The Importance of Small Business Safety and Health Climates During COVID-19

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Objective: This study examines employee perceptions of safety and health climates for well-being during the COVID-19 pandemic in a sample of small businesses. **Methods:** We evaluated changes to employees' work and home life resulting from COVID-19 and perceptions of safety and health climates. Cross-sectional relationships were assessed using multivariable linear regression models for a sample of 491 employees from 30 small businesses in Colorado in May 2020. **Results:** Employee perceptions of safety and health climates were significantly related to their self-reported well-being during the first wave of COVID-19, even when there were changes to childcare, the ability to work, and limited social contacts. **Conclusion:** Safety Safety and health climates may influence employee well-being even when other disruptions occur, suggesting that during emergencies, small businesses with strong climates may be better prepared to maintain employee well-being.

The global coronavirus pandemic (COVID-19) has radically shifted the way businesses operate and has elevated the importance of occupational safety and health (OSH), employee benefits, and organizational culture. Small businesses, in particular, have faced a number of challenges, including closures, layoffs, and limited cash on hand. In a survey conducted of 5843 small businesses in late March/early April 2020, 41% of respondents indicated their organization was temporarily closed due to COVID-19 and among all respondents, the number of full-time employees had decreased by 32% (17% decrease among businesses that were still operating).[1] Workers have borne the brunt of how countries respond to the pandemic.[2] This includes threats to their health, changing working conditions, and a changing work-family interface, as well as exacerbation of existing health inequities based on race, ethnicity, employment status, and socioeconomic status.

How an organization responds to the COVID-19 pandemic can have profound effects on the safety, health, and well-being of its employees. Small business employees may be especially vulnerable, in light of the observation that they were already at higher risk for occupational injuries, illnesses, and poorer health.[3] Even before the pandemic, smaller organizations offered fewer health and safety programs and fewer benefits for workers when compared with larger enterprises.[4] Prior to COVID-19, we observed that enterprises' organizational support and adoption of best practices for worker health, safety, and well-being varied by company size, with larger organizations scoring higher across safety and health benchmarks.[5] Perceived barriers and challenges to small businesses include lack of safety and health resources, lack of dedicated staff, and inability to identify hazards.[4,6–9] In addition, small businesses present unique challenges and diversity in characteristics such as business age, structure, culture, and management.[10]

Total Worker Health® (TWH) is gaining momentum as a holistic workplace approach focused on ''policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.''[11] Related to COVID-19, Dennerlein and colleagues recommend that employers apply a TWH framework to help protect worker health, safety, and well-being.[12] Two important characteristics of this, and other, TWH frameworks are leadership commitment and fostering supportive working conditions through policies, programs, and practices. A similar model targeting the challenges in small enterprises has been proposed, emphasizing the role of small business leadership and culture.[13] In order for TWH practices to be most effective, employees must perceive that they are supported and rewarded for participating in activities that promote safety, health, and well-being and that leaders in their organization are committed to OSH, as reflected by measures of safety and health climates.[13–16]

Safety Climate and Health Climate

Organizational climate is the result of a shared perception of what is valued and rewarded at the workplace and is driven by company leadership. Previous research in safety climate and health climate demonstrates that climates are related to a number of outcomes.[17–19] For example, safety climate has been shown to be related to better worksite safety practices, as well as safety motivation, knowledge, behavior, and accidents.[20–24] Though less research has been conducted on health climate, researchers have demonstrated that health climate is related to employee outcomes such as physical health and health behaviors.[19,25,26]

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Clinical significance: Safety and health climates influence employee well-being. When substantial societal and business disruptions occur, such as the current COVID-19 pandemic, small businesses with strong climates may be better prepared to help preserve employee well-being. Small enterprises should continue in efforts to sustain a health-centered and safety-centered culture.

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Our own research has demonstrated the importance of safety climate and health climate, which together reflect organizational support for TWH, in small businesses. For example, we observed a positive relationship between leadership commitment to safety and health, employee perceptions of safety and health climates, and participatory behaviors regardless of how large or small a company was.[27] In regard to the climate behavior relationship, we specifically found that motivation played a significant mediating role.[28] Finally, we observed that TWH business practices exhibited differential relationships with health and safety climates after accounting for leadership commitment to safety and health.[29] Taken together these results indicate that health and safety climates are important TWH constructs in small businesses. They are, in effect, contributing to an overall ''TWH climate.''

Study Purpose

COVID-19 has unexpectedly amplified and accelerated changes in the nature of work, creating an unexpected challenge to how we ensure worker safety, health and well-being.[2,12] A major rationale for applying a holistic approach to worker health protection and health promotion is predicated on the assumption that the TWH approach better prepares employers and employees for changes in our future, by helping to ensure worker well-being.[30] If the TWH assumption is correct, we should predict that the well-being of employees, even in the face of a pandemic, will be better preserved if they perceive health and safety climates to be strong even during COVID-19. At the time that COVID-19 spread to Colorado, USA, we were nearing completion of a longitudinal intervention study of TWH in small enterprises, called Small + Safe + Well (SSWell).[31] This presented us with a unique opportunity to re-engage a well-characterized cohort of small businesses and their employees during the early stages of the COVID-19 pandemic. Following the findings from previous research, we hypothesized that employee perceptions of safety climate and health climate are associated with higher levels of well-being. Further, we hypothesized that higher ratings of employees' perceptions of organizational response to COVID-19 and changes to employee work/life experiences will moderate the relationship between employee perceptions of safety and health climates and well-being.

METHODS

Public Health Context

Following discovery of the first reported COVID-19 cases in Colorado on March 5, 2020, the state's ''Stay at Home'' Executive Order was issued on March 25, 2020 and extended through April 26, 2020.[32] We timed our COVID-19 Employee Impact Survey, described below, to coincide with Colorado's ''Safer at Home'' Executive Order which began on April 27, 2020.[33] This order relaxed several previous restrictions of the ''Stay at Home'' order and allowed for limited reopening of postsecondary institutions and specific business organizations. The ''Safer at Home'' Executive Order was extended and amended throughout the survey period as restrictions continued to be lifted during this timeframe.

Businesses and Employees

The SSWell study is a longitudinal intervention study at the Center for Health, Work and Environment (CHWE), a National Institute for Occupational Safety and Health (NIOSH) Total Worker Health Center of Excellence. SSWell utilizes a TWH intervention focused on small businesses in the state of Colorado, with the overarching goals of improving worker health, safety and well-being. Details of the SSWell study have been previously described.[31] SSWell enrolled a cohort of organizations that participated in a TWH initiative called Health Links™ and that completed a TWH leadership program. Each year of the study, businesses completed the Health Links Healthy Workplace Assessment™ that focuses on 6 distinct areas of workplace safety and health, which capture the essential elements of TWH at the organizational level.[5] Following the organizational assessment, employees were asked to complete the Employee Health and Safety Culture survey for each year of study enrollment.

COVID-19 Employee Impact Survey

From May 6, 2020 to May 30, 2020 the COVID-19 Employee Impact Survey was sent to organizations participating in the SSWell study. The COVID-19 Employee Impact Survey included selected items derived from the SSWell annual Employee Health and Safety Culture Survey, described elsewhere, particularly constructs of safety climate, health climate and well-being.[29]

Well-Being, Safety Climate & Health Climate

The mental well-being construct utilized the WHO-5 Well-Being Index.[34] The index elicited responses to five Likert-type questions ranging from ''at no time'' to ''most of the time'' with a higher mean score representing a higher well-being index. An example item is ''My daily life has been filled with things that interest me.'' The safety climate construct was comprised of six organization-level questions requesting employees to assess their organization's commitment to safety.[35] An example in this question set is, ''My organization used any available information to improve existing safety rules.'' Health climate was evaluated using the organization-level items from the assessment of Zweber, Henning and Magley.[19] An example item is, ''My organization has been providing me with opportunities and resources to be healthy.'' The climate measures were scored on five-point Likert scales with the continuum of strongly disagree to strongly agree, with higher mean scores indicative of more positive perceptions of safety and health climates. Questions were modified to prompt responses specific to the immediate pandemic timeframe by including such phrasing throughout the survey as, ''over/in the past 30 days.''

Other Constructs

Other questions selected from the SSWell annual Employee Health and Safety Culture Survey were incorporated into the COVID-19 Employee Impact Survey. Items focused on leadership commitment, (eg, ''Leaders consistently communicated the importance of safety activities''), work stress (''How often have you felt stress because of your work?''), access to employer-sponsored healthcare benefits, overall health, absenteeism (''In the past 4 weeks, how many hours of work did you miss due to your physical and mental health?''), and presenteeism (''In the past 4 weeks, how would you rate your overall job performance on the days that you worked?''). As noted for the climate and well-being constructs, questions were modified as appropriate to include phrasing associated with the COVID-19 outbreak. Several questions were prefaced with, ''The following asks you about your work experiences over the past 30 days during the coronavirus (COVID-19) pandemic.''

Perceptions of Organizational Response & Other Work and Life Experiences Related to COVID-19

We developed additional questions targeting work and life experiences applicable to the pandemic. One such construct was employees' perceptions of their organization's response to COVID-19, which comprised nine items asking about leadership, communication, and safety systems related to the pandemic. Example items included ''I was confident in the organization's leadership team to make the right decisions to manage through the COVID-19 crisis,'' ''Employees received comprehensive training in COVID-19 issues at work,'' and ''Employees were able to discuss their concerns about COVID-19 issues with their supervisor.'' Other items developed by the research team asked about how COVID-19 affected their work,

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essential worker designation, changes to childcare arrangements, potential exposure to COVID-19, and personal behavior changes related to COVID-19 over the past 30 days. An example question is, ''How has COVID-19 affected your work over the past 30 days?'' with responses such as worked remotely, worked fewer hours, worked more hours, income/pay reduced, change in job duties, not able to work, unemployed. If the respondent indicated they had children under the age of 18 at home, they were asked ''Have you experienced any of the following regarding childcare in the past 30 days?'' with options such as childcare closed, childcare arrangements changed, etc. An example question about personal behavior changes was ''I've limited social contacts to my immediate household members'' with a five-point scale ranging from never to always.

Results from a confirmatory factor analysis of the well-being, safety climate, health climate, and perceptions of organizational response to COVID-19 items demonstrated the empirical distinctiveness of these measures (see Appendix A, http://links.lww.com/JOM/A833).[36]

The survey was administered via the REDCap electronic data capture tool.[37,38] Anonymity was maintained and no identifying information was collected. To incentivize participation, 15 $100 electronic gift cards were offered to employees who completed the survey. Upon survey completion to preserve employee confidentiality, employees were invited to provide an email address through another database for the random drawing. Our study protocol was approved by the appropriate institutional review board.

Statistical Analysis

The main outcome of interest was employee well-being. The main predictor variables were employee perceptions of safety climate and health climate. Linear mixed-model regression with a random intercept for business was used to examine all hypothesized relationships. Models for safety climate and health climate were assessed independently. Correlation coefficients were calculated between all predictor variables to assess multicollinearity. A final multivariable model was created for each of the climate variables including any of the COVID-19 specific variables that was significant at the $\alpha = 0.15$ level in the univariate analyses. Multivariable models were adjusted for business size, region (rural/urban), employee age and gender. Regression analyses were completed using SAS version 9.4.[39]

TABLE 1. Organization Characteristics ($N = 30$)

Survey Item	*N* (%)
Business size	
Micro (2–10 employees)	6 (20.0%)
Small (11–50 employees)	13 (43.3%)
Medium (51–200 employees)	8 (26.7%)
Large (>200 employees)	3 (10.0%)
Industry	
Public Administration	5 (16.7%)
Healthcare and social assistance	9 (30.0%)
Educational Services	5 (16.7%)
Non-profit	3 (10.0%)
Arts, Entertainment and Recreation	2 (6.7%)
Construction	2 (6.7%)
Accommodation & Food Service	1 (3.3%)
Real Estate & Rental & Leasing	1 (3.3%)
Services	1 (3.3%)
Other	1 (3.3%)
Region	
Urban	21 (70.0%)
Rural	9 (30.0%)

TABLE 2. Employee Characteristics

Survey Item	*N* (%)	Mean (SD)
Age (y) ($n = 485$)		38.1 (13.5)
Race ($n = 491$)		
White	420 (85.6%)	
Black or African American	16 (3.3%)	
Asian	13 (2.7%)	
Native American or Alaskan Native	13 (2.7%)	
Native Hawaiian or other Pacific Islander	4 (0.8%)	
Other	35 (7.1%)	
Ethnicity ($n = 479$)		
Hispanic or Latino	63 (13.2%)	
Not Hispanic or Latino	416 (86.9%)	
Gender ($n = 487$)		
Male	82 (16.8%)	
Female	398 (81.7%)	
Other	7 (1.4%)	
Children under the age of 18 at home (yes) ($n = 486$)	153 (31.5%)	

Post-hoc analyses examined the relationship between the availability of employer-sponsored health care benefits and employee well-being. Furthermore, to understand the stability of the estimate of effect of the childcare change variable on employee well-being, we re-ran the analysis examining only the subset of individuals who reported having children under the age of 18 in the household. Alpha levels for association were set at $\alpha = 0.05$.

RESULTS

Sample

Of the 143 organizations who had enrolled in the SSWell study, there were 74 organizations that were eligible for this study (eg, were considered active, had not officially dropped out) and were invited to participate by distributing the survey to their employees. Thirty organizations responded (41% business response rate). The average size of participating organizations was 90 employees (range: 4 to 561). Almost one third (30%) of participating organizations were from the healthcare and social assistance sector. Most organizations (70%) were located in urban areas of Colorado. Table 1 presents organizational demographics.

Responses were received from 491 employees from the 30 businesses who distributed the survey. Based on the most recent assessment data that collects information on the number of employees, we estimate 2211 employees received the survey (22% response rate). Table 2 presents the characteristics of respondents. The mean age of respondents was 38.1 years (SD = 13.5) and were mostly white, non-Hispanic ($n = 376$, 79%) and female ($n = 398$, 82%). Approximately one third ($n = 153$, 32%) indicated that they had children under the age of 18 at home.

Table 3 presents the well-being outcome and predictors including safety and health climates, perceptions of organizational response to COVID-19, and other work and life experiences related to COVID-19 over the past 30 days. The mean well-being index score of respondents was 3.1 (SD = 0.89) on a five-point scale. Employees' mean rating of their perceptions of organizational response to the pandemic was 4.2 (SD = 0.96). The average employee rating of safety climate was 3.9 (SD = 0.83) and the average reported rating of health climate was 4.0 (SD = 0.89). Internal consistency values for the three scales were all excellent (organizational response $\alpha = 091$; safety climate $\alpha = 0.93$; health climate $\alpha = 0.91$).

A majority of respondents ($n = 284$, 58%) reported changes in remote work and 35% ($n = 170$) reported a change in job duties. Employees reported that they were limiting social contacts more

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TABLE 3. Employee Well-Being, Perceptions of Safety and Health Climates, and Change to Work and Home Life Experiences Due to COVID-19

Survey Item	*N* (%)	Mean (SD)
Well-being ($n = 491$)		3.1 (0.89)
Perception of organizational response to COVID-19 ($n = 490$)		4.2 (0.96)
Health climate ($n = 490$)		4.0 (0.89)
Safety climate ($n = 489$)		3.9 (0.83)
COVID-19 impact on work (check all that apply) ($n = 491$)		
Worked remotely or worked remotely more frequently	284 (57.8%)	
Worked fewer hours than usual	106 (21.6%)	
Worked more hours than usual	124 (25.3%)	
Income or pay has been reduced	42 (8.6%)	
Job duties changed	170 (34.6%)	
Was not able to work	17 (3.5%)	
Unemployed	6 (1.2%)	
Change in childcare ($n = 153$)		
Childcare closed/no longer available	61 (39.9%)	
Childcare was more expensive	5 (3.3%)	
Childcare arrangements changed (eg, different provider, different hours)	32 (20.9%)	
None of the above	72 (47.1%)	
Actions to reduce COVID-19 exposure (1 = Never, 5 = Always)		
I've limited my social contacts to immediate household members ($n = 489$)		4.1 (1.02)
I stayed at home except when I needed to go out for essential activities, such as grocery shopping, going to pharmacy, doctor appointments as well as outdoors activities ($n = 489$)		4.5 (0.73)

frequently in response to COVID-19 (M = 4.1, SD = 1.02) and staying at home more often (M = 4.5, SD = 0.73). Of the 153 respondents who had children under the age of 18 at home, 40% ($n = 61$) responded that childcare had been closed or was not available during the prior 30 day period asked about in the survey. Less than 1% ($n = 4$) indicated options for employer-sponsored childcare were available. Employer-sponsored healthcare benefits were available to 74% ($n = 361$) of the responding employees; 60% ($n = 292$) reported provisions for paid sick leave, 71% ($n = 350$) reported paid vacation leave, and 65% ($n = 318$) indicated flexible work schedules.

Associations with Well-Being

Table 4 presents univariate analyses. Well-being increased with increases in perceptions of both safety and health climates, independently. On average, for every one-point increase in perceptions of safety climate, well-being increased 0.23 points ($P < 0.0001$, 95% CI = 0.135, 0.327). Similarly, for every one point increase in perceptions of health climate, employee well-being increased by 0.26 points ($P < 0.0001$, 95% CI = 0.170, 0.350). Positive perceptions of organizational response to COVID-19 were also associated with increased well-being. Higher well-being was found in individuals who responded that they limited social contacts. Workers who experienced changes in job duties had lower reported well-being that did those whose job duties remained the same during the COVID-19 pandemic. Workers who were unable to work during the COVID-19 pandemic reported lower well-being compared to those who remained on the job.

Safety Climate

There was no observed association between safety climate and well-being after adjusting for perceptions of organizational response to COVID-19 (Table 5). Associations between safety climate and well-being were preserved after adjusting for all other

TABLE 4. Results of Univariate Analyses for Health Climate and Safety Climate (Main Predictor Variables) and Potential Effect Modifiers with Well-Being (Outcome Variable)

Variable	Estimate	*P* value	95% Confidence Limits	
Main predictors				
Safety climate	0.231	<0.0001	0.135	0.327
Health climate	0.260	<0.0001	0.170	0.350
Potential modifiers				
Perceptions of organizational response to COVID-19	0.272	<0.0001	0.167	0.377
Childcare changed	−0.309	0.06	−0.628	0.009
Worked remotely	−0.032	0.74	−0.219	0.155
Worked fewer hours	−0.015	0.89	−0.216	0.186
Worked more hours	−0.089	0.34	−0.271	0.094
Income/pay reduced	v0.068	0.64	−0.353	0.217
Change in job duties	−0.181	0.04	−0.352	−0.010
Not able to work	−0.476	0.03	−0.904	−0.047
Unemployed	−0.144	0.69	−0.858	0.570
Limited social contacts	0.097	0.01	0.020	0.174
Stayed at home	0.089	0.11	−0.019	0.197

TABLE 5. Results of Bivariable Analyses for Safety Climate and Well-Being, Adjusting for Other Potential COVID-19 Modifiers

	Well-Being			
Variable	Estimate	*P* Value	95% Confidence Limits	
Health climate	0.083	0.32	−0.081	0.247
Perceptions of organizational response to COVID-19	0.199	0.03	0.019	0.378
Health climate	0.232	<0.0001	0.136	0.328
Childcare changed	−0.317	0.05	−0.629	−0.004
Health climate	0.222	<0.0001	0.126	0.318
Change in job duties	−0.141	0.10	−0.310	0.028
Health climate	0.226	<0.0001	0.130	0.322
Not able to work	−0.424	0.05	−0.845	−0.003
Health climate	0.223	<0.0001	0.127	0.320
Limited social contacts	0.076	0.05	0.000	0.152
Health climate	0.227	<0.0001	0.130	0.325
Stayed at home	0.045	0.41	−0.062	0.153

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TABLE 6. Results of Bivariable Analyses for Health Climate and Well-Being, Adjusting for Other Potential COVID-19 Modifiers

	Well-Being			
Variable	**Estimate**	***P* Value**	**95% Confidence Limits**	
Health climate	0.197	0.001	0.048	0.347
Perceptions of organizational response to COVID-19	0.091	0.30	−0.082	0.263
Health climate	0.259	<0.0001	0.169	0.350
Childcare changed	−0.298	0.06	−0.607	0.011
Health climate	0.251	<0.0001	0.160	0.342
Change in job duties	−0.108	0.21	−0.277	0.061
Health climate	0.256	<0.0001	0.165	0.346
Not able to work	−0.410	0.05	−0.827	0.006
Health climate	0.251	<0.0001	0.160	0.342
Limited social contacts	0.071	0.07	−0.005	0.146
Health climate	0.256	<0.0001	0.164	0.349
Stayed at home	0.027	0.62	−0.080	0.135

COVID-19 potential modifiers. Similarly, the associations between changes in childcare, ability to work, and limited social contacts with well-being were preserved when controlling for safety climate.

Health Climate

Table 6 presents bivariable results for health climate and well-being. After adjusting for differences in perceptions of organizational response to COVID-19, well-being increased, on average, by 0.20 for each one-point increase in perceptions of health climate ($P = 0.001$, 95% CI = 0.048, 0.347). Associations between health climate and well-being were preserved after adjusting for all other COVID-19 potential modifiers. Similarly, the associations between changes in childcare, ability to work, and limited social contacts with well-being were preserved when controlling for health climate.

Moderating Effects

As shown in Tables 7 and 8, none of the COVID-19 impact variables assessed in this analysis provided moderating effects on the relationship between either safety climate or health climate and well-being.

Multivariable Analyses

After the bivariable analyses were conducted, we assessed the correlation between safety and health climates and perceptions of organizational response to COVID-19. Employees' perceptions of their companies' safety climate and health climate were strongly correlated with their perceptions of the organizational response to COVID-19 (safety climate, $r = 0.82$; health climate, $r = 0.80$). Due to concerns about collinearity, perceptions of organizational response was excluded from the final multivariable models. Our final multivariable model included childcare changed, not able to work, and limited social contacts for both climate measures.

Tables 9 and 10 present the associations between employee perceptions of safety climate and health climate and well-being. The association between safety climate and well-being was preserved after adjusting for childcare, ability to work, and limited social contacts (Table 9). There was, on average, a 0.21 higher well-being score for each one-point increase in safety climate perceptions ($P < 0.0001$, 95% CI = 0.115, 0.307). Similarly, the association between health climate and well-being was preserved after adjusting for childcare, ability to work, and limited social contacts (Table 10). Well-being scores were, on average, 0.24 points higher for each one-point increase in health climate. This association was significant, after adjusting for changes in childcare, ability to work, and limited social contacts. ($P < 0.0001$, 95% CI = 0.148, 0.330)

Post Hoc Analysis of Associations of Well-being with Healthcare Benefits and Childcare Changes

Post hoc analysis of employer-provided healthcare benefits indicated no significant association with well-being. Additionally,

TABLE 7. Multivariable Linear Regression Analyses Comparing the Relationship of Safety Climate and Selected Potential Modifier Variables with Well-Being

	Well-Being			
Variable	**Estimate**	***P* Value**	**95% Confidence Limits**	
Safety climate	0.218	0.33	−0.219	0.655
Perceptions of organizational response	0.319	0.11	−0.068	0.706
Safety climate * Perceptions of organizational response	−0.035	0.50	−0.135	0.066
Safety climate	0.171	0.006	0.049	0.293
Change in job duties	−0.562	0.14	−1.320	0.192
Safety climate * Change in job duties	0.122	0.21	−0.069	0.313
Safety climate	0.222	<0.0001	0.124	0.320
Not able to work	−0.030	0.97	−1.646	1.585
Safety climate * Not able to work	−0.089	0.58	−0.512	0.334
Safety climate	0.313	0.07	−0.023	0.650
Limited social contacts	0.165	0.30	−0.148	0.477
Safety climate * Limited social contacts	−0.025	0.54	−0.105	0.055

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TABLE 8. Multivariable Linear Regression Analyses Comparing the Relationship of Health Climate and Selected Potential Modifier Variables with Well-Being

	Well-Being			
Variable	**Estimate**	***P* Value**	**95% Confidence Limits**	
Health climate	0.302	0.13	−0.086	0.690
Perceptions of organizational response	0.216	0.27	−0.166	0.599
Health climate * Perceptions of organizational response	−0.031	0.52	−0.125	0.063
Health climate	0.212	0.0004	0.095	0.328
Change in job duties	−0.407	0.27	−1.126	0.313
Health climate * Change in job duties	0.086	0.34	−0.092	0.263
Health climate	0.262	<0.0001	0.169	0.356
Not able to work	0.485	0.50	−0.939	1.909
Health climate * Not able to work	−0.221	0.23	−0.583	0.141
Health climate	0.199	0.22	−0.116	0.513
Limited social contacts	−0.023	0.88	−0.278	0.325
Health climate * Limited social contacts	0.011	0.77	−0.064	0.086

TABLE 9. Results of Multivariable Analyses for Safety Climate and Well-Being After Controlling for Business Size, Region, Employee Age and Gender

	Well-Being			
Variable	**Estimate**	***P* Value**	**95% Confidence Limits**	
Safety climate	0.211	<0.0001	0.115	0.307
Childcare changed	−0.210	0.19	−0.523	0.104
Not able to work	−0.364	0.09	−0.779	0.051
Limited social Contacts	0.068	0.08	−0.007	0.143

the analysis conducted with the subset of individuals who reported having children under the age of 18 in the household found similar results to models run with the full sample, indicating stability of our multivariable models for this variable (Appendix B, http://links.lww.com/JOM/A834).

DISCUSSION

Our results offer several interesting findings regarding how the COVID-19 pandemic has impacted small business employees in the early months of the crisis. The way in which employees felt their small businesses responded to the pandemic was significantly related to employee well-being, as was the ways in which employees' home and work lives changed. However, these relationships were no longer significant after accounting for employee perceptions of safety and health climates. Ultimately, our findings suggest that small business employees report better well-being during the COVID-19 if they work for a company that they perceive as having strong safety and health climates. These findings have implications for how small businesses prepare for emergencies.

As COVID-19 continues to have major impacts on small businesses and their employees, it is important to learn how organizations can influence workplace safety, health, and well-being. This is particularly important for small businesses, which face different challenges and have different resources available than their larger counterparts. In this study, we found that employees of small organizations have experienced a number of disruptions both to their work and home life due to COVID-19, including working remotely more frequently than usual, changes to job duties, changes to childcare, and limiting social contacts. Interestingly, there were about equal numbers of respondents who were working more hours than usual and fewer hours than usual. All of these factors can affect well-being, particularly when changes are out of the employee's control. While we could not assess whether these changes were an employee's choice, research suggests that higher levels of job autonomy and perceived control are correlated with lower work-family conflict, lower depression, less turnover, and higher job satisfaction making it important to understand how to involve employees when making changes to work.[40,41] However, in

TABLE 10. Results of Multivariable Analyses for Health Climate and with Well-Being After Controlling for Business Size, Region, Employee Age and Gender

	Well-Being			
Variable	**Estimate**	***P* Value**	**95% Confidence Limits**	
Health climate	0.239	<0.0001	0.148	0.330
Childcare changed	−0.195	0.22	−0.506	0.115
Not able to work	−0.355	0.09	−0.766	0.056
Limited Social Contacts	0.065	0.09	−0.010	0.139

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the current study, none of these other work and home life factors were related to well-being after accounting for perceptions of safety and health climates, suggesting the over-riding strength of organization climate in a time of disruption.

Our findings that perceptions of safety and health climates are related to well-being are consistent with research that finds safety and health climates are related to a number of factors, including safety practices, motivation, knowledge, and accidents, as well as physical health and health behaviors.[17–24,25,26] We add to this literature by demonstrating that these relationships hold during a global pandemic and that they are more important than perceptions of organizational response to COVID-19 and work and life changes during COVID-19. Employee perceptions of safety and health climates may be more important for well-being than employer-provided benefits such as paid sick leave, which had no effect on employee well-being in our study. Additionally, we find that the climate variables were highly correlated with perceptions of organizational response to COVID-19. This suggests that small businesses that are committed to employee safety and health are also likely to have strong leadership support and use of safety and health procedures specifically to protect employees from an illness. These findings suggest that during emergencies small businesses that have strong safety and health climates may be better prepared to maintain employee well-being, although we acknowledge that our study design does not permit us to establish cause and effect.

As workers have been impacted with how countries have responded to COVID-19, it is important that organizations respond to threats to employee safety, health, and well-being by implementing evidence-based workplace strategies.[42] The results from this study support the notion that organizations focused on implementing a comprehensive TWH approach focused on both safety and health across management, benefits, and practices can be positioned well to maintain the well-being of their employees in times of crisis. A systematic review examining challenges to organizational systems including manmade and natural disasters, disease outbreaks, and environmental changes found that organization resilience is achieved by adapting and transforming and relies on factors such as resources, leadership practices, and organizational culture.[43] In the case of COVID-19, TWH serves as a public health emergency response for employers to ensure guidelines are in place for safe return to work.[12]

Future Research

The response to the COVID-19 pandemic continues to evolve and small businesses and their employees will continue to be impacted by an organization's response to the pandemic, among other, larger economic and societal factors. The return to in-person work, continued exposure to COVID-19, the re-opening of schools, and other considerations will continue to affect employee safety, health, and well-being. On-going and future research should follow-up with organizations to learn how organizational response continues to evolve as the COVID-19 pandemic and response shifts. These data were collected in May 2020, two months into the pandemic curve in Colorado and at the time that initial restrictions from Colorado's Stay at Home Order were beginning to lift.[32,33] As organizations have been able to re-open, businesses and employees likely are facing different challenges than they were in late spring 2020. It is important to learn about the ongoing and new challenges facing small organizations and their employees, with the ultimate goal of implementing and testing workplace interventions. Further, the lessons learned from COVID-19 are applicable to a number of crises that an organization may face, including natural disasters, other infectious diseases, and workplace fatalities, among others. More research is needed to learn about the buffering effect of positive safety and health climates on employee well-being when faced with crises.

Strengths and Limitations

Due to the network of employers already enrolled in the SSWell study, we were able to quickly recruit small businesses and their employees to complete the COVID-19 Employee Impact Survey, providing timely information about the challenges and opportunities faced by employees. Collecting information from employees themselves, as opposed to just organizational-level responses, is a strength of this study. Employees came from organizations across multiple industries, small business sizes, and in rural and urban areas of the state, improving the generalizability of our findings.

Limitations to this work include that the businesses and employees who were most impacted by COVID-19 were likely not represented in this study as the organization may have closed or reduced hours and some employees may have been no longer working for the business. Data were self-reported, which could bias results if respondents reply in ways that attempt to make themselves or their organizations appear favorable. Finally, though we tried to address the timeframe of the previous 30 days during the COVID-19 pandemic, this was a time of heightened stress and many changes which could have affected participant recall.

CONCLUSION

Safety and health climates continue to be positively related to employee well-being, even when other disruptions occur in and out of the workplace. As businesses continue to adapt to the operational changes that are brought about by the COVID-19 pandemic, it is more important than ever for organizations to focus on the safety and health of their employees by building strong safety and health climates. Total Worker Health offers a comprehensive and approachable way for small employers specifically to build strong health and safety climates. Future efforts should build upon this study to develop a greater understanding of how COVID-19 impacts small businesses and how those businesses can impact the safety, health, and well-being of their employees.

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