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Millennials at work: workplace environments of young adults and associations with weight-related health

Allison W. Watts, PhD, Melissa N. Laska, PhD, Nicole I. Larson, PhD, and Dianne R. Neumark-Sztainer, PhD

Division of Epidemiology and Community Health, School of Public Health, University of Minnesota, 1300 South Second Ave, Suite 300, Minneapolis, MN, 55454

Abstract

Background—The purpose of this study was to describe the workplace environments of young adults and examine associations with diet, physical activity (PA) and body mass index (BMI).

Methods—Cross-sectional data were collected (2008–09) from 1538 employed young adult participants in Project EAT (Eating and Activity among Teens and Young Adults), a diverse population-based sample. Survey measures assessed height, weight, diet, moderate-to-vigorous PA, transportation-related PA, and perceptions of the workplace food and PA environments (e.g., soda availability, coworker support). Healthful characteristics were summed to reflect overall workplace healthfulness. Modified Poisson regression analyses conducted in 2015 identified associations between workplace food and PA environments and diet, PA and BMI.

Results—The healthfulness of workplace environments was sub-optimal. Greater exposure to healthful workplace characteristics was related to more young adults engaged in favorable diet and PA behaviors and a lower prevalence obesity. For example, adjusted rates of obesity were 24% and 17% among those reporting low (1 characteristic) versus high (3 characteristics) exposure to healthful food environments, respectively ($p < 0.05$). Workplace characteristics independently associated with weight-related outcomes included soda availability, proximity to a fast food outlet, living close to work, and perceived ease of eating a healthy diet or being active at work.

Conclusions—A more healthful workplace environment overall, including physical attributes and perceived social norms, may contribute to more favorable weight-related behaviors and lower prevalence of obesity among young adults. Employer- and community-initiated policies may represent one way to create healthier workplace environments for young adults.

Keywords

young adult; workplace; obesity; diet; physical activity

Corresponding Author: Allison W. Watts, Division of Epidemiology and Community Health, School of Public Health, University of Minnesota, 1300 South Second Ave, Suite 300, Minneapolis, MN, 55454, awwatts@umn.edu, telephone: 612-626-8372.

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INTRODUCTION

The prevalence of obesity in the U.S. doubles as young adults move from their twenties to their thirties.[1] Concurrently, less healthful dietary practices such as fast food consumption increase[2] while physical activity (PA) declines in young adulthood.[3] Few population-based interventions have targeted young adults, and those that have were administered in university/college settings limiting their ability to reach some young adults at risk for obesity.[4] There remains a critical need to identify new interventions that promote healthy weight-related behaviors and prevent obesity in young adults.

The workplace represents a potential setting for such interventions. In previous research with adults (mean age, 45yrs), workplace environments have been found to correlate with eating behaviors, PA and body weight[5] and workplace interventions that include environmental components yield the greatest impact on weight-related outcomes.[6] Approximately 70% of young adults (18–34yrs) are employed in the US workforce,[7] yet the majority of worksite research has not directly examined this group. Young adults have not been targeted in workplace research because they are more likely to work part-time and at a range of different, potentially non-traditional, jobs. Therefore, little is known about workplace environments of young adults.

Socio-ecological theory suggests that physical (e.g., availability of foods, access to fitness facilities) and social aspects (e.g., coworker norms and behaviors) of the workplace contribute to weight-related behaviors and outcomes.[8] Indeed, coworker engagement in healthier eating and PA behaviors has been found to be associated with higher dietary quality and PA, but not body weight, in a large sample of hospital workers.[5] Workplaces with more amenities promoting PA (e.g., showers, fitness facilities, programs) are also associated with greater recreational PA and the nature of the association may be dose-dependent, whereby the more health-supportive aspects of the work environment an individual is exposed to, the greater the effect.[9,10] Interestingly, exposure to fast food outlets near the workplace of UK adults yielded stronger associations with fast food consumption and body mass index (BMI) than exposure near home or along commuting routes, highlighting the potential importance of the workplace as a setting that influences weight-related behaviors and weight.[11] The extent to which these workplace characteristics are important for young adults is unclear.

Given that little is known about the workplace food and PA environments of young adults, this study provides a timely examination of these environments in a diverse, population-based sample of young adults. The aims of this study were threefold: 1) To describe the PA and food environments within the workplaces of young adults; 2) To identify workplace factors that are associated with weight-related behaviors and weight status; and 3) To determine if a more healthful workplace environment overall (cumulative effect of environmental factors) is associated with weight-related outcomes. Findings will help to inform the development of workplace obesity interventions targeting young adults.

METHODS

Study Sample

Data on the workplace environment and eating, PA, and weight status were collected in Project EAT (Eating and Activity in Teens and Young Adults)-III, the third wave of a 10-year longitudinal study of weight-related behaviors in a diverse sample of young people. Participants were recruited at baseline from 31 public middle/high schools in the Minneapolis/St. Paul metropolitan area to participate in classroom-administered surveys in 1998–1999. In 2008–2009, surveys and food frequency questionnaires (FFQs) were administered online or by mail with the original participants as they progressed from adolescence to young adulthood. Overall, 2,287 young adults completed the Project EAT-III survey, representing 66.4% of participants who could be contacted. Additional details have been reported elsewhere.[12] Informed consent was obtained and protocols were approved by the University of Minnesota's Institutional Review Board.

Measures

Development of the Project EAT-III survey is described elsewhere.[13] The survey was pre-tested by 27 young adults in focus groups after which survey items were tested 1–3 weeks apart in a sub-sample of 66 young adults to ensure adequate test-retest reliability (values provided where available).

Self-reported height and weight were used to calculate BMI (kg/m^2). Self-reports were highly correlated with measured height and weight in a subsample of 63 male and 62 female study participants ($r=0.95$ for males, $r=0.98$ for females). Weight status was assessed by the prevalence of obesity among non-pregnant participants ($\text{BMI} \geq 30 \text{ kg/m}^2$).[14]

Fast food intake was assessed by asking, "In the past week, how often did you eat something from a fast food restaurant (like McDonald's, Burger King, Hardee's, etc.)?" Response options were Never, 1–2, 3–4, 5–6, 7, and more than 7 times (test-retest=0.48). Responses were dichotomized at ≥ 3 times/week based on increased health risk.[15] Sugary drinks and fruit and vegetable intake were assessed using the 2007 Willett semi-quantitative FFQ.[16] Participant FFQ data were not used if calculated energy intake was implausible (<500 kcal/day or $>5,000$ kcal/day) or ≥ 20 items were not completed. For sugary drinks (e.g., soda pop, punch, sports drinks), servings were defined as one glass, bottle or can and responses were dichotomized at ≥ 1 serving/day based on increased health risk.[17] For fruits and vegetables, servings were defined as one-half cup, and responses were dichotomized at ≥ 5 servings/day based on Healthy People 2010 targets.[18]

Moderate-to-vigorous PA (MVPA) was assessed with the Godin Leisure-Time Exercise Questionnaire, adapted with relevant exercise examples and the inclusion of six response options (0 to ≥ 6 hours/week), and validated against accelerometer derived MVPA in a sub-sample of participants.[19,20] Hours spent in strenuous exercise (e.g., biking fast, aerobics, jogging) and moderate exercise (e.g., walking quickly, easy bicycling, skiing) were summed (test-retest $r=0.85$) and dichotomized at ≥ 2.5 hours/week based on the Physical Activity Guidelines for Americans.[21] Participants were asked two questions from the Growing Up Today Study adapted by specifying hours spent in walking or biking to get places (vs. at

work or for fun in your free time) in the past year by season.[22,23] Hours per week were summed and averaged across the four seasons to estimate hours per week of transportation-related PA (test-retest $r = 0.63$) and dichotomized to reflect any transportation-related PA.

Items assessing the workplace environment were obtained from previous studies.[24,25] Coworker attitude items were developed based on previously established items assessing peer support.[26] Workplace food environment was assessed with five items. Participants were asked how long it would take to get from their workplace to a fast food restaurant if they were walking (test-retest $r=0.54$), and response options (1–5, 6–10, 11–60, 21–30, 31+ minutes, or I don't know) were dichotomized at 5 minutes. Additional items asked how strongly participants agreed with the statements: 1) At my workplace, sweets and snacks are often available (test-retest $r=0.69$); 2) At my workplace, soda pop is often available (item added after pre-testing in young adult focus groups) ; 3) Many of my coworkers care about eating healthy food (test-retest $r=0.79$); and 4) At my workplace it is easy to eat a healthy diet (test-retest $r=0.71$). Response options ranged from strongly agree to strongly disagree. Each item was dichotomized where 1= strongly agree or agree.

Workplace PA environment was assessed with four items. Participants were asked how long it would take to get from their workplace to a gym or fitness facility if they walked (test-retest $r=0.68$), and response options (1–5, 6–10, 11–20, 21–30, 31+ minutes, or I don't know) were dichotomized at 5 minutes. The same question was asked about distance from their workplace to home (test-retest $r=0.71$), and responses were dichotomized at 30 minutes. Dichotomies for distance from home, to a gym, or fast food restaurant were created to allow comparison to the most commonly reported distance. Two additional items asked how strongly participants agreed with the following statements: 1) Many of my coworkers think it is important to be physically active (test-retest $r=0.79$); 2) At my workplace it is easy to be physically active (test-retest $r=0.71$). Response options ranged from strongly agree to strongly disagree. Each item was dichotomized where 1= strongly agree or agree. For all items, responses of *I don't know* were considered missing.

The overall healthfulness of each the food and PA environment was categorized based on the number of healthful characteristics reported (soda/snack availability and distance to fast food were reverse coded): low (1 healthful characteristic), moderate (2 healthful characteristics) and high (3 healthful characteristics).

Participant gender, age, ethnicity and socio-economic background were self-reported. Ethnicity included five categories (white, black, Hispanic, Asian, and other/mixed). Socio-economic background was computed primarily from highest education level completed by either parent at EAT-I (low, middle, high).[27]

Analysis

The analytic sample included participants who reported working for pay outside the home for 10–12 months in the past year and 10 hours in the past week ($n=1,538$). This sample was expected to have reasonable exposure to their workplace environment. As compared to being unemployed, based on our classification, young adults who were employed were slightly older (25.4 vs. 24.9 years, $p<.001$), a greater number were white (71% vs. 51%, $p<.$

001) and met 2.5 hours/week of MVPA (64% vs. 57%, $p=.002$), and fewer were from a low socioeconomic background (10% vs. 15% $p=.001$), ate 5 or more servings of fruit and vegetables per week (35% vs. 40%, $p=.048$), and used active transportation (61% vs. 67%, $p=.004$); no differences were found by gender, fast food intake, sugary drink intake, or prevalence of obesity. Means and proportions were used to describe demographic, behavioral and workplace characteristics of young adults. Modified Poisson regression models²⁸ were used to separately examine associations between each reported characteristic of the workplace environment and the prevalence of: 1) consuming ≥ 5 servings/day of fruit and vegetables; 2) consuming ≥ 1 serving/day of sugary drinks; 3) consuming fast food on ≥ 3 days/week; 4) engaging in ≥ 2.5 hours/week of MVPA; 5) engaging in any transportation-related PA; and 6) prevalence of obesity. Poisson regression with robust standard errors was used to estimate the prevalence ratio (PR) and 95% confidence intervals, a conservative, more interpretable measure of effect than the odds ratio obtained from logistic regression, and more appropriate when the outcome is not rare ($>10\%$).^[28] The prevalence ratio represents the prevalence of the outcome in the exposed group compared to the unexposed group. Additional models examined if the prevalence of dietary, PA and weight outcomes differed by the overall healthfulness of food and PA environments. Results are presented as adjusted prevalence rates across low, moderate and high workplace environment scores. Each model was adjusted for age, gender, ethnicity (dichotomized as white/non-white) and socio-economic background, and weighted for loss to follow up from the initial population-based sample of adolescents surveyed.^[29] Weighting produced estimates representative of the initial diverse sample of adolescents and allowed findings to be generalized to young adults in the Minneapolis-St. Paul area. Missing data were handled with multiple imputation using 25 imputed datasets based on all model variables. A $p<0.05$ was considered statistically significant. All analyses were conducted in 2015 (STATA, version 13).

RESULTS

Of the EAT-III sample, 67% were employed outside the home ($n=1,538$ out of 2,287). Demographic and behavioral factors of the employed young adult sample are presented in Table 1. Employed young adults were primarily working full-time jobs (30–40 hours/week), while 28% reported working >40 hours/week and 18% reported working <30 hours/week. Characteristics of young adult workplace environments are presented in Table 2a and 2b. Of note, a high proportion of young adults (80%) reported soda and sweets/snacks were frequently available, and only half reported that it was easy to eat a healthy diet or be physically active at work. Fewer young adults ($\sim 35\%$) worked within a 30-minute walk from home or within a 5-minute walk to a fitness facility, while half worked within a 5-minute walk to a fast food restaurant.

When examined independently, some characteristics of the workplace food or PA environment were associated with young adults' dietary, PA or weight outcomes (Table 3). For the food environment, reporting frequent availability of soda was associated with an increased likelihood of consuming ≥ 1 serving of sugary drinks/day (PR=1.79, 95% CI=1.26–2.55) and consuming fast food ≥ 3 days/week (PR=1.42, 95% CI=1.01–1.98). Working within a 5-minute walk of a fast food outlet was also associated with consuming fast food ≥ 3 days/week (PR=1.37, 95% CI=1.09–1.71). Perceiving it is easy to eat a healthy

diet at work was associated with an increased likelihood of consuming 5 servings/day of fruit and vegetables (PR=1.43, 95% CI=1.21–1.68), a decreased likelihood of consuming fast food 3 days/week (PR=0.61, 95% CI=0.47–0.79), and a lower prevalence of obesity (PR=0.71, 95% CI=0.54–0.92). Availability of sweets/snacks, and perceiving that coworkers think healthy eating is important were not associated with any dietary or weight outcomes examined.

For the PA environment, reporting that it is easy to be active at work (PR=1.23, 95% CI=1.11–1.36) was associated with a higher likelihood of achieving 2.5 hours/week of MVPA and participating in transportation-related activity (PR=1.13, 95% CI=1.02–1.25), and a lower prevalence of obesity (PR=0.72, 95% CI=0.56–0.91). Living within a 30-minute walk of work was associated with participating in transportation-related activity (PR=1.18, 95% CI=1.07–1.31). Distance to a fitness facility and perceiving that coworkers think physical activity is important were not related to PA or weight outcomes.

When characteristics were examined together, more healthful workplace environments overall (i.e., exposure to a greater number of healthful characteristics) were consistently associated with more favorable dietary, PA and weight outcomes, and results provided some evidence of a dose-response relationship (Table 4). When comparing the highest to lowest exposure to healthful workplace food environment characteristics (3 vs. 1 characteristic), a greater proportion of young adults consumed 5 servings of fruit and vegetables/day (43% vs. 30%), a lower proportion consumed 1 serving of sugary drinks/day (25% vs. 31%) and fast food on 3 days/week (15% vs. 29%), and the prevalence of obesity (17% vs. 24%) were lower. Similarly, when comparing high to low exposure to healthful workplace PA environment characteristics, a greater proportion of young adults achieved 2.5 hours/week of MVPA (67% vs. 54%) and participated in transportation-related activity (66% vs. 53%), and the prevalence of obesity (18% vs. 24%) was lower.

DISCUSSION

This study adds to our limited understanding of the workplace food and PA environments of young adults. In a population-based, diverse sample of young adults, the healthfulness of workplace environments were sub-optimal with many young adults reporting availability of soda, sweets and snacks, and expressing difficulty in eating a healthy diet and being active at work. In particular, not having soda available, working further than a 5-minute walk of a fast food outlet, living within a 30-minute walk of work, and reporting that it is easy to eat a healthy diet and be active at work were associated with more favorable weight-related outcomes. Overall, diet, PA and weight status were also more favorable in young adults who reported exposure to a greater number of healthful workplace characteristics. It may be the combined influence of multiple workplace factors that are needed to promote young adult weight-related health. Together these findings provide justification for pursuing obesity prevention interventions that target the workplace environment.

Several factors examined were not significantly related to the diet, PA or weight outcomes investigated. The null findings should be replicated in other samples of young adults for whom additional workplace factors may be more relevant. On the whole, the workplace

variables examined in this study were more consistently linked to specific weight-related behaviors than to weight status. The two factors associated with weight status were perceived ease of eating a healthy diet and being active at work. These perceptions might be tapping into motivation or self-efficacy in carrying out diet and PA behaviors, important individual-level factors known to influence health behaviors.[30] These perceptions may also be influenced by the social context, reflect characteristics of the workplace environment that were not measured, or be explained by reverse causality (e.g., those at a healthier weight may have obtained skills that make healthy eating at work easier). Further research is needed to identify other important aspects of workplace environments that might be influencing these perceptions and the weight-related health of young adults.

Physical aspects of the workplace environment were associated with several outcomes of interest: availability of soda and working close to a fast food outlet were linked with greater intake; and living close to work meant young adults were more apt to use active transportation. These relationships were in the expected direction and are similar to associations reported by other studies.[31–33] Social aspects of the workplace environment (social norms) were not directly associated with weight-related outcomes but may have contributed to a workplace's overall healthfulness score. A consistent pattern was observed in this study between the number of healthful characteristics and the proportion of young adults exhibiting favorable diet and PA behaviors and a lower prevalence of obesity. Similar patterns have been reported by studies examining workplace characteristics and PA participation.[9,10] Physical aspects of the environment, in particular, may be modifiable by employers such as limiting sugary beverage availability. Some promising intervention findings include greater employee purchasing of healthier items when these items are more prevalent and less expensive.[34] These types of initiatives may not lead to changes in weight status directly, but may lead to behavioral changes that over time could lead to more favorable weight outcomes.

Limitations

The sample of young adults examined in this study was comprised of a relatively large, diverse group of employed young adults, but may not represent the broader US population of employed young adults.[7] This study was also limited by the small number of workplace characteristics examined; it did not include other characteristics that might influence diet, PA, and weight, such as specific programming, financial incentives, access to showers, or broader occupational types such as sector or shift work. Future studies should examine the role of these characteristics in young adult weight-related health. Measures of the workplace environment also represented perceptions and may not accurately reflect the workplace environment; however, attributes that are not perceived by individuals may be less likely to influence behavior.³³ Further testing of employee perceptions with observed measures of workplace environments is needed. This study relied on self-reported measures that can be influenced by social-desirability and recall bias. However, two sub-studies conducted to validate the measures of physical activity and weight status against accelerometers ($r=0.40$) and measured height and weight ($r=0.95$) demonstrated good validity. Finally, this cross-sectional study precludes our understanding of whether behaviors or weight status came

about before or after exposure to the workplace environment. Intervention research is needed to build our understanding of causal relationships.

Conclusions

Interventions targeting workplaces may be an important strategy for promoting healthier diet and PA behaviors in young adults given the sharp increase in obesity experienced by young adults, the wide range of young adults that can be reached through workplace settings, existing room for improvement in these settings, and evidence that young adults are minimally receptive to standard weight management approaches administered in other settings.[35] Healthier workplace environments overall, including physical characteristics and social perceptions, appear to be most important for young adult's weight-related health; however, additional research is needed to develop a complete picture of these workplace environments and their impact on weight-related factors. Workplace environments are one of many settings (e.g., homes, schools, communities) that should be considered as part of comprehensive obesity prevention and management approaches. Employer- and community-initiated policies, such as reducing availability of sugary beverages, may represent one way to create a healthier workplace environment. Intervention studies are needed to test such policies on the health behaviors and weight outcomes of young adults.

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Table 1

Demographic and behavioral characteristics of employed young adults

Demographic Characteristics	n	%
Age, years (mean±SD)	1538	25.4 ± 1.5
Gender, female	1538	54.30%
Weight Status	1460	
Obesity (BMI ≥ 30 kg/m ²)		18.80%
Ethnicity	1525	
White		70.10%
Black		7.40%
Hispanic		3.90%
Asian		13.30%
Other/Mixed		4.60%
Socio-economic Background ^a	1498	
Low		25.50%
Middle		26.10%
High		48.40%
Lifestyle Behaviors		
Fruits and vegetables, ≥ 5 servings/day	1398	35.50%
Sugary drinks, ≥ 1 servings/day	1398	26.60%
Fast food, ≥ 3 times/week	1533	20.40%
Moderate-to-vigorous physical activity, ≥ 2.5 hours/week	1536	63.50%
Active transportation, Any	1538	60.90%

SD, standard deviation; BMI, body mass index

^aSocio-economic status in adolescence (baseline) based on parent education

Table 2

a. Prevalence of dietary behaviors and obesity among young adults by workplace food environment characteristics

	Total Sample		Fruit and Vegetables		Sugary Drinks		Fast Food		Weight Status	
	n	%	n	%	n	%	n	%	n	%
Distance to fast food, minutes walking	1460		1331		1331		1456		1386	
01–5		42.9		36.0		25.1		24.8		18.0
06–10		24.1		31.5		33.0		18.9		17.4
11–20		18.1		36.9		24.5		17.8		19.4
21–30		8.2		39.5		31.2		21.9		27.4
31+		6.8		34.1		17.1		11.1		17.4
Unhealthy snacks are available	1496		1362		1362		1491		1419	
Strongly Disagree		4.6		35.5		29.0		19.4		16.4
Disagree		15.7		38.0		21.8		19.7		17.3
Agree		39.1		35.2		24.0		20.6		17.5
Strongly Agree		40.7		35.0		30.7		20.3		20.6
Soda is available	1495		1360		1360		1490		1419	
Strongly Disagree		5.9		39.0		18.3		14.9		12.8
Disagree		11.0		37.7		14.3		15.2		17.8
Agree		31.4		35.5		21.3		19.8		17.2
Strongly Agree		51.6		34.5		34.0		22.4		20.4
My coworkers think healthy eating is important	1390		1264		1264		1385		1321	
Strongly Disagree		6.4		34.3		35.6		23.9		19.1
Disagree		27.9		33.4		28.2		24.1		18.7
Agree		47.4		36.3		24.3		20.0		20.0
Strongly Agree		18.3		42.0		20.8		15.1		15.7
It's easy to eat a healthy diet at work	1499		1363		1363		1494		1422	
Strongly Disagree		14.6		32.8		35.4		29.4		21.4
Disagree		35.8		28.7		28.5		25.8		23.0
Agree		36.1		36.5		23.5		15.2		17.5

a. Prevalence of dietary behaviors and obesity among young adults by workplace food environment characteristics

	Total Sample		Fruit and Vegetables		Sugary Drinks		Fast Food		Weight Status	
			5 svgs/d		1 svgs/d		3 times/wk		BMI 30 kg/m ²	
	n	%	n	%	n	%	n	%	n	%
Strongly Agree	1291	13.5	1180	55.2	1180	19.7	1287	11.0	1227	10.8
Workplace Food Environment Score ^a										
Low (1 healthful characteristic)	33.5		30.4		30.7		27.2		20.4	
Moderate (2 healthful characteristics)	31.8		37.5		24.1		20.8		19.4	
High (3 healthful characteristics)	34.8		40.6		21.5		13.8		16.0	

b. Prevalence of physical activity behaviors and obesity among young adults by workplace physical activity environment characteristics

	Total Sample		MVPA		Active Transportation		Weight Status	
			2.5 hours/wk		Any		BMI 30 kg/m ²	
	n	%	n	%	n	%	n	%
Distance from home, minutes walking	1425		1423		1425		1354	
01–05		4.6		69.2		73.9		11.3
06–10		7.2		58.8		75.5		16.3
11–20		13.0		65.4		63.8		16.4
21–30		13.3		59.0		63.2		18.0
31+		62.0		64.4		58.9		20.7
Distance to fitness facility, minutes walking	1292		1291		1292		1227	
01–05		30.0		69.6				16.1
06–10		20.1		61.4		n/a		16.6
11–20		20.0		65.1				19.5
21–30		13.1		66.9				20.1
31+		16.9		62.7				22.2
My coworkers think physical activity is important	1379		1377		1379		1460	
Strongly Disagree		4.5		68.3		58.7		18.6
Disagree		24.2		59.5		58.9		15.2
Agree		52.0		65.2		60.7		21.6

b. Prevalence of physical activity behaviors and obesity among young adults by workplace physical activity environment characteristics

	Total Sample		MVPA 2.5 hours/wk		Active Transportation Any		Weight Status BMI 30 kg/m ²	
	n	%	n	%	n	%	n	%
Strongly Agree		19.3		66.4		64.3		16.5
It's easy to be active at work	1501		1499		1501		1424	
Strongly Disagree		11.0		55.8		56.4		24.7
Disagree		31.3		56.1		58.0		21.3
Agree		34.2		63.3		64.1		18.7
Strongly Agree		23.6		77.3		61.3		13.0
Workplace Physical Activity Environment Score ^a	1115		1114		1115		1061	
Low (1 healthful characteristic)		32.8		60.1		57.4		20.5
Moderate (2 healthful characteristics)		33.6		65.8		61.9		19.4
High (3 healthful characteristics)		33.5		71.9		69.3		15.9

^aScores represent the number of healthful workplace characteristics individuals are exposed to (some variables were reverse coded to represent the favorable scenario, e.g., not having soda available was given a score of 1)

MVPA, moderate-to-vigorous physical activity; BMI, body mass index

^aScores represent the number of healthful workplace characteristics individuals are exposed to MVPA, moderate-to-vigorous physical activity; BMI, body mass index

Table 3

Associations between workplace environment characteristics and selected young adult behavioral and weight outcomes (n=1538)

	Weight-related Outcomes, PR (95% CI) ^a					Weight Status ^b
	Fruit & Vegetables	Sugary Drinks	Fast Food	MVPA	Active Transportation	
	5 svgs/d	1 svgs/d	3 times/wk	2.5 hrs/wk	Any	BMI 30 kg/m ²
Food Environment						
Distance to fast food, 5 min	0.96 (0.81–1.13)	0.85 (0.69–1.05)	1.37 (1.09–1.71)	-	-	1.01 (0.78–1.32)
Sweets/snacks available	0.93 (0.77–1.13)	1.27 (0.99–1.62)	1.23 (0.94–1.61)	-	-	1.09 (0.81–1.47)
Soda is available	0.95 (0.77–1.16)	1.79 (1.26–2.55)	1.42 (1.01–1.98)	-	-	1.13 (0.80–1.60)
My coworkers think healthy eating is important	1.15 (0.95–1.39)	0.84 (0.68–1.04)	0.88 (0.69–1.12)	-	-	0.97 (0.74–1.27)
It's easy to eat a healthy diet at work	1.43 (1.21–1.68)	0.81 (0.66–1.00)	0.61 (0.47–0.79)	-	-	0.71 (0.54–0.92)
Physical Activity Environment						
Distance from home, 30 min	-	-	-	0.98 (0.89–1.09)	1.18 (1.07–1.31)	0.84 (0.63–1.11)
Distance to fitness facility, 5 min	-	-	-	1.09 (0.98–1.20)	-	0.83 (0.61–1.12)
My coworkers think physical activity is important	-	-	-	1.11 (0.99–1.24)	1.04 (0.92–1.16)	1.20 (0.89–1.60)
It's easy to be active at work	-	-	-	1.23 (1.11–1.36)	1.13 (1.02–1.25)	0.72 (0.56–0.91)

PR, prevalence ratio; CI, confidence interval; MVPA, moderate-to-vigorous physical activity; BMI, body mass index

Boldface indicates statistical significance ($p < 0.05$)^aPrevalence ratios and 95% confidence intervals adjusted for age, ethnicity, and socio-economic background, weighted for non-response, and missing data handled with multiple imputation^bMissing data on weight status because of pregnancy (n=40) were not imputed, resulting in an analytic sample of n=1498

Proportion of young adults in select behavioral and weight categories by healthful workplace environment exposure (n=1538)

Table 4

Weight-related Outcomes, % ^a						
	Fruit & Vegetables	Sugary Drinks	Fast Food	MVPA	Active Transportation	Weight Status ^b
	5 svgs/d	1 svgs/d	3 times/wk	2.5 hrs/wk	Any	BMI 30 kg/m ²
Food Environment Score^c						
Low (1 healthful characteristic)	29.9% †	30.6% †	28.6% †	-	-	23.7% †
Moderate (2 healthful characteristics)	38.1% ‡	26.1% †	22.9% †	-	-	22.9% †‡
High (3 healthful characteristics)	42.7% ‡	24.5% †	15.3% ‡	-	-	17.1% ‡
Physical Activity Environment Score^c						
Low (1 healthful characteristic)	-	-	-	54.2% †	52.6% †	23.8% †
Moderate (2 healthful characteristics)	-	-	-	60.3% †‡	58.0% †	21.8% †
High (3 healthful characteristics)	-	-	-	66.6% ‡	66.2% ‡	17.6% †

MVPA, moderate-to-vigorous physical activity; BMI, body mass index

Values with different superscripts († vs. ‡) indicate statistical differences (p<0.05)

^aProportions adjusted for age, ethnicity, and socio-economic background, weighted for non-response, and missing data handled with multiple imputation

^bMissing data on weight status because of pregnancy (n=40) were not imputed, resulting in an analytic sample of n=1498

^cFood environment characteristics include distance to fast food outlet, availability of snacks, availability of soda, having coworkers who think healthy eating is important, and perceiving it to be easy to eat a healthy diet at work; physical activity environment characteristics include distance from home, distance to a fitness facility/gym, having coworkers who think physical activity is important, and perceiving it to be easy to be physically active at work.