

# Relationships Among Perceived Wellness Culture, Healthy Lifestyle Beliefs, and Healthy Behaviors in University Faculty and Staff: Implications for Practice and Future Research

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## **Abstract**

Identifying key factors influencing healthy lifestyle behaviors in university faculty and staff is critical in designing interventions to improve health outcomes and reduce health care costs. A descriptive study was conducted with 3,959 faculty and staff at a Midwestern, U.S. University. Key measures included perceived worksite culture, healthy lifestyle beliefs, and healthy lifestyle behaviors. Healthy lifestyle beliefs were strongly positively associated with healthy lifestyle behaviors. Regression analyses demonstrated positive healthy lifestyle behaviors based upon sex (female, Std.  $\beta = .068$ ,  $p < .001$ ) and role (faculty, Std.  $\beta = .059$ ,  $p < .001$ ) and a negative effect of race (African Americans, Std.  $\beta = -.059$ ,  $p < .001$ ). The positive effect of perceived wellness culture on healthy lifestyle behaviors was completely mediated by healthy lifestyle beliefs. Interventions to enhance perceived wellness culture

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and healthy lifestyle beliefs should result in healthier behaviors and improved health outcomes.

### **Keywords**

employee wellness, healthy lifestyle beliefs, healthy lifestyle behaviors, university, academic institutions, worksite culture, health outcomes

Wellness programs have been introduced to worksites worldwide to improve the health and well-being of employees. Academic institutions are fertile ground to enhance the population health of faculty, staff, and students who live and work in higher education settings, yet they have lagged behind corporate America in wellness programming and creating wellness cultures. Although the overarching purpose of worksite wellness programs is to provide a positive return on investment (ROI) by reducing absenteeism and lowering health insurance premiums, the altruistic benefit is the creation of a healthier workforce, which translates into a healthier population (Call, Gerdes, & Robinson, 2009). It is recognized that a worksite culture of health, defined as a body of organizational factors that promote healthy lifestyle behaviors, is important in enhancing the health and wellness of employees. However, there is a paucity of studies that have investigated the impact of employees' perceived healthy worksite culture on their healthy lifestyle behaviors, and none in institutions of higher learning (Aldana et al., 2012). Further, the relationships among employees' perceived wellness culture, healthy lifestyle beliefs, and healthy lifestyle behaviors are largely unknown.

## **Evidence on Worksite Health Promotion Programs**

Over the past 25 years, the number of organizations and companies that offer a health promotion program for their employees at the worksite has increased, with 90% of all worksites with 50 or more employees offering some type of health promotion program. This is a group that employs three quarters of the United States workforce (Mattke et al., 2013).

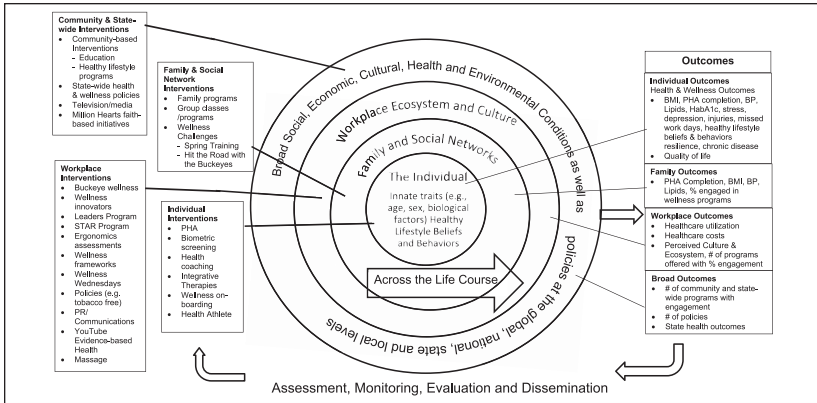
At the forefront of the worksite wellness movement is the notion that many employers want and need to take a proactive approach to keeping their employees healthy while attempting to control health care costs. Schultz and Edington (2009) contend that health is a serious economic strategy and recommend modifying risk factors in individuals where they can be modified instead of attempting to treat higher cost diseases. In a 2-year study conducted by

Schultz and Edington that analyzed health changes in employees with metabolic syndrome, those employees who increased their health risks over time had the largest health care cost increase compared with employees who reduced their risks having the lowest cost increase. In a meta-analysis of the literature on costs and savings associated with workplace wellness programs, medical costs were found to fall by about \$3.27 for every dollar spent on wellness programs (Sparling, 2010). A recent meta-analysis of studies that evaluated wellness programs found the ROI to be 3:1 for both direct medical costs and absenteeism (Baicker, Cutler, & Song, 2010). In related research, a study conducted by van Scheppingen and colleagues (2014) concluded that healthy lifestyle and work style were associated with perceived health and vitality, which in turn were associated with employees' productivity (absenteeism and presenteeism).

Tools and health promotion programs typically used by employers for population health management include extensive awareness building through health education, health risk assessments (HRAs), risk reduction interventions, health coaching, disease management, vaccinations, web-enabled communications, social networking, establishment of data warehouses, and the use of incentives (Mattke et al., 2013). Most employers (72% of those offering a wellness program) characterize their wellness programs as a combination of screening activities and intervention incentives (Mattke et al., 2013). Although academic institutions are fertile ground to enhance the population health of faculty, staff, and students who live and work in higher education settings, they have typically lagged behind corporate America in wellness programming.

It is recognized that multiple factors influence healthy choices and engagement in wellness programming in employees, including their own health norms, perceived competence regarding healthy behaviors, organizational policies, social and family networks, leadership support and role-modeling, level of motivation, and a healthy worksite culture (Hall, Bergman, & Nivens, 2014). Successful workplace wellness programs include effective communication strategies, opportunities for employees to engage, leadership engaged at all levels, the use of resources, and relationships and continuous evaluation (Mattke et al., 2013).

Today, one out of two Americans has a chronic condition and more than one out of four has multiple chronic conditions of which the majority are preventable with modifiable healthy lifestyle behaviors (Ward & Shiller, 2013). Defining key factors, including perceived worksite culture, that influence employees' healthy lifestyle beliefs and healthy lifestyle behaviors is critical to plan interventions to prevent and manage chronic conditions, improve health outcomes, and ultimately reduce health care costs.



**Figure 1.** The social-ecological framework and life-course perspective guide evidence-based interventions to achieve the vision as the healthiest university on the globe at The Ohio State University.

Adapted from Model to Achieve Healthy People 2020 overarching goals. Secretary's Advisory Committee on Health Promotion and Disease Prevention Objectives for 2020 (2008, p. 7). STAR = Stress, Trauma and Resilience; BMI = Body Mass Index; PHA = Personal Health Assessment; BP = Blood Pressure.

## Purpose

The primary purposes of this study were to (a) describe the healthy lifestyle beliefs, healthy lifestyle behaviors, and perceived wellness culture and environment among faculty and staff at a large, public, land grant university in the Midwest with approximately 65,000 students, 6,867 faculty, and 23,511 staff and (b) determine the relationships among these variables.

At the institution, a comprehensive integrative framework is used to guide the wellness strategic plan for faculty, staff, and students. Specifically, the social-ecological framework and life-course perspective drives evidence-based interventions and the assessment of health and wellness outcomes (see Figure 1). This framework guided the selection of variables for this study, contending that perceived wellness culture would influence the faculty and staff's healthy lifestyle beliefs and healthy lifestyle behaviors.

## Methods

### Design

A cross sectional descriptive correlational design was used for this study, which was approved by the university's Institutional Review Board. Data collection was completed in November of 2012.

## Procedure

Information about the voluntary anonymous survey was communicated through multiple venues, including the university and medical center's daily news updates, emails from deans of the 14 colleges, and advertisements in the campus' paper. To thank individuals for participating in the wellness survey, three free registrations to a 2-day energy management workshop, which focuses on nutrition, energy management, and physical activity, and 30 wellness packs were raffled off to a random number of 33 faculty and staff who completed the survey. To be eligible to receive one of these prizes, individuals were asked to report that they completed the wellness survey at a separate website provided at the end of the survey. Then, to increase generalizability of the sample to the entire university population, the Office of Human Resources selected a random sample of 10% of faculty and staff from across the university. These individuals were emailed the survey link, with a message from the investigators asking them to consider completing the survey. The survey link was emailed to these randomly selected faculty and staff one time.

## Measures

**Healthy Lifestyle Beliefs Scale.** This scale is a 16-item instrument that was adapted from other beliefs scales used by Melnyk in prior studies (Melnik, 2007; Melnyk et al., 2013; Melnyk et al., 2009). This scale taps beliefs/confidence about the ability to engage in healthy lifestyle behaviors (e.g., "I make healthy food choices; I exercise on a regular basis; I do healthy things to cope/deal with my worries and stress). Subjects respond to each item on a 5-point Likert-type scale that ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). Total scores range from 16 to 80, with higher scores indicating stronger beliefs about the ability to engage in healthy lifestyle behaviors. Face validity was established with 10 individuals. Content validity was established by eight health specialists. Cronbach's alpha for this scale has exceeded .85 in prior research (Melnik et al., 2013).

**Healthy Lifestyle Behaviors Scale.** This 16-item instrument, developed by Melnyk and Small (2003), taps healthy lifestyle behaviors, including nutrition, exercise, and goal setting. Subjects respond to each item on a 5-point Likert-type scale that ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). Examples of questions include "I make healthy food choices," "I exercise on a regular basis," and "I set goals I can accomplish." A higher score on the scale indicates a greater number of healthy lifestyle behaviors, with a possible range of scores between 16 and 80 for the summed items. Face validity was

established with 10 individuals. Content validity was established by eight health behavior experts. Cronbach's alphas have been above .85 in prior research (Kelly, Melnyk, Jacobson, & O'Haver, 2011).

*Perceived Wellness Culture and Environment Scale.* This is an 11-item scale that was created for this study by the first two authors to tap faculty and staff perceptions of the university's wellness culture and environment. Subjects respond to each item on a 5-point Likert-type scale that ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). Examples of items include "Do you believe the University has a vested interest in your health and personal wellness?"; "Do you believe the University has a culture and environment that promotes health and wellness for its faculty, staff, and students?"; and "Do you believe the leaders at the University are actively engaged in promoting and role-modeling health and wellness?" A higher score on the scale indicates a perception of a stronger wellness culture at the University. Face validity was established with 10 individuals. Six wellness experts confirmed content validity. Construct validity was established with factor analysis and confirmed that the items comprised a single scale. Factor analysis supported a single dimension to the scale (Eigenvalue = 5.97) and the items accounted for 64% of the variance, loading .66 or higher.

### *Demographic and Institutional Characteristics*

Demographic characteristics included questions about biological sex, race/ethnicity, marital status, and insurance coverage. Participants also were asked two individual items rating their physical and mental health on a Likert-type scale from 1 (*not at all healthy*) to 5 (*very healthy*). Institutional characteristics included university campus and department, role, employee status (full or part time), and hours per week worked.

### *Data Analysis*

Preliminary analyses included estimating the psychometrics for each scale, descriptive statistics to ensure the quality of the data (check distributions, examine outliers) and to summarize the demographic and institutional characteristics of the sample, and correlations among all continuous measures. We then conducted contingency table analyses to examine categorical data, and performed independent *t* tests and one-way ANOVAs to test for differences by demographic and institutional characteristics (e.g., race and university role). Finally, we fitted nested multiple regression models to the data predicting healthy lifestyle behaviors. All of the individual demographic and

institutional characteristics were included in Model 1. Only those demographic and institutional characteristics that were significant in Model 1 were included in subsequent models. Model 2 estimated the relationship of wellness culture to healthy lifestyle behaviors and Model 3 estimated the relationship of healthy lifestyle beliefs to healthy lifestyle behaviors, both controlling for demographic and institutional characteristics. Model 4 included both wellness culture and healthy lifestyle beliefs. As an additional test whether healthy lifestyle beliefs mediated the effect of wellness culture on healthy lifestyle behaviors, we used the Monte Carlo method for assessing mediation (Preacher & Hayes, 2004; Selig & Preacher, 2008) to compute a 95% confidence interval (CI) based on 2,000 simulated draws from the distributions for the  $a_1$  and  $b_1$  parameters.

## Results

### Sample

As presented in Table 1, a total of 3,959 faculty and staff (729 faculty and 3,230 staff) participated in the survey, a 12.9% response rate. Among those with complete data (3,571), more than half of the participants were female ( $n = 2,581$ , 65.2%) and married (2,350, 58.4%); the majority were White (3,156, 79.7%), and were covered under one of the varieties of Prime Care Advantage (3,181, 80.3%). Administrative staff comprised 30% of the sample ( $n = 1,187$ , and faculty were 18.4% [ $n = 729$ ]). All others were a combination of administrators, and various other types of staff. The vast majority of participants were from the main campus ( $n = 2,887$ , 72.9%), worked full-time ( $n = 3,326$ , 84%), and reported working 40 or more hours a week (3,189, 80.6%). Almost all departments were represented with Arts and Sciences ( $n = 505$ , 12.8%), the medical center ( $n = 418$ , 10.6%), and Food and Agriculture ( $n = 259$ , 6.5%) having the most participants.

### Psychometric Analyses

All scales were internally consistent (reliable) with Cronbach's alphas ranging from .83 for the Healthy Lifestyle Behaviors Scale to .93 for Wellness Culture and Environment Scale. Concurrent and discriminant validity were addressed by estimating Pearson's correlations among the three measures. Wellness Culture was positively correlated with Healthy Lifestyle Beliefs (see Table 2),  $r = .33$ ,  $p < .001$ , and Healthy Lifestyle Behaviors,  $r = .21$ ,  $p < .001$ . Healthy Lifestyle Beliefs and Behaviors were strongly positively related,  $r = .68$ ,  $p < .001$ . These correlations indicate that while related, none

**Table 1.** Sample Demographic and Institutional Characteristics.

	<i>n</i>	%
Biological sex		
Male	990	25.0
Female	2,581	65.2
Missing	388	9.8
Race		
White	3,156	79.7
African American/Black	194	4.9
Asian	126	3.2
American Indian or Alaskan native	9	.2
Hawaiian or Pacific Islander	3	.1
Race unknown	471	11.9
Education		
High school diploma	103	2.6
Some college	352	8.9
Bachelor's degree	1,335	33.7
Master's degree	983	24.8
Doctorate	803	20.3
Missing	383	9.7
Marital status		
Married	2,350	59.4
Single	701	17.7
Divorced	312	7.9
Widowed	41	1.0
Common law marriage	11	.3
Partner	128	3.2
Other	26	.7
Missing	390	9.9
Insurance		
Prime Care Advantage	2,601	65.7
Prime Advantage Value	254	6.4
Prime Advantage Plus	326	8.2
Independent choice	284	19.8
Role		
Faculty	729	18.4
Administrator	228	5.8
Academic professional	348	8.8
Administrative staff	1,187	30.0
Classified staff	510	12.9
Civil service professional	205	5.2

(continued)



**Table 1. (continued)**

	<i>n</i>	%
Manager	139	3.5
Clinician	168	4.2
Missing	445	11.2
Campus		
Main campus	2,887	72.9
Other campus	655	16.5
Missing	417	10.5
Employment	383	9.7
Full-time	3,326	84.0
Part-time	241	6.1
Missing	392	9.9
Hours worked	312	7.9
40 or more hours	3,189	80.6
20-39 hr	352	8.9
Less than 20 hr	36	.9
Missing	382	9.6

**Table 2.** Correlations and Partial Correlations Among Healthy Lifestyle Behaviors, Healthy Lifestyle Beliefs, and Perceived Wellness Culture.

	Healthy Beliefs	Wellness Culture	Healthy Behaviors
Healthy behaviors	$r = .68, p < .001$	$r = .21, p < .001$	
Wellness culture	$r = .33, p < .001$		
Healthy beliefs, $p < .001$			$r = .66$
Controlling for wellness culture			
Wellness culture, controlling for healthy beliefs			$r = -.027, ns$

were so highly correlated that they can be said to be measuring the same underlying construct (Campbell & Fiske, 1959).

### Descriptive Statistics

Overall, the participants reported a moderately positive wellness culture ( $M = 39.1, SD = 8.5$ ), healthy lifestyle behaviors ( $M = 59.4, SD = 9.5$ ), and healthy lifestyle beliefs ( $M = 63.4, SD = 8.6$ ). Both mental and physical

health were rated moderately high ( $M = 4.2$ ,  $SD = .86$  and  $M = 3.9$ ,  $SD = 1.0$ , respectively) as were their beliefs about how much mental and physical health affect job performance ( $M = 4.0$ ,  $SD = 1.3$  and  $M = 3.5$ ,  $SD = 1.3$ , respectively).

### **Bivariate Analyses**

The correlations among healthy lifestyle behaviors, healthy lifestyle beliefs, and wellness culture reported in Table 2 suggested that healthy lifestyle beliefs mediated the effects of the perception of wellness culture on healthy lifestyle behaviors. The correlation of healthy lifestyle beliefs and healthy lifestyle behaviors, controlling for wellness culture was strong,  $r = .66$ ,  $p < .001$ , and the correlation of wellness culture and healthy lifestyle behaviors, controlling for healthy lifestyle beliefs was no longer significant,  $r = -.027$ , which supports healthy lifestyle beliefs as a mediator.

There were significant differences in healthy lifestyle behaviors by demographic characteristics (see Table 3). Women, Asians, college graduates, single, and faculty all reported significantly higher behaviors. Similarly, there were significant differences in healthy lifestyle beliefs based on gender, race, and education. Women, Blacks, college graduates, and faculty all reported significantly higher healthy lifestyle beliefs. Finally, there was only one significant difference in the perceptions of wellness culture; those without college degrees perceived the wellness culture significantly better than did those with higher education levels. There were no differences between the main campus and all other satellite campuses.

The participants' self-rating of their physical health was positively correlated with their healthy lifestyle behaviors ( $r = .55$ ,  $p < .001$ ), healthy lifestyle beliefs ( $r = .45$ ,  $p < .001$ ), and slightly with wellness culture ( $r = .17$ ,  $p < .001$ ). Almost identically, the participants' self-rating of their mental health was positively correlated with their healthy lifestyle behaviors ( $r = .39$ ,  $p < .001$ ), healthy lifestyle beliefs ( $r = .45$ ,  $p < .001$ ), and slightly with wellness culture ( $r = .18$ ,  $p < .001$ ). The faculty reported significantly better physical health ( $M = 4.1$ ,  $SD = .82$ ) and mental health ( $M = 4.3$ ,  $SD = .1$ ) than did the staff ( $M = 3.8$ ,  $SD = .95$ ,  $t = 7.56$ ,  $p < .001$  and  $M = 4.1$ ,  $SD = .84$ ,  $t = 3.65$ ,  $p < .001$ , respectively).

### **Multivariate Analyses**

Four nested multiple regression models were fit to predict variation in employees' healthy lifestyle behaviors (see Table 4). Model 1, containing all of the individual and institutional demographic characteristics, indicated that

**Table 3.** Differences in Healthy Lifestyle Beliefs, Healthy Lifestyle Behaviors, and Perceptions of Wellness Culture as a Function of Demographic and Institutional Characteristics.

	Healthy Behaviors		Healthy Beliefs		Wellness Culture	
	M (SD)	Statistic	M (SD)	Statistic	M (SD)	Statistic
Biological sex		$t = 4.00^{***}$		$t = 2.70^{**}$		$t = .516$
Male	58.46 (9.43)		62.94 (8.29)		39.23 (8.75)	
Female	59.87 (9.40)		63.77 (8.13)		39.39 (8.24)	
Race		$F(3, 3518) = 8.33^{***}$		$F(3, 3518) = 17.64^{***}$		$F(3, 3526) = 4.05^{**}$
White	63.36 (8.08)		59.65 (9.21)		39.41 (8.26)	
Black	65.15 (8.52)		55.13 (10.72) <sup>a</sup>		40.07 (9.44)	
Asian	66.42 (8.71) <sup>b</sup>		62.10 (10.31)		40.39 (8.52)	
Others	63.10 (9.26)		59.72 (10.26)		35.80 (9.49) <sup>c</sup>	
Education		$t = 3.99^{***}$		$t = 2.40^*$		$t = 4.41^{***}$
BA or greater	59.91 (9.27)		63.67 (8.04)		39.09 (8.24)	
Some college or less	56.61 (9.87)		62.68 (9.14)		40.96 (9.19)	
Relationship		$t = 7.53^{***}$		$t = 1.17$		$t = 1.09$
Married	57.87 (9.88)		63.38 (8.16)		39.44 (8.36)	
Not married	60.36 (9.07)		63.34 (8.40)		39.12 (8.45)	
Academic role		$t = 6.02^{***}$		$t = 2.60^{**}$		$t = 1.80$
Faculty	61.37 (9.59)		64.27 (8.40)		38.89 (8.82)	
Staff	59.01 (9.32)		63.39 (8.16)		39.51 (8.25)	
Institutional controls		$t = .323$		$t = 1.64$		$t = 1.32$
Main campus	59.46 (9.24)		63.49 (8.29)		39.25 (8.47)	
Satellite campus	59.34 (9.61)		62.97 (9.29)		38.85 (8.68)	

<sup>a</sup>Blacks reported significantly greater healthy lifestyle beliefs than did all other groups.

<sup>b</sup>Asians reported significantly greater healthy lifestyle behaviors than did Whites or Others.

<sup>c</sup>Others reported significantly poorer perceptions of the wellness culture than did all other groups.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table 4.** Differences in Healthy Lifestyle Behaviors as Predicted by Healthy Lifestyle Beliefs and Wellness Culture, Controlling for Demographic and Institutional Characteristics.

	Model 1		Model 2		Model 3		Model 4	
	Std. $\beta$	t Test	Std. $\beta$	t Test	Std. $\beta$	t Test	Std. $\beta$	t Test
Demographic controls								
Female	.103	5.75***	.108	6.40***	.068	5.43***	.068	5.40***
Latino	.007	.383						
White	-.021	.474						
African American	-.115	3.14*	-.096	5.75***	-.128	10.30***	-.128	10.30***
Asian	.012	.387						
BA and above	.084	4.72***	.105	6.28***	.072	5.76***	.070	5.63***
Married	.122	6.89***	.166	6.92***	.101	8.06***	.101	8.11***
Faculty	.078	4.37***	.096	5.67***	.060	4.76***	.059	4.69***
Full-time	-.027	1.55						
Institutional controls								
Main campus	.003	.143						
Predictors								
Wellness culture			.201	12.14***			-.019	1.44
Healthy behaviors					.669	54.28***	.669	54.28***
R <sup>2</sup>	5%		9%		50%		50%	

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

women, married participants, college educated, and faculty all had significantly more positive healthy lifestyle behaviors and that African Americans reported significantly lower healthy behaviors. In Model 2, the perception of wellness culture was significantly and positively associated with healthy lifestyle behaviors (Standard = .201,  $p < .001$ ) at approximately twice the strength as each of the demographic characteristics. In Model 3, healthy lifestyle beliefs were significantly and positively associated with healthy lifestyle behaviors (Std. = .669,  $p < .001$ ) at approximately six times the strength as each of the demographic characteristics. While Models 1 and 2 explained only 5% and 9% of the variation in healthy lifestyle behaviors respectively, Model 3 explained 50% of that variation. Finally, the addition of the perceptions of wellness culture in Model 4 was not significant. Notably, there were almost no differences in the estimates for any of the other variables from Model 3. Healthy lifestyle beliefs and wellness culture were not collinear (tolerance statistic = .894, Variance Inflation Factor = 1.00), suggesting that the effect of wellness culture on healthy lifestyle behaviors was completely mediated by the individual's healthy lifestyle beliefs. We conducted the Monte Carlo bootstrap CIs procedure to test impute the distributions for an

indirect effect (a1 and b1). This produced a 98% CI of  $.[064, .091]$ , confirming the mediated effect.

## Discussion

The effect of perceived wellness culture among faculty and staff on healthy lifestyle behaviors is mediated through their healthy lifestyle beliefs. These findings are important because they begin to build an evidence base that describes the impact of perceived wellness culture on employee healthy lifestyle beliefs and behaviors as well as the significant influence that healthy lifestyle beliefs in individuals has on their healthy behaviors.

Cognitive behavior theory has long contended that an individual's beliefs affect how they feel and how they behave (Beck, Rush, Shaw, & Emery, 1979). Further, findings from prior work support that cognitive beliefs can be impacted by interventions (Lusk & Melnyk, 2011). Therefore, by building a supportive wellness culture and targeting individuals with evidence-based wellness programming, institutions can positively impact perceived culture and the healthy lifestyle beliefs of their faculty and staff, which should result in healthier lifestyle behaviors and improved population health. The success of health promotion interventions to impact healthy behaviors in employees is dependent upon the organizational culture and environment (Aldana et al., 2012). Central to a strong wellness culture are organizational policies, and evidence-based programs and supports that encourage employees to adopt healthy lifestyle behaviors. Leaders at universities, including the presidents, vice presidents, provosts, deans, and chairs, are key in facilitating a strong wellness culture. The study by Aldana and colleagues (2012) found that organizations with very supportive leadership were nearly four times more likely to report substantial improvement in employee health risk and two-and-a-half times more likely to report substantial improvement in medical cost trend. Conversely, organizations with minimal support from leaders were about four times more likely to report minimal improvement in both employee health risk and medical cost trends (Small, Lane, Vaughan, Melnyk, & McBurnett, 2013). Therefore, academic institutions and leaders within those institutions must be willing to make investments and role model healthy behaviors in developing and sustaining a culture and environment of wellness to make gains in employee wellness that result in a substantial ROI.

In addition to leaders "walking the talk," providing resources to support a wellness culture, and creating an infrastructure to enhance health and wellness, grass roots efforts such as faculty/staff wellness ambassador or innovator programs can be very effective in facilitating a culture and environment of wellness across campus. These programs develop a critical mass of faculty

and staff across campus who facilitate wellness activities with their colleagues in their colleges and units. In an effort to improve population health across the United States in academic institutions, the National Consortium for Building Healthy Academic Institutions (NCBHAC) was launched in 2014 with 16 founding universities (see [www.healthyacademics.org](http://www.healthyacademics.org)). The mission of the NCBHAC is a transdisciplinary collaborative that creates and equips academic institutions with evidence-based practices to improve population health and well-being of faculty, staff, students, alumni, and the communities they serve.

Findings from this study indicated that single participants rated the wellness culture of the university lower than did married individuals. Analysis of wellness programming is currently being conducted to determine whether the programs offered might be perceived as more relevant to married and insured individuals. It may be necessary for institutions to place more emphasis on social network strategies for single individuals and strategically reach out to uninsured individuals with enhanced health promotion programming.

In this study, findings also revealed that women, Asians, college graduates, and faculty all reported higher healthy lifestyle behaviors. In addition, faculty reported better physical and mental health than staff. Faculty may have more flexibility to access wellness programming than staff. Therefore, more intensive interventions may need to be targeted to staff, men, and those individuals without college degrees. Although it is widely known that there are many health disparities across the United States, differences in healthy lifestyle beliefs and behaviors among different racial/ethnic groups in academic environments need to be further explored. For example, in this study, healthy lifestyle beliefs were negatively correlated with healthy lifestyle behaviors in African Americans, which is opposite of findings in other racial/ethnic groups and in our prior studies. This finding should be further explored to determine if it is a replicable or aberrant finding as this is the first study to find a negative relationship between these two variables.

There is a great need for experimental studies, especially randomized controlled trials that evaluate interventions targeted to enhance employees' perceived wellness culture along with their healthy lifestyle beliefs and behaviors. In addition to determining whether interventions impact healthy lifestyle behaviors and health outcomes, future studies must determine the process through which interventions work (i.e., mediators) along with potential variables that may moderate the effect of interventions on outcomes (e.g., race/ethnicity, level of education, gender, faculty/staff status).

The major limitation of this study was the collection of cross sectional data at a single point in time. Therefore, conclusions can only be drawn about the relationships among the three major variables without making causal

inferences. Another limitation of the sample is that the majority of the sample was White; therefore, the findings may not be generalizable to more diverse institutions. Given that the response rate was 12.9%, it must also be recognized that the findings could be slightly skewed if the individuals who completed the survey were more invested in the topic and their own health and wellness.

Findings from this study contribute to the science and understanding of variables that impact healthy lifestyle behaviors so that interventions can be developed to specifically impact them to ultimately prevent and improve chronic conditions that plague Americans. This research supports that the effect of perceived wellness culture on healthy lifestyle behaviors of faculty and staff is mediated by healthy lifestyle beliefs. In addition, there are differences in healthy lifestyle behaviors and perceptions of health based upon gender, race/ethnicity, and faculty or staff status. Interventions to enhance perceived wellness culture and healthy lifestyle beliefs should result in healthier lifestyle behaviors and improved health outcomes. Future experimental studies should explore mediating and moderating variables in addition to determining the effects of interventions on healthy lifestyles behaviors and health outcomes.

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