningful differences, deliver safe care, and improve quality along the way. Luckily, this psychological practice can be incredibly low in cost (e.g., 3GT), brief, simple, and immediately enjoyable. Benefits from such programs would come in the form of lower rates of burnout and turnover, higher rates of HCW engagement and well-being, and ultimately safer and higher quality of care for patients and families.

18.6 Summary of This Chapter

Looking across the preponderance of empirical evidence presented here, there are a few overarching concepts that can be gleaned from the results. Well-being metrics such as emotional exhaustion and work-life balance have reliable and consistent relationships with safety culture, employee engagement, and operational outcomes. Emotional exhaustion (a key pillar of burnout) is moderately to strongly associated with less engagement through fewer perceived growth opportunities, less participation in decision making, and higher workload. Well-being metrics (emotional exhaustion, burnout climate, and work-life balance) as well as Press Ganey Work Culture scores are associated with self-reported nursing practice environment scales from NDNQI. Nevertheless, in our experience, we have consistently found that only well-being metrics are also associated with *both* the self-reported outcomes like NDNQI practice environment domains, *as well as* costly operational outcomes like turnover, preventable harm, and disruptive behaviors by fellow HCWs.

Not only is emotional exhaustion costly due to higher rates of infections, medical errors, lower patient satisfaction, and turnover (at least \$4.6 billion; Han et al., 2019), it is linked to much higher rates of incivility at work, such as more bullying behaviors, hanging up the phone or turning one's back before a conversation is over and even displays of physical aggression such as grabbing, throwing, hitting and pushing. Rates of incivility often doubled when comparing lowest quartile of emotional exhaustion to the highest. Similarly, emotional exhaustion was linked to both turnover and intentions to leave, with rates of intentions to leave more than double in the highest versus lowest quartile of emotional exhaustion.

The demonstrably higher costs of well-being deficits, their consequences for HCW mental and physical health, as well as operational outcomes are troubling. Fortunately, a growing body of empirical evidence suggests that the well-being of individuals and groups is responsive to interventions. Positive psychology tools such

as 3GT (Sexton & Adair, 2019), as well as programs such HCW coaching (Dyrbye et al., 2019) and COMPASS (West et al., 2015) mentioned here each share a common element of pausing and reflecting on what is going well. Remarkably, these reflective practices go a long way toward improving well-being metrics such as emotional exhaustion, work-life balance, depression and subjective well-being (for more examples of resources please visit: www.hsq.dukehealth.org/tools). Ultimately, HCWs are vulnerable to compromises in well-being and have earned the right to have researchers, administrators and policy makers come together to engineer better systems of care delivery, and to provide more accessible and diverse resources to enhance well-being in general.

Key Messages for Researchers

- Regular assessment (e.g. every 18 months) of well-being using psychometrically valid measures (e.g., emotional exhaustion, burnout climate, work-life balance) can identify work settings at higher risk for lower engagement and professionalism (e.g., intentions to leave, turnover, disruptive behavior), as well as higher patient safety risks (e.g., infections, medication errors)
- Interventions designed to improve HCW well-being should be assessed for effectiveness using psychometrically valid measures, and ideally randomized control designs

Key Messages for Healthcare Delivery

- Regular measurement of HCW well-being can identify work settings at greater risk for patient safety events. Leaders should use this information to target struggling units, help solve pain points in these groups, and provide ongoing well-being resources
- Investment in effective well-being interventions, particularly those that include *pausing and reflecting on what's going well*, are likely to result in lower turnover, fewer disruptive behaviors, fewer errors, and better patient outcomes. These results make investments in well-being highly financially worthwhile

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