Scientific Paper Entitled: Understanding Work-Life Balance Of Healthcare Staff And Its Effects On Burnout And Safety Culture - A Cross-Sectional Survey Study In The Kingdom Of Saudi Arabia

Salem Zaid Amer Alamer[1], Adwaa Abdulmohsin Ali[2], Fatahyah Saud A Humoud[3], Nisreen Abdul Rahman Muhammad[4], Mohammed Alnashmi N ALSHelwi[5], Haitham saeed Abdullah alasmari[6], Abdulaziz Abdulrahman Rashed Alabdullatif[7], Mariam Alaswad Rakan Alenazi[8], Adel Damen Siah Alshmmari[9], Shahab Eid Slashed[10], Muhammad Mutlaq Manqash Al-Otaibi[11], Fahad Metlaa Awad Alotaibi[12], Abdullah Mohamed Aliw Hazazi[13], Wedad Mohammed Maadi Abass[14], Dhoha mohammed Hassan kaseb[15], Maryam Sultan Alanzi[16], Abdullah Juwayid Alotaibi[17],Shorouq Abdulrhman Mohammed Alotibi[18], Fahd Hamad Al Saad[19]

Abstract

Background: *The healthcare sector in Saudi Arabia is facing increasing challenges related to work-life integration (WLI) and its impact on healthcare workers' burnout and job satisfaction. To address this issue, a scale was introduced to measure WLI behaviors and evaluate work-life balance in a Saudi Arabian healthcare system.*

Objectives: *(1) Investigate variations in WLI behaviors based on role, specialty, and other demographic factors among healthcare w[1]orkers in a large Saudi Arabian healthcare system.*

1. Salem Zaid Amer Alamer, Nursing, Eradah Complex and Mental Health Cluster, Ministry of Health, Kingdom of Saudi Arabia.
2. Adwaa Abdulmohsin Ali, Critical Care Nursing Specialist, King Salman Hospital, Ministry of Health, Kingdom of Saudi Arabia.
3. Fatahyah Saud A Humoud, Nursing Technician, King Faisal Hospital in Mecca, Ministry of Health, Kingdom of Saudi Arabia. F
4. Nisreen Abdul Rahman Muhammad 'Nursing Eradah complex for Mental Health-Tabuk, Ministry of Health, Kingdom of Saudi Arabia.
5. Mohammed Alnashmi N ALSHelwi, Paramedic, Prince Mohammed. Prince Mohammed bin Abdulaziz Hospital, Ministry of Health, Kingdom of Saudi Arabia.
6. Haitham saeed Abdullah alasmari , Emergency medical services specialist, Prince Mohammed bin Abdulaziz Hospital, Ministry of Health, Kingdom of Saudi Arabia.
7. Abdulaziz Abdulrahman Rashed Alabdullatif, Emergency medical services specialist, Prince Mohammed bin Abdulaziz Hospital, Ministry of Health, Kingdom of Saudi Arabia.
8. Mariam Alaswad Rakan Alenazi, Sttaf Nurse, Alyammamh Hospital, Ministry of Health, Kingdom of Saudi Arabia.
9. Adel Damen Siah Alshmmari, Medical Secretary, Ministry of Health, Kingdom of Saudi Arabia.
10. Shahab Eid Slashed, Health Administration Technician, Ministry of Health, Kingdom of Saudi Arabia.
11. Muhammad Mutlaq Manqash Al-Otaibi, Medical records Technician, Dawadmi General Hospital, Ministry of Health, Kingdom of Saudi Arabia.
12. Fahad Metlaa Awad Alotaibi, Radiology Technician King Khalid Alkharj Hospital, Ministry of Health, Kingdom of Saudi Arabia.
13. Abdullah Mohamed Aliw Hazazi, Pharmacy, Al-Harth Hospital, Ministry of Health, Kingdom of Saudi Arabia.
14. Wedad Mohammed Maadi Abass, Nursing Specialist, Jazan General Hospital, Ministry of Health, Kingdom of Saudi Arabia.
15. Dhoha mohammed Hassan kaseb, Specialized Dental Center in Jazan, Ministry of Health, Kingdom of Saudi Arabia.
16. Maryam Sultan Alanzi, Nurse Technician Public Health Administration, Ministry of Health, Kingdom of Saudi Arabia.

(2) Assess the psychometric properties of the work-life climate scale and examine its applicability as a group-level norm in the work setting. (3) Examine the associations between work-life climate and other healthcare climates, including teamwork, safety, and burnout.

Methods: *A cross-sectional survey study was conducted in 2016 among healthcare workers in a large academic healthcare system in Saudi Arabia.*

Results: *A total of 13,040 eligible healthcare workers from 440 work settings within seven entities of the healthcare system participated in the survey, resulting in an 81% response rate. The internal consistency of the work-life climate scale was found to be α=0.830. WLI behaviors exhibited significant variations based on healthcare worker role, length of time in specialty, and work setting. Random effects analyses of variance demonstrated significant between-work setting and within-work setting variances, with intraclass correlations indicating clustering at the work setting level. T-tests comparing work settings in the top and bottom quartiles of WLI revealed that a positive work-life climate was associated with improved teamwork and safety climates, as well as lower personal burnout and burnout climate (p<0.001).*

Conclusion: *Issues related to WLI are prevalent among healthcare workers in Saudi Arabia and exhibit significant variations based on position and length of time in specialty. Contrary to common perception, WLI operates as a climate and is consistently linked to positive safety culture norms. These findings emphasize the importance of addressing WLI in healthcare settings to improve overall well-being and enhance healthcare climates.*

Keywords: *work-life integration, work-life balance, burnout, teamwork climate, safety climate, safety culture, survey, scale, Saudi Arabia.*

Introduction

Healthcare staff in Saudi Arabia often face challenges in maintaining a healthy work-life integration (WLI) due to the sacrifices they make for their work (Sexton et al., 2017; Shanafelt et al., 2015). The demands of healthcare delivery, coupled with poorly designed systems and misaligned incentives, can have negative consequences on their personal lives, leading to issues such as marital discord, immune system dysfunction, and shortened life expectancy (Kavalieratos et al., 2017). There is a growing concern about the psychosocial experiences of healthcare workers in Saudi Arabia, as burnout and dissatisfaction with work-life balance (WLB) continue to rise (Mache et al., 2015).

To address these concerns, a work-life climate scale was introduced in Saudi Arabia. This scale assesses the frequency of behaviors such as skipping meals, taking breaks, and changing personal plans for work (Sexton et al., 2017). By focusing on the frequency of these behaviors, this scale overcomes the limitations of previous scales that primarily focused on satisfaction with work-family balance or work-family conflict. In the past, researchers have often used a single item to evaluate WLI, such as "My work schedule leaves me enough time for personal/family life." However, by assessing multiple behaviors, this new scale provides a more comprehensive and objective assessment of WLI, allowing for more targeted interventions and actions to improve the situation for healthcare professionals in Saudi Arabia (Shanafelt et al., 2012).

[17.] Abdullah Juwayid ALotaibi, Health Assistant, nursing, Al-Iman general hospital, Ministry of Health, Kingdom of Saudi Arabia.
[18.] Shorouq Abdulrhman Mohammed Alotibi, Nursing Specialist, Ministry of Health, Kingdom of Saudi Arabia.
[19.] Fahd Hamad Al Saad, Health Administration Technician, Al Iman General Hospital, Ministry of Health, Kingdom of Saudi Arabia.

To meet the requirements of the Joint Commission in Saudi Arabian hospitals, there is a focus on assessing safety culture, which includes measuring teamwork climate (interpersonal relationship norms) and safety climate (shared perceptions of patient safety norms and quality measures) (Sexton et al., 2011). Studies have shown that both safety and teamwork climate are associated with clinical and operational outcomes, such as hospital-acquired conditions, surgical complications, and mortality (Shanafelt & Noseworthy, 2017). Additionally, burnout, which is defined as emotional exhaustion, loss of meaning in work, feelings of ineffectiveness, and objectifying people, has gained attention due to its impact on the quality of care and the healthcare delivery system. Burnout is often included in routine safety culture surveys and has been linked to various outcomes (Shanafelt et al., 2009).

Healthcare workers in Saudi Arabia report being comfortable tending to their non-work needs only when there is a cultural norm and support from supervisors and coworkers for work-life integration (WLI). Building on previous work, this study utilized recent culture survey data from a large healthcare system in Saudi Arabia to validate and explore the relationships associated with the work-life climate scale (Kossek et al., 2011; Morparia, 2015). The hypothesis was that work settings with better work-life climate would also exhibit better safety culture norms. The study aimed to (1) examine differences in WLI behaviors based on role, length of time in specialty, and other demographic factors within the healthcare system, (2) evaluate the psychometric properties of the work-life climate scale and its aggregation at the work setting level as a climate or group-level norm, and (3) explore associations between work-life climate and other domains, including teamwork, safety, and burnout.

Aim of the study

- Investigate variations in Work-Life Integration (WLI) behaviors among different roles, specialties, and demographic characteristics within a comprehensive healthcare system.
- Assess the reliability and validity of the work-life climate scale, and examine its capacity to function as a collective norm or climate within specific work settings.
- Examine the correlations between the work-life climate and various other healthcare climates, such as teamwork, safety, and burnout.

Study Questions:

- What are the associations between work-life climate and other domains, such as teamwork, safety, and burnout, in a large healthcare system in Saudi Arabia is the nurses' level of knowledge about epilepsy in government hospitals in Riyadh?
- What are the differences in work-life integration (WLI) behaviors based on healthcare workers' roles, length of time in specialty, and other demographic factors within the healthcare system in Saudi Arabia?

Study Limitations

- Spatial Limitations: The study will be conducted in Riyadh, Saudi Arabia.
- Temporal Limitations: The study will be conducted in the year 2022.
- Human Limitations: The study will be conducted on a sample of healthcare staff in the government health sector in Riyadh.
- Subjective Limitations: The study is limited to investigate Understanding Work-Life balance of healthcare staff and its effects on Burnout and Safety Culture - A Cross-Sectional Survey Study in the kingdom of Saudi Arabia.

Study sample

The study sample, selected from the study population, comprises a subset of individuals or elements representing the population accurately. The sample is chosen based on scientific criteria, utilizing random or non-random selection methods. The researchers selected a random sample of 10627 healthcare staff from the governmental healthcare sector in Riyadh city.

Ethical consideration

This study received ethical approval from the Medical Ethics Committee of government health sector in Riyadh city. Prior to data collection, informed consent was obtained from all participants, ensuring their understanding and agreement to participate. The confidentiality of participants' clinical data and basic information was strictly maintained.

Methods

Study design and population

This is a cross-sectional study conducted in Saudi Arabia, using electronic survey data collected in May 2016. The study included 10,627 healthcare workers from 440 work settings within seven entities of a large academic health system on the east coast of Saudi Arabia. The work settings encompassed various healthcare facilities such as intensive care units, inpatient units, outpatient clinics, pharmacies, clinical labs, and home care and hospice groups. To be eligible for participation, staff members needed to have a commitment of 50% or more full-time equivalent to a specific work setting for at least four consecutive weeks.

The survey used in the study was the Safety, Communication, Operational Reliability, and Engagement (SCORE) survey (Sexton et al., 2018), which has been validated and measures work setting norms related to teamwork climate, safety climate, local leadership, improvement readiness, personal burnout (specifically emotional exhaustion), and burnout climate (Sexton et al., 2006). The subscales of the survey were assessed using a Likert scale. The SCORE survey is a recognized tool for evaluating work setting norms (Parker et al., 2003).

Measurement of work-life climate

For the purposes of this study conducted in Saudi Arabia, the terms work-life balance (WLB) and work-life integration (WLI) are used interchangeably. The study utilizes the work-life climate scale, which is a psychometrically valid measure for assessing individual differences in WLI behaviors. Previous research suggests that when aggregated within work settings, this scale reflects the norms of WLI in those specific work settings.

The work-life climate scale consists of a prompt followed by eight phrases, and respondents are asked to indicate the frequency of each occurrence during the past week. The phrases include:

1. Skipped a meal.

2. Ate a poorly balanced meal.

3. Worked through a day/shift without any breaks.

4. Arrived home late from work.

5. Had difficulty sleeping.

6. Slept less than 5 hours in a night.

7. Changed personal/family plans because of work.

8. Felt frustrated by technology.

Respondents can choose from the following response options: rarely or none of the time (less than 1 day); some or a little of the time (1–2 days); occasionally or a moderate amount of time (3–4 days); all of the time (5–7 days); and not applicable. Not applicable responses are excluded from the analysis.

The scale can be scored in two ways depending on the level of analysis:

1. As an individual difference measure, where the mean score of the eight items is calculated for each respondent. Higher scores indicate worse WLI.

2. Assessing WLI at the work setting level (i.e., local WLI norms) using a previously published technique. This technique computes the percentage of respondents within each work setting with a mean score of 2 or less (averaging 2 days or fewer per week of poor WLI). Aggregated scores are described as "percentage positive" or "percentage reporting good work-life climate," indicating better WLI.

Statistical analysis

Missing data cases (ranging from 0.8% to 3.3% depending on the analysis) were excluded from all analyses. Two-tailed hypothesis tests were conducted throughout the study. The characteristics of the respondents were described using frequencies and means (±SD). Internal reliability was assessed using Cronbach's alphas. To understand the variance components, random effects analyses of variance (REANOVA) were performed to partition the scale and item variance into within-work and between-work setting components. Intraclass correlations (ICC) were calculated to determine the proportion of total variance in the WLI scale that was accounted for by clustering at the work setting level and to assess the need for work setting level analyses. ANOVAs were used to test for differences in the work-life climate scale score based on respondent characteristics. Independent sample t-tests examined differences between WLI quartiles. Spearman correlations were used to explore associations between work-life climate items and the scores of the safety culture domain scale. All statistical analyses were conducted using IBM SPSS V.24.

Results

Socio-demographic characteristics

Out of the 13,040 surveys distributed, 10,627 were completed and returned, yielding an overall response rate of 81%. **Table 1** displays the demographic information of the survey respondents.

Work-life climate scale internal reliability and ICCs

The internal consistency of the work-life climate scale was assessed, yielding a Cronbach's alpha of 0.83 (Table 1). Spearman correlations between the eight items ranged from r = 0.21 to r = 0.60, all statistically significant at p < 0.001. Both between-work setting and within-work setting variances for the work-life climate scale and its items were statistically significant (all p < 0.001).

The intraclass correlation coefficient (ICC) for the overall work-life climate across work settings was 0.09, indicating that 9% of the total variability in work-life climate scores could be attributed to differences between work settings. The ICCs for individual items ranged from 0.045 to 0.107, suggesting that between 4.5% and 10.7% of the total variability in the WLI items could be attributed to differences between work settings. At the entity level, the ICC was lower at 0.04.

Previous research suggests that ICC values around 5% indicate a small to medium group membership effect. In this study, the ICC of 9% for the overall work-life climate suggests a non-trivial degree of clustering, indicating that WLI operates like a climate and supports aggregation at the work setting level.

Work-life climate scale variation by healthcare staff role, hospital and work setting

In the analysis conducted there is significant differences were found in the work-life climate scale based on healthcare staff roles ($F(1, 17) = 25.36$, $p < 0.001$) and work settings ($F(1, 396) = 3.25$, $p < 0.001$). **Figure 1** illustrates the percentage of individuals reporting a good work-life climate (engaging in specific behaviors 2 days or less per week) according to healthcare staff roles, work settings, years in specialty, and shift type and length. Among healthcare worker roles, physicians at all stages (residents, fellows, and attending physicians) reported the highest frequency of poor work-life integration behaviors.

Significant differences in the work-life climate scale were also observed based on years in specialty ($F(1, 6) = 8.05$, $p < 0.001$). A post hoc Scheffé test revealed that individuals with less than 6 months of experience in their respective specialty had significantly better work-life integration scores compared to all other experience categories ($p < 0.001$). There were no significant differences among the other categories of years in specialty.

Shift type also influenced the work-life climate scale ($F(1, 3) = 53.98$, $p < 0.001$). According to the post hoc Scheffé test, individuals working day shifts had significantly better work-life integration scores compared to other shift categories ($p < 0.001$). Healthcare workers who identified their shift type as 'other' reported the poorest work-life integration scores. Night shifts and swing shifts did not differ significantly from each other.

Furthermore, the length of the shift affected the work-life climate scale ($F(1, 4) = 89.39$, $p < 0.001$). The post hoc Scheffé test indicated that healthcare workers on 8-hour shifts had significantly better work-life integration scores ($p < 0.001$) compared to other shift lengths. There was no statistical difference between 10-hour shifts, 12-hour shifts, and flex shifts. The poorest work-life integration scores were reported by those whose shift length was categorized as 'other,' but this score was not significantly different from flex shifts.

Relationship to safety culture domains

Tables 2 and **table 3** display correlation matrices for the work-life climate, along with the eight Work-Life Integration (WLI) behaviors and other healthcare climates surveyed. **Table 2** also includes Cronbach's alpha calculations on the diagonal to measure the internal consistency of each domain.

The average aggregated score for the work-life climate scale across the 396 work settings was calculated as M=64.55, with a standard deviation of SD=17.27. Higher scores indicated a more favorable climate, ranging from 0% to 100% of respondents within work settings reporting

positive work-life climate. The bottom quartile of work-life climate scale scores ranged from 0 to 52.9, with a mean of M=41.48 and SD=10.18. Conversely, the top quartile scores ranged from 75.5 to 100, with a mean of M=85.20 and SD=7.43 (refer to **Table 4**).

Statistically significant differences were observed between top and bottom quartile work-life climate scores across all assessed SCORE scales. **Figure 2** illustrates the associations between work-life climate quartiles and SCORE safety culture scales, featuring t-test comparisons between the first and fourth quartiles.

Discussion

In this massive and diverse study conducted in Saudi Arabia, we observed significant and consistent differences at the group level in work-life climate, and we found clustering of work-life climate behaviors at the work setting level. Work-life climate varied considerably across different roles and work settings. The results of REANOVAs and ICCs indicated a noteworthy level of consistency within work settings compared to between-work settings, suggesting that work-life integration operates as a climate that is specific to work settings. This finding is novel, as work-life integration is typically regarded as an individual characteristic rather than a group norm. The ICC results suggest that an individual's response to a work-life climate item can predict the response of another random member within the same work setting. It is worth noting that the work-life climate items were originally designed to measure individual differences in behavior. The presence of this clustering of work-life climate, to the best of our knowledge, has not been previously reported.

Considering the association between work-life climate and other measured SCORE scales, it is crucial to include work-life climate assessments in evaluations of safety culture. Work-life climate exhibited the strongest associations with burnout climate and personal burnout. Personal burnout evaluates whether individuals report symptoms of emotional exhaustion, while burnout climate assesses whether respondents observe signs of emotional exhaustion in their colleagues within the work setting (Profit et al., 2014). Poor work-life integration was linked to higher levels of emotional exhaustion reported by healthcare workers. This association provides concrete examples of work-life integration behaviors that may contribute to burnout. Burnout has implications not only for patients but also for the individual healthcare worker and their families. It has been linked to lower perceptions of safety culture, increased medical errors, and lower quality of care (Shanafelt et al., 2010). Targeting work-life integration behaviors may offer tangible interventions at the work setting level that can help reduce burnout (Shanafelt et al., 2010). Intervention trials are necessary to assess the effectiveness of such interventions, and further research should explore the temporal relationship between burnout and poor work-life integration.

In the healthcare sector, obstacles to work-life integration (WLI) are deeply ingrained within the professional culture (Strong et al., 2013). Despite recognizing that work-life imbalance has negative effects on providers' well-being, healthcare workers are often praised for pushing the limits of WLI. There is a prevailing misconception among those entrenched in the field that unhealthy WLI is beneficial for patient care. However, the findings from this study directly contradict this notion, suggesting that poor WLI poses a risk to patient safety. The results consistently demonstrate that healthcare workers in work settings with worse WLI norms also report worse safety culture norms.

The prevalence of burnout and job dissatisfaction among healthcare workers is on the rise. Despite the increasing concern, there is a lack of validated methods for measuring WLI in healthcare. Assessing work-life climate through behavioral frequencies allows for a concise, specific, replicable, and actionable quantification of WLI. This study reaffirms that the work-

life climate scale is a reliable measure with strong psychometric properties. Similar to previous research, physicians report the poorest WLI compared to other healthcare workers. Physicians at all levels, including residents and practicing physicians, are at risk for experiencing poor WLI behaviors. Less than 45% of physicians in training reported having good WLI. Published data support the adverse impact of poor WLI during training on the learning and well-being of young physicians. This issue persists beyond training, as burnout and career dissatisfaction are present across all career stages (Rich et al., 2016). A national survey of physicians in the United States, encompassing various subspecialties, revealed that nearly 60% of physicians are dissatisfied with their WLI. Conflicts between personal and professional lives significantly contribute to decisions to reduce work hours, change practices, or leave the medical field. These decisions can have detrimental effects on the affordability and availability of medical care (Dyrbye et al., 2012).

It was found that years of experience in a specific healthcare specialty significantly influenced work-life integration (WLI) behaviors among all healthcare staff. Those with less than 6 months of experience reported significantly better WLI behaviors, but after 6 months, poor WLI became more common and remained so. This suggests that new healthcare workers tend to adopt the unhealthy work-life patterns prevalent in their work environment, rather than experience leading to improved efficiency and adherence to health norms. The presence of clustering, as identified through intraclass correlation coefficients (ICCs), indicates that healthcare workers are more likely to prioritize WLI if it is perceived as a cultural norm supported by leaders and colleagues (Kossek et al., 2011). This highlights the importance of considering WLI at both the individual and group levels in future research, as group-level contexts may influence WLI behaviors more than previously thought.

Work-life climate was found to be associated with all six assessed work setting norms. Quartile analyses revealed that higher work-life climate scores were linked to better teamwork and patient safety norms, improved leadership, increased readiness for quality improvement, and lower levels of burnout in oneself and colleagues. Significant differences were observed when comparing the work settings with the best and poorest work-life climate scores across all safety culture constructs. Specifically, work settings where individuals compromised their personal and family plans for work and skipped breaks were the same settings that exhibited deficits in patient safety and communication breakdowns. This suggests that fostering an appropriate work-life climate, supported by leaders, promotes healthcare workers who are more engaged, adaptable to changing team dynamics, skilled at conflict resolution, and proactive in promoting safety at work.

Correlations between the eight work-life behaviors and scaled scores for other climate domains indicated that changing personal or family plans for work had the highest correlation with other safety culture domains, particularly personal burnout and burnout climate. The strongest linkages to both teamwork and safety climate were associated with sleep. This suggests that when healthcare workers are not well-rested, they are less likely to seek input from others and provide support to their colleagues in the work setting. Consistent with previous research, the association between work-life climate, teamwork climate, and safety climate presents an opportunity for leaders to target improvements in healthcare quality. Consequently, it justifies the inclusion of work-life climate assessments in evaluations of safety culture.

The healthcare sector in Saudi Arabia is reaching a critical point as burnout and dissatisfaction with work-life integration (WLI) continue to worsen. Despite the high prevalence of poor WLI, there is a lack of evidence on effective strategies to address this issue. Organizational leaders in healthcare must establish approaches to promote WLI considering the unpredictable nature

of the field. Assessing work-life climate through behavioral frequencies provides leaders with tangible ways to monitor and enhance the WLI environment. While the impact of normalizing healthy WLI on work-life climate is not yet clear, interventions targeting WLI at the work setting level, rather than individual interventions, may yield the greatest benefits.

This study has a few limitations. Self-reported data may be subject to bias or inaccuracies; however, the study's strong response rate helps mitigate potential sampling bias. The cross-sectional design of the study limits generalizability and the interpretation of causal effects when examining the relationship between WLI behaviors and other safety domains. Nevertheless, the clear association found suggests a potential focus on WLI for initiatives aimed at improving healthcare quality. Future research should evaluate work-life climate over time, including its responsiveness to interventions and longitudinal associations with other healthcare climates. Further consideration should be given to the extent to which WLI climate is influenced by social contagion or shared work demands within specific work settings. While other healthcare climates have been linked to specific patient outcomes, the direct link between work-life climate and these outcomes has yet to be established, presenting an additional area for investigation. In this study, the threshold for a good work-life climate was determined based on previously published literature. Further research could establish a different threshold based on outcomes for healthcare workers, patients, or specific changes in safety culture.

Conclusion

The work-life climate scale proves to be a reliable tool for assessing work-life integration (WLI) among healthcare workers in various work settings. Its association with other safety
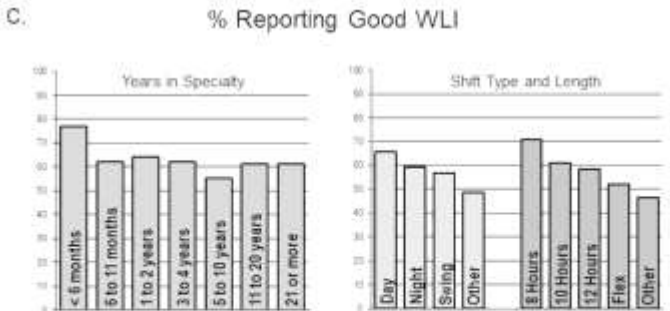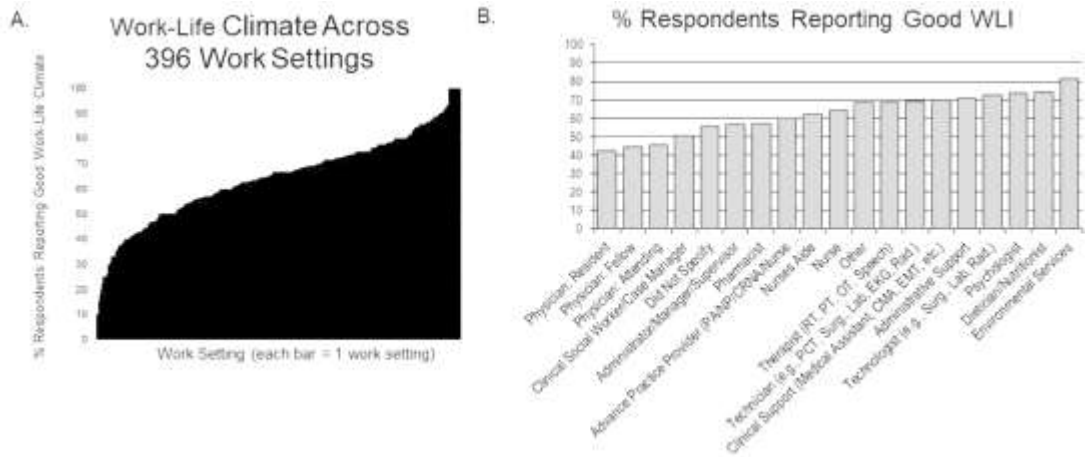
Note: Healthcare workers with less than 6 months in specialty reported significantly better WLI compared to all other categories, which did not differ from each other. Day shifts workers reported significantly better WLI scores than all other shift types. Night and swing shift workers did not differ in WLI. The 'Other' shift type reported worse WLI than all other types. 8-hour shift workers reported better WLI than all other lengths. 10-hour shifts and 12-hour shifts did not differ in WLI, and Flex and Other reported the poorest WLI compared to the other categories, but were not different from each other.

culture domains presents an opportunity to enhance teamwork, safety, and address burnout by targeting specific WLI behaviors. We contend that work-life climate is connected to these diverse norms because it underlies many aspects of healthcare. The widespread prevalence of poor WLI and burnout among healthcare workers is akin to a pandemic, impacting a significant portion of the workforce. Therefore, improving the work-life climate should be a strategic priority for leaders aiming to foster capacity and resilience within their workforce. Enhancing WLI is likely to lead to a better quality of life for healthcare workers, improved organizational outcomes, and ultimately, enhanced quality of care for patients.

(**Figure 1**) Good work-life climate or percent positive is defined by those who reported performing the specific poor work-life balance (WLB) behaviours 1–2 days/week or less than 1 day/week. Graph (A) shows the percentage of respondents reporting good work-life climate by each clinical work setting. Graph (B) shows percentage of respondents reporting good work-life integration (WLI) by healthcare worker role. Graph (C) shows the percentage of respondents reporting good WLI by length of time in specialty and shift type and length.

Teamwork, Safety Climate, Local Leadership, Improvement Readiness, Personal Burnout, and Burnout Climate, by Work-life Climate Quartile
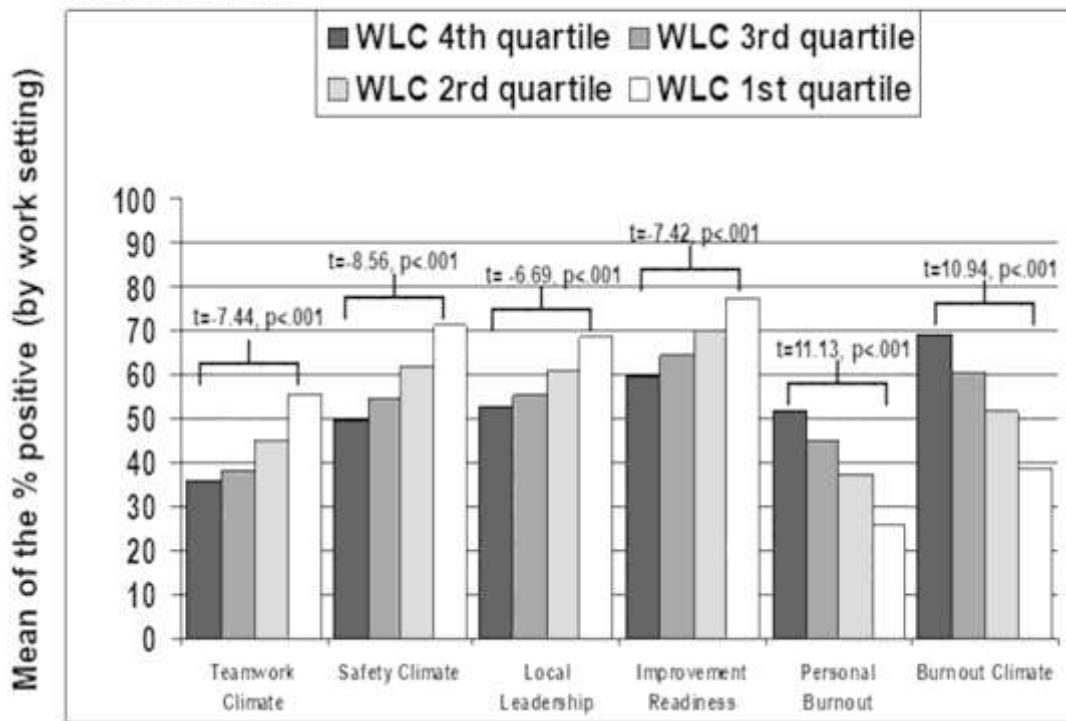
(**Figure 2**) Differences between teamwork climate, safety climate, burnout, personal burnout, local leadership and improvement readiness between work settings divided into work-life climate (WLC) quartiles. Each bar is the mean of the percent positive responses for each work setting within a quartile.

Table 1 Respondent demographics and work-life climate. Cronbach's alpha by demographic grouping

	n	% of total	Cronbach's alpha
Healthcare worker role			
Registered Nurse	3367	31.7	0.82
Attending/staff physician	1036	9.7	0.84
Technologist (eg, Surg, Lab, Rad)	869	8.2	0.80
Other	689	6.5	0.81
Technician (PCT, Surg, Lab, EKG, Rad)	567	5.3	0.85
Admin support (Adm, Asst, Unit Coordinator, etc)	542	5.1	0.81
Advance practice provider (PA, NP, CRNA)	503	4.7	0.86
Clinical support (CMA, EMT, etc)	500	4.7	0.81
Nurse's aide	489	4.6	0.83
Therapist (RT, PT, OT, Speech)	462	4.3	0.80
Administrator/manager/supervisor	388	3.7	0.81
Resident physician	275	2.6	0.85
Pharmacist	198	1.9	0.79
Fellow physician	157	1.5	0.82
Clinical social worker/case manager	130	1.2	0.81
Dietitian/nutritionist	51	0.5	0.85
Environmental services	41	0.4	0.92
Psychologists	20	0.2	0.73
Missing	343	3.2	0.85
Shift			
Days	7235	68.1	0.82
Nights	1269	11.9	0.84
Swing	1000	9.4	0.82
Other	946	8.9	0.85
Missing	177	1.7	0.76
Shift length			
8 hours	4320	40.7	0.80
10 hours	1410	13.2	0.82
12 hours	3482	32.8	0.83
Flex	321	3	0.84
Other	941	8.9	0.84
Missing	161	1.5	0.82
Years in specialty			
Less than 6 months	404	3.8	0.79
6–11 months	877	8.3	0.81
1–2 years	1264	11.9	0.83
3–4 years	1410	13.3	0.83

	n	% of total	Cronbach's alpha
5–10 years	2423	22.8	0.82
11–20 years	2124	20.6	0.84
21 or more years	1974	18.6	0.83
Missing	91	0.9	0.92
Total	10 627	100	0.83

CMA, certified medical assistant; CRNA, certified registered nurse anesthetist; EMT, emergency medical technician; OT, occupational therapist; PA, physician's assistant; PCT, patient care technician; PT, physical therapist; RT, respiratory therapist.

Table 2 Correlation matrix among the work-life climate (aggregated by work setting) and additional healthcare climates surveyed. Cronbach's alpha for each domain included in the diagonal

Variable	1	2	3	4	5	6	7
Work-life climate	**(0.83)**						
Teamwork climate	0.367*	**(0.76)**					
Safety climate	0.424*	0.733*	**(0.87)**				
Burnout climate	–0.527*	–0.661*	–0.695*	**(0.90)**			
Personal burnout	–0.545*	–0.636*	–0.656*	0.813*	**(0.92)**		
Local leadership	0.367*	0.607*	0.706*	–0.527*	–0.567*	**(0.94)**	
Improvement readiness	0.405*	0.661*	0.756*	–0.642*	–0.690*	0.727*	**(0.92)**

Chronbach's alpha for each domain are included in the diagnoal in bold.
*Correlation is significant at the 0.01 level (two tailed).

Table 3 Correlation matrix among the aggregated WLB behaviors (percent of workers reporting good WLB behaviors by work setting) and additional healthcare climates surveyed

	Skipped a meal	Ate a poorly balanced meal	Worked through a day/shift without any breaks	Arrived home late from work	Had difficulty sleeping	Slept less than 5 hours a night	Changed personal/ family plans because of work	Felt frustrated with technology
Burnout climate	–0.361*	–0.382*	–0.276*	–0.363*	–0.472*	–0.456*	–0.479*	–0.329*
Personal burnout	–0.318*	–0.354*	–0.283*	–0.368*	–0.474*	–0.385*	–0.484*	–0.332*
Improvement readiness	0.229*	0.290*	0.198*	0.259*	0.360*	0.295*	0.376*	0.249*
Local leadership	0.195*	0.273*	0.168*	0.241*	0.294*	0.237*	0.336*	0.121†
Teamwork climate	0.230*	0.246*	0.091	0.138*	0.365*	0.356*	0.342*	0.184*

	Skipped a meal	Ate a poorly balanced meal	Worked through a day/shift without any breaks	Arrived home late from work	Had difficulty sleeping	Slept less than 5 hours a night	Changed personal/family plans because of work	Felt frustrated with technology
Safety climate	0.229*	0.287*	0.168*	0.249*	0.395*	0.427*	0.386*	0.233*
Work-life climate								

*Correlation is significant at the 0.01 level (two tailed).
†Correlation is significant at the 0.05 level (two tailed). WLB, work-life balance.

Table 4 Top versus bottom work-life climate quartiles across work settings—individual WLB items and other healthcare climates. A p value of <0.05 is used to determine statistical significance

	First work-life climate quartile M (SD)	Fourth work-life climate quartile M (SD)	T
Variable: p er cent p ositive (2 days or less per week)			
Work-life climate†	85.20 (7.43)	41.52 (10.31)	34.19*
Skipped a meal	90.52 (9.23)	64.26 (16.65)	13.73*
Worked through a shift without any breaks	85.83 (10.87)	55.68 (19.24)	13.73*
Ate a poorly balanced meal	82.72 (12.65)	51.83 (14.45)	16.00*
Changed personal/family plans because of work	90.80 (7.30)	67.38 (14.61)	14.26*
Had difficulty sleeping	77.61 (13.73)	57.89 (14.89)	9.69*
Slept less than 5 hours in a night	85.54 (10.66)	64.71 (15.71)	10.92*
Arrived home late from work	79.82 (13.32)	47.92 (18.05)	14.15*
Felt frustrated by technology	82.08 (14.39)	66.06 (16.17)	7.36*
Variable: p er cent p ositive (agree slightly + agree strongly)			
Teamwork climate†	55.68 (19.57)	36.17 (17.29)	7.44*
Safety climate†	71.08 (17.38)	49.57 (17.98)	8.56*
Burnout climate‡	38.53 (19.76)	69.21 (19.71)	−10.94*
Personal burnout‡	26.02 (14.51)	51.59 (17.65)	−11.13*
Local leadership†	68.43 (15.14)	52.85 (17.48)	6.69*
Improvement readiness†	77.30 (15.90)	59.42 (17.93)	7.42*

All results are statistically significant. *P<0.001. †Higher score is favorable. ‡Lower score is favorable. WLB, work-life balance.

References

Dyrbye, L. N., Freischlag, J., Kaups, K. L., Oreskovich, M. R., Satele, D. V., Hanks, J. B., Sloan, J. A., Balch, C. M., & Shanafelt, T. D. (2012). Work-home conflicts have a substantial impact on career decisions that affect the adequacy of the surgical workforce. Archives of Surgery (Chicago, Ill.: 1960), 147(10), 933–939. https://doi.org/10.1001/archsurg.2012.835

Kavalieratos, D., Siconolfi, D. E., Steinhauser, K. E., Bull, J., Arnold, R. M., Swetz, K. M., & Kamal, A. H. (2017). "It Is Like Heart Failure. It Is Chronic … and It Will Kill You": A Qualitative Analysis of Burnout Among Hospice and Palliative Care Clinicians. Journal of Pain and Symptom Management, 53(5), 901-910.e1. https://doi.org/10.1016/j.jpainsymman.2016.12.337

Kossek, E. E., Baltes, B. B., & Matthews, R. A. (2011). How Work-Family Research Can Finally Have an Impact in Organizations. Industrial and Organizational Psychology, 4(3), 352–369. https://doi.org/10.1111/j.1754-9434.2011.01353.x

Mache, S., Bernburg, M., Vitzthum, K., Groneberg, D. A., Klapp, B. F., & Danzer, G. (2015). Managing work-family conflict in the medical profession: Working conditions and individual resources as related factors. BMJ Open, 5(4), e006871. https://doi.org/10.1136/bmjopen-2014-006871

Morparia, K. (2015). Work-Life Balance: Striking the Right Chords for Harmony. Frontiers in Pediatrics, 3, 122. https://doi.org/10.3389/fped.2015.00122

Parker, C. P., Baltes, B. B., Young, S. A., Huff, J. W., Altmann, R. A., LaCost, H. A., & Roberts, J. E. (2003). Relationships between psychological climate perceptions and work outcomes: A meta-analytic review. Journal of Organizational Behavior, 24(4), 389–416. https://doi.org/10.1002/job.198

Profit, J., Sharek, P. J., Amspoker, A. B., Kowalkowski, M. A., Nisbet, C. C., Thomas, E. J., Chadwick, W. A., & Sexton, J. B. (2014). Burnout in the NICU setting and its relation to safety culture. BMJ Quality & Safety, 23(10), 806–813. https://doi.org/10.1136/bmjqs-2014-002831

Rich, A., Viney, R., Needleman, S., Griffin, A., & Woolf, K. (2016). "You can't be a person and a doctor": The work-life balance of doctors in training-a qualitative study. BMJ Open, 6(12), e013897. https://doi.org/10.1136/bmjopen-2016-013897

Sexton, J. B., Adair, K. C., Leonard, M. W., Frankel, T. C., Proulx, J., Watson, S. R., Magnus, B., Bogan, B., Jamal, M., Schwendimann, R., & Frankel, A. S. (2018). Providing feedback following Leadership WalkRounds is associated with better patient safety culture, higher employee engagement and lower burnout. BMJ Quality & Safety, 27(4), 261–270. https://doi.org/10.1136/bmjqs-2016-006399

Sexton, J. B., Berenholtz, S. M., Goeschel, C. A., Watson, S. R., Holzmueller, C. G., Thompson, D. A., Hyzy, R. C., Marsteller, J. A., Schumacher, K., & Pronovost, P. J. (2011). Assessing and improving safety climate in a large cohort of intensive care units. Critical Care Medicine, 39(5), 934–939. https://doi.org/10.1097/CCM.0b013e318206d26c

Sexton, J. B., Helmreich, R. L., Neilands, T. B., Rowan, K., Vella, K., Boyden, J., Roberts, P. R., & Thomas, E. J. (2006). The Safety Attitudes Questionnaire: Psychometric properties, benchmarking data, and emerging research. BMC Health Services Research, 6, 44. https://doi.org/10.1186/1472-6963-6-44

Sexton, J. B., Schwartz, S. P., Chadwick, W. A., Rehder, K. J., Bae, J., Bokovoy, J., Doram, K., Sotile, W., Adair, K. C., & Profit, J. (2017). The associations between work-life balance behaviours, teamwork climate and safety climate: Cross-sectional survey introducing the work-life climate scale, psychometric properties, benchmarking data and future directions. BMJ Quality & Safety, 26(8), 632–640. https://doi.org/10.1136/bmjqs-2016-006032

Shanafelt, T. D., Balch, C. M., Bechamps, G. J., Russell, T., Dyrbye, L., Satele, D., Collicott, P., Novotny, P. J., Sloan, J., & Freischlag, J. A. (2009). Burnout and career satisfaction among American surgeons. Annals of Surgery, 250(3), 463–471. https://doi.org/10.1097/SLA.0b013e3181ac4dfd

Shanafelt, T. D., Balch, C. M., Bechamps, G., Russell, T., Dyrbye, L., Satele, D., Collicott, P., Novotny, P. J., Sloan, J., & Freischlag, J. (2010). Burnout and medical errors among American surgeons. Annals of Surgery, 251(6), 995–1000. https://doi.org/10.1097/SLA.0b013e3181bfdab3

Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., West, C. P., Sloan, J., & Oreskovich, M. R. (2012). Burnout and satisfaction with work-life balance among US

physicians relative to the general US population. Archives of Internal Medicine, 172(18), 1377–1385. https://doi.org/10.1001/archinternmed.2012.3199

Shanafelt, T. D., Hasan, O., Dyrbye, L. N., Sinsky, C., Satele, D., Sloan, J., & West, C. P. (2015). Changes in Burnout and Satisfaction With Work-Life Balance in Physicians and the General US Working Population Between 2011 and 2014. Mayo Clinic Proceedings, 90(12), 1600–1613. https://doi.org/10.1016/j.mayocp.2015.08.023

Shanafelt, T. D., & Noseworthy, J. H. (2017). Executive Leadership and Physician Well-being: Nine Organizational Strategies to Promote Engagement and Reduce Burnout. Mayo Clinic Proceedings, 92(1), 129–146. https://doi.org/10.1016/j.mayocp.2016.10.004

Strong, E. A., De Castro, R., Sambuco, D., Stewart, A., Ubel, P. A., Griffith, K. A., & Jagsi, R. (2013). Work-life balance in academic medicine: Narratives of physician-researchers and their mentors. Journal of General Internal Medicine, 28(12), 1596–1603. https://doi.org/10.1007/s11606-013-2521-2