

# The Relationship of Workplace Health Climate and Participation in an Employee Wellness Program

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**Abstract:** Employee wellness programs provide numerous benefits for employers and employees, however, achieving high participation is critical to their success. Workplace health climate, a measure of perceptions of support and environmental conditions, has been shown to influence participation in wellness programs. Thus, our study's primary aim was to gain a better understanding of the relationship between workplace health climate and participation in an employee wellness program. The inquiry design was a needs assessment utilizing a 16-item survey. Respondents consisted of 1618 employees of a public university. Differences in workplace health climate scores based on wellness program participation, sex, and university company were compared and contrasted. There was a significant difference in total scores between wellness program participants 3.85 and non-participants 3.74, p-value 0.007. There were also significant differences in total scores among the three primary companies. The Academic Division had a mean total score of 3.90, the Physicians Group had a score of 3.81, and the Medical Center had a score of 3.70, p-value<0.001. There were no significant differences in total scores between sexes, p-value 0.153. The findings from our investigation support earlier research and suggest a favorable workplace health climate is associated with employees' participation in wellness programs. Additionally, workplace health climate can vary among business units and suggest a more favorable health climate might be attained by addressing employees' perceptions of organizational support. To our knowledge, this is the first study to explore the constituent elements of workplace health climate, and their association with participation in wellness programs.

**Keywords:** Worksite Health Promotion, Well-being, Social Environment, Organizational Support, Employee Wellness, Leadership

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## 1. Introduction

Employee wellness programs have become increasingly popular offerings among U.S. employers. According to a 2018 Kaiser Family Foundation survey, approximately 4 out of 5 large employers offered a wellness program as an employee benefit [1]. Workplace wellness programs are coordinated,

employer-sponsored initiatives that aim to support employees by providing resources and opportunities for employees – and sometimes their families – to adopt and sustain healthy behaviors that help reduce risk of chronic disease, and improve various dimensions of well-being – including physical, emotional, social, and financial health as well as enhancing quality of life and work performance.

Comprehensive employee wellness programs often involve the delivery and promotion of health risk assessments, health coaching and education related to physical activity and nutrition, and tobacco cessation and stress management interventions [2].

The provision of employee wellness programs is guided by a business case which is predicated on the belief that healthier employees are more beneficial to the organization. Previous research suggests employers can realize numerous social and economic advantages – including reduced absenteeism, improved morale and quality of work, in addition to greater employee retention, and potentially, reduced health care costs [3, 4]. Meanwhile, employees can benefit by preserving or improving their health and well-being and overall quality of life [5].

Despite having a wide range of benefits, wellness programs often fail to attract participation among certain segments of the workforce [5, 6]. Moreover, it has been estimated that only about 40% of eligible employees participate in workplace wellness programs [6]. To improve participation, practitioners must obtain a clearer understanding of the factors that influence participation across their organization.

The social structure of a workplace has been shown to have a profound impact on health behaviors of employees [7-9]. Workplace health climate – which encompasses a number of factors such as organizational norms and values, employee attitudes, social support, and environmental conditions, has been shown to encourage or deter wellness program participation and other health-promoting activities [8, 10]. Several authors have noted that an unfavorable workplace health climate is negatively associated with healthy behavior and wellness program participation, yet positive perceptions are associated with beneficial health behaviors and higher participation [7, 8, 11]. Furthermore, earlier research has elucidated differences in workplace health climate according to occupational and demographic characteristics [6, 11]. These relationships support the need for further research to investigate the impact of workplace health climate as a determinant of workplace health behavior and wellness program participation.

A better understanding of the workplace health climate across an organization can assist practitioners to devise strategies that improve participation among underrepresented populations. Cognizant of the challenges faced by many organizations, our study sought to understand differences in workplace health climate based on wellness program participation, company and sex. Secondly, we investigated the differences in workplace health climate subscales based on program participation status, company, and sex.

## 2. Aims

The primary aim of this study was to examine the relationships between workplace health climate with wellness program participation, company, and sex. Additionally, the study aimed to examine the differences in workplace health climate subscales based on wellness program participation,

company, and sex.

## 3. Methods

### 3.1. Setting and Population

The setting of this investigation is a public university with an accompanying academic medical center located in the southeastern United States. The university is supported by approximately 20,000 employees – each of whom is affiliated with one of the university's three primary operating divisions or "companies" (Academic, Medical Center, and Physician Group). Due to the institution's heavily matrixed organizational structure, the employees can be situated within a variety of occupational groups – including faculty, health care and administration, or in trade occupations such as construction and facility maintenance.

### 3.2. Design and Instrumentation

The inquiry instrument has a 16-item survey that contains 2 sections. Section 1 includes 3 questions. The first question asks the respondent whether they are enrolled in a university sponsored health plan. The second question asks the subject whether they participated in any activities sponsored by the employee well-being program within the last 12 months. "Program participants" are defined as individual's who responded, "yes" while program "non-participants" are defined as those who responded "no". The third question assesses the extent to which the respondent works in a remote/virtual environment by means of 4 possible responses: ("never", "sometimes", "most of the time" or "all of the time"). Section 2 contains 13 questions that were derived and adapted from the Worksite Health Climate Scales [12] and assess employees' perceptions of organizational, supervisor and peer support for their physical and mental health in addition to perceptions of normative health behaviors of the employees' peers. Responses to the 13 questions in section 2 were reported via a 5-point Likert scale and converted to a numerical value where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree.

### 3.3. Data Collection

To collect data, volunteers participate by selecting a hyperlink to the survey which is facilitated by Qualtrics software (Qualtrics, Provo, UT). The hyperlink to the survey was disseminated via a university-wide newsletter and advertised in a web-based employee wellness platform. Access to the survey requires a Netbadge™ login to help ensure participants are university employees. By virtue of the survey being Netbadge-authenticated, employment could be verified, and demographic and job categories were able to be collected. This study was exempt from institutional review board review.

### 3.4. Descriptive Statistics

Descriptive statistics are presented as counts and percentages for categorical variables. Numeric variables are

shown as means and standard deviations. The total and sub-scores of the workplace health climate survey items are ordinal in nature. All statistical analyses were conducted with R (R Foundation for Statistical Computing, Vienna, Austria, <https://www.R-project.org>).

### 3.5. Primary Analysis

The Wilcoxon Rank Sum test compares the difference in distributions of ranks, which are ordinal. This property makes the Wilcoxon Rank Sum test ideal to measure the difference in the workplace health climate total score between 1) program participants and non-participants in an employee wellness program, 2) male and female respondents, and 3) among respondents' affiliated university company. Sub scores of peer, supervisor, and organizational support and the normative behavior sub score differences were calculated for each of the three primary university companies. Due to the multiple comparisons of sub scores, we chose to utilize the False Discovery Rate (FDR) method to adjust for these multiple comparisons to reduce the risk of making type I errors. This adjustment method was chosen over the more commonly applied Bonferroni method, which can be too conservative. Moreover, the multiple hypothesis tests utilize the same statistical test, which makes the FDR method preferred.

### 3.6. Modeling

We used a multivariate linear regression model to determine the relative effect size of program participation, sex, and company (predictor variables) on the survey total score as the response variable. Participation status was coded as 0 (non-participant) and 1 (participant). Sex was coded as 0 (female) and 1 (male). University company was a categorical variable consisting of academic (reference), physician group, and medical center.

## 4. Results

### 4.1. Differences in Responses by Program Participation, Sex, and Company

A total of 1,618 university employees responded to our survey between April – July 2021 (Table 1). The resulting data set contained 5.32% missing data with sex being the variable that accounted for majority of missing data. There was no difference in missing data between sexes determined by a Pearson's Chi-squared test (p-value 0.892). Nearly all (>99%) answered all 16 of the survey's questions. There was no difference in total scores between respondents with and without missing data (Wilcoxon Rank Sum test p-value 0.887). Thus, we chose to only include complete cases for primary and secondary analyses.

In addition to missing data, there were 367 employees who responded more than once. Only their first response to the survey was retained. Respondents were represented by the university's three primary companies. Half (50.74%) were faculty and staff employed in the university's academic

division; (43.02%) were employees in the university medical center, and (6.24%) were employed by a subsidiary physician group. Majorities of respondents were female (73.79%) and enrolled in one of the university's health plans (86.65%). Nearly two-thirds (64.46%) had participated in one or more wellness program activities during the past 12 months. A plurality of respondents (41.72%) reported that they never work remotely; the remainder of responses were split among those who work remotely always (19.90%), mostly (18.29%), and sometimes (19.84%).

**Table 1.** Descriptive statistics population characteristics N=1618.

Company	N	%
Physician group	101	6.24%
Medical center	696	43.02%
Academic	821	50.74%
Enrolled in a health plan	N	%
No	214	13.23%
Yes	1402	86.65%
No response	2	0.12%
Past-year participation in activities	N	%
No	573	35.41%
Yes	1043	64.46%
No response	2	0.12%
Work environment	N	%
Always remote	322	19.90%
Mostly remote	296	18.29%
Sometimes remote	321	19.84%
Never remote	675	41.72%
No response	4	0.25%
Sex	N	%
Female	1194	73.79%
Male	377	23.30%
(Missing data)	47	2.90%

Table 2 shows the differences in total scores and sub scores between participants and non-participants. There was a mean difference of 0.108 in total scores between program participants 3.848 versus non-participants 3.74 p-value 0.007. Among sub scores, only organizational support was significantly different between participants and non-participants p-value<0.001.

Table 3 describes differences in total scores and sub scores between sexes. There was a small mean difference of 0.06 in total scores between female and male respondents p-value 0.153. There were no significant differences in sub scores between sexes.

Table 4 describes the differences in total scores and sub scores among university companies. There were significant differences in total scores among companies, most notably between the ACD and the MC. The academic division (ACD) had a mean total score of 3.90, the physician's group (PG) had a score of 3.81, and the medical center (MC) had a score of 3.70, p-value<0.001.

Among companies, differences in sub scores for organizational support p-value<0.001 and supervisor support p-value<0.001 were significant however, there were no differences in peer support p-value<0.177.

**Table 2.** Differences in workplace health climate scores participants and non-participants.

	Non-Participants (n=573)	Participants (n=1043)	P-value
Total Score	3.74±0.8	3.848±0.713	0.007*
Sub Scores			
Peer Support	3.93±1.1	4±1	0.691†
Supervisor Support	3.87±1.18	3.96±1.1	0.623†
Organizational Support	3.72±1.1	4.04±0.95	<0.001†
Normative Behavior	3.42±0.84	3.39±0.77	0.934†

All scores are presented as mean and standard deviations (mean ± sd). \* denotes unadjusted p-value from the Kruskal-Wallis Test. † denotes multiple-comparison adjustments of the Kruskal-Wallis test via the False Discovery Rate (FDR) method.

**Table 3.** Differences in workplace health climate scores between sexes.

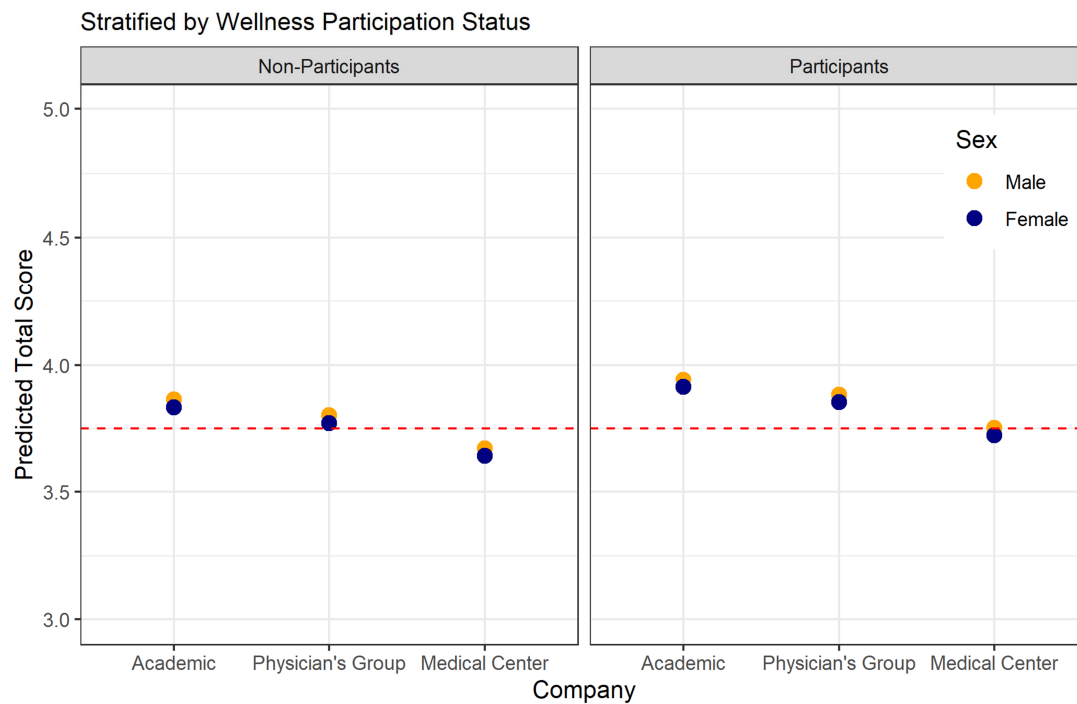
	Female (n=1194)	Male (n=377)	P-value
Total Score	3.79±0.74	3.86±0.75	0.153
Sub Scores			
Peer Support	3.97±1.06	4±0.95	0.817
Supervisor Support	3.89±1.15	4.03±1.04	0.357
Organizational Support	3.93±1	3.97±0.99	0.785
Normative Behavior	3.37±0.79	3.41±0.8	0.785

All scores are presented as mean and standard deviations (mean ± sd). \* denotes unadjusted p-value from the Kruskal-Wallis Test. † denotes multiple-comparison adjustments of the Kruskal-Wallis test via the False Discovery Rate (FDR) method.

**Table 4.** Differences in workplace health climate scores among companies.

	Academic (n=821)	Physicians Group (n=101)	Medical Center (n=696)	P-value
Total Score	3.9±0.69	3.81±0.76	3.7±0.8	<0.001*
Sub Scores				
Peer Support	4.04±0.98	3.9±1.11	3.9±1.1	0.177†
Supervisor Support	4.05±1.05	4.02±1.12	3.78±1.21	<0.001†
Organizational Support	4.1±0.91	3.98±0.96	3.71±1.09	<0.001†
Normative Behavior	3.4±0.76	3.34±0.83	3.41±0.84	0.370†

All scores are presented as mean and standard deviations (mean ± sd). \* denotes unadjusted p-value from the Kruskal-Wallis Test. † denotes multiple-comparison adjustments of the Kruskal-Wallis test via the False Discovery Rate (FDR) method.



Red dotted line for visual reference.

**Figure 1.** Predicted total score by company.

#### 4.2. Post-Hoc Analysis

Post-hoc analysis was conducted to compare the differences in mean scores among the three companies by analysis of variance (ANOVA). Levene's test for Homogeneity of Variance showed that variance differed among groups,  $p\text{-value} < 0.001$ . Thus a heteroscedasticity-corrected covariance matrix was applied to the model. Since company continued to have significant between group effect,  $p\text{-value} < 0.001$ , a Tukey-Honest test was performed. Interestingly, there was a mean (95% CI) difference in total score of 0.19 (0.11, 0.28) between the ACD and MC,  $p\text{-value} < 0.001$ . The difference between the ACD and PG was 0.09 (0.09, 0.27) with a  $p\text{-value}$  of 0.483. The PG and MC had a difference of 0.10 (0.08, 0.29) with a  $p\text{-value}$  of 0.381.

#### 4.3. Modeling

The multivariate linear regression model with program participation status, sex, and company as predictors of total scores had both participation status and company as independent predictors. Participation status had a coefficient (95% CI) of 0.08 (0.00, 0.16) and a  $p\text{-value}$  of 0.043, meaning that a one unit change from non-participant to participant would increase the predicted total score by 0.08. Sex was not a significant predictor with a coefficient of 0.03 (-0.06, 0.12) and a  $p\text{-value}$  of 0.504. Among companies with ACD as the referent, only the MC indicator variable reached significance,  $p\text{-value} < 0.001$ , with a coefficient of -0.19 (-0.27, -0.11). The model had an adjusted R-squared of 0.018 showing that the model only accounted for 1.8% of the variance in total scores. Figure 1 shows the predicted total scores from the multivariate linear regression model, and illustrates the relative effect size of participation, sex, and employer. Figure 1 and the multivariate linear regression coefficient values show that company influences most of the difference in total scores among the three primary comparisons of respondents noted earlier.

### 5. Discussion

The primary aim of our study was to examine the relationships between workplace health climate and participation in an employee wellness program, sex, and company. Our findings showed that wellness program participants had significantly more favorable health climate scores compared to non-participants. These findings were not surprising as they align with earlier research. Positive associations between workplace health climate and participation in employer sponsored wellness programs were established among older employees [8]. Health climate was linked to employees' intention to engage in healthy behaviors [10]. Additionally, we examined the relationship of health climate according to university company and sex. While sex differences were not found, there were significant differences in total health climate scores among companies, with the most notable difference observed between ACD and MC.

Additionally, the health climate among PG was found to be less favorable than the ACD, but more favorable than the MC. Overall, our investigation showed that company was the strongest predictor of workplace health climate scores compared to wellness participation or sex.

We postulate the differences in total scores among companies may be associated with contrasting occupational roles. For example, ACD roles consist of teaching and research or administrative work. In contrast, employees of the MC are largely comprised of patient-facing roles marked by erratic hours and shift work and accompanied by unyielding demands of patient care. The stressful demands placed on healthcare workers have been an especially pernicious and persistent concern for decades [13], and intensified amid the COVID-19 pandemic with resultant decrements in mental health [14]. Ongoing and intense stress associated with patient care has the potential to manifest as "burnout" – a distinct type of psychological stress characterized by emotional exhaustion, depersonalization, and reduced sense of personal accomplishment [13]. Workers exposed to such situations tend to perceive and appraise their environment more negatively, which contributes to a less favorable workplace health climate [15]. Similarly, the PG consists of a more equal distribution of administrative and health care workers, which could explain why their total scores were higher than the MC but lower than ACD. However, a better understanding of how these work-related factors might interact with workplace health climate warrants further investigation.

For our secondary aim we examined differences in subscales. We found no differences in peer support across comparison groups, while differences in supervisor support existed only among companies. Most notably, organizational support was significantly different across companies and between wellness program participation status, which suggests that perceived organizational support could be a key consideration for organizations aiming to improve workplace health climate.

Overall, this study had many notable strengths, including a large response rate, few instances of incomplete or missing data, and the elimination of inadvertent duplicate responses made possible through validation of respondent credentials, which collectively minimize the potential influence of selection bias or missing data bias. However, the cross-sectional collection of data inhibits the ability to delineate temporal relationships between company and participation status. Ostensibly, it could be postulated that the effect or influence company has on a respondent transcends voluntary participation in a wellness program. It is worth noting that duration of employment or job role within each company was not collected, preventing exploration of subgroups or roles of each company or the duration of exposure to a company's environments and available resources, which may impact the total score outcome more than company alone. Additionally noted is the multivariate linear regression model only accounted for 1.8% of the variance of total scores among respondents, so discretion

should be employed when valuing or extrapolating the effect of company, or perceptions of organizational and supervisor support. In summary, it is recommended that further research is conducted to better understand which workplace characteristics are associated with perceived health climate of the workplace and determinants of participation in wellness programs.

Based on our findings, practitioners should consider how workplace health climate influences behavior and measures of organizational success. For example, our study found that MC employees perceived an unfavorable climate compared to other university companies. Such unfavorable views have demonstrated a negative impact on affective commitment and employee turnover - both of which could ostensibly contribute to diminished quality of patient care [15]. Moreover, subscale scores of perceived organizational support were also significantly lower among MC workers and should be addressed. It has been previously cautioned that failing to engender a supportive work environment could negatively impact participation in employee wellness programs [15].

*“Organizations, by not focusing on supportive environments, may involuntarily fail to meet the employees’ expectations. In such situations, employees tend to show reduced extra-role behaviors, emotional bonds with their organization and tend to show more intention to leave the organization” (Islam, 2018).*

Considering these factors, a particular effort should be directed at obtaining a deeper understanding of workplace health climate among MC employees. It is recommended that practitioners identify the factors that influence MC employees’ perceptions and engage them along with leadership to improve workplace health climate. Involvement and encouragement among supervisors and organizational leaders should be highlighted in company communications in an effort to demonstrate leader role modeling and foster positive relationships among leadership and employees. Visible support from leadership to have a positive effect on employees’ health behaviors and perceptions of support [9, 11].

## 6. Conclusion

The findings from our investigation lend further support to earlier research, which indicates a more favorable workplace health climate is associated with greater participation in employee wellness programs. Furthermore, our investigation illustrates how workplace health climate can vary significantly among operating divisions within a large employer institution, and suggests employees’ perceptions of organizational support is a salient factor related to workplace health climate. Practitioners can leverage the findings of this study to advocate for greater organizational support, which is conducive to engendering a more favorable workplace health climate and improving participation in employee wellness programs.

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