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Physical Activity and Body Mass Index:

The Contribution of Age and Workplace Characteristics

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Abstract

Background—The workplace is an important domain for adults, and many effective interventions targeting physical activity and weight reduction have been implemented in the workplace. However, the U.S. workforce is aging and few studies have examined the relationship of BMI, physical activity, and age as they relate to workplace characteristics.

Purpose—This paper reports on the distribution of physical activity and BMI by age in a population of hospital-based healthcare workers and investigates the relationships among workplace characteristics, physical activity, and BMI.

Methods—Data from a survey of patient care workers in two large academic hospitals in the Boston area were collected in late 2009 and analyzed in early 2013.

Results—In multivariate models, workers reporting greater decision latitude (OR=1.02; 95% CI=1.01, 1.03) and job flexibility (OR=1.05; 95% CI=1.01, 1.10) reported greater physical activity. Overweight and obesity increased with age ($p<0.01$), even after adjusting for workplace characteristics. Sleep deficiency (OR=1.56; 95% CI=1.15, 2.12) and workplace harassment (OR= 1.62; 95% CI=1.20, 2.18) were also associated with obesity.

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Conclusions—These findings underscore the persistent impact of the work environment for workers of all ages. Based on these results, programs or policies aimed at improving the work environment, especially decision latitude, job flexibility and workplace harassment should be included in the design of worksite-based health promotion interventions targeting physical activity or obesity.

INTRODUCTION

Evidence-based cancer prevention strategies lie largely in the realm of public health and behavioral intervention.[1] Two strong risk factors for cancer are physical inactivity and obesity.[1–4] For both physical activity and obesity, there is increasing evidence that targeting environmental and contextual factors can strengthen the impact of behavioral interventions to reduce cancer risk.[1,5–7] One context in which behavioral interventions have been successfully implemented is the workplace. Given that approximately 64% of adults are employed and spend an average of 34 hours per week at work, the workplace remains an important domain for adults.[8] The workplace can have an important effect on worker health, both positive and negative. For example, adverse health effects can result from work overload, excessive demands, role conflict, job strain, shift work, and inflexible schedules.[9–11] Conversely, work may also have a positive effect on health by providing income, access to healthcare, linkages to social networks, and access to health promotion programs.

Few studies have examined the relationship between BMI and physical activity by age, in relation to workplace characteristics. This gap in the literature is important to address, as the median age of the U.S. labor force continues to rise and employers will increasingly rely on older workers.[12] This trend is especially striking in the healthcare industry, as fewer young people enter this field, and about 70% of current workers will retire in 20–25 years.[13] Further, patient care work is physically and psychologically demanding, involves shift work, and puts workers at high risk for musculoskeletal injury. These factors likely affect cancer risk-related behaviors, as patient care workers are at higher risk for both obesity and physical inactivity.[11,14,15] Further, this impact may grow stronger as workers age, as the body's natural resiliency to physical and psychosocial stressors decreases with age.[12,16]

This paper presents findings from a study of patient care workers (including registered nurses, licensed practical nurses, and patient care associates). The purposes of this paper are to: (1) assess the extent to which the distribution of physical activity and BMI differ among workers older than 45 years, compared to those younger than 45; (2) investigate the relationships of workplace characteristics to physical activity and BMI, and (3) test the interaction between select workplace characteristics and cancer risk behaviors to determine if associations vary by age.

Finally, as both physical inactivity and obesity are associated with long-term health outcomes other than cancer, such as cardiovascular disease and diabetes,[17,18] it is anticipated that these study results will be relevant not only to cancer researchers, but also those interested in other chronic conditions.

METHODS

The Be Well Work Well (BWWW) study is a research study conducted by the Harvard School of Public Health Center for Work, Health, and Well-Being. The data presented here are drawn from the first BWWW survey, a cross-sectional survey of patient care workers administered in two large academic teaching hospitals in the Boston area in late 2009.[10,19] This project was approved by the applicable IRB for protection of human subjects.

Sample

Eligible staff were identified through the hospitals' human resources database. The sampling frame included all benefits-eligible staff employed in Patient Care Services who provided direct patient care between May 30 and August 22, 2009. Additional eligibility criteria included: being employed between Oct 1, 2008, and September 30, 2009, working on a patient care unit (e.g., adult medical/surgical, adult ICU, pediatric/neonatal ICU) and working at least 20 hours per week. Staff who were assigned to the "float" unit, considered allied healthcare professionals (physical therapy, occupational therapy), worked in environmental services, worked on physical medicine units, had an absence of more than 12 weeks, worked per diem, or worked as a traveling or contract nurse were excluded. To obtain the sample, 2000 workers were randomly selected from 7019 eligible workers and invited, via e-mail, to participate in an online survey as previously described.[10] A total of 1572 workers completed the survey. The response rate was 79%.

Measures

Outcomes—Physical activity was measured using an adapted version of the CDC Behavioral Risk Factor and Surveillance System Physical Activity measure.[20] Respondents were asked about their participation in both vigorous and moderate physical activities outside of work.[10] *Adequate physical activity* was defined as reporting at least 30 minutes of moderate or vigorous activity on at least 5 days a week or at least 20 minutes of vigorous activity on at least 3 days a week.[21]

Body Mass Index was assessed by self-reported height and weight, and was computed by dividing weight by height squared (kg/m^2). Participants were classified as: normal weight ($<25\ kg/m^2$), overweight ($25–29\ kg/m^2$), or obese ($\geq 30\ kg/m^2$).

Independent variables—*Age* was assessed using employee record data and reflects respondents' age on January 1, 2009. *Sleep Deficiency* was operationalized using questions adapted from the Pittsburgh Sleep Quality Index.[22] Sleep duration was measured as the number of hours slept per night. Insomnia symptoms were assessed by asking about difficulty falling asleep and waking during the night. Insufficient sleep was assessed by asking about feeling rested upon waking.[23] Sleep deficiency (yes vs no) was defined as the presence of short sleep duration (<6 hours/day), insomnia symptoms, or insufficient sleep.

Sociodemographic control variables—*Gender*, *race/ethnicity*, and *education* were assessed using standard measures.

Workplace characteristics—*Occupation* included the following categories: staff nurse, patient care associate, and other (e.g., operations coordinator). *Work shift* was categorized as regular days', regular evenings', and other'. *Hours worked* was determined by reports of hours worked in a typical week. *Job tenure*, or years employed by current employer, was extracted from the employee database.

Psychological job demands were assessed using a 5-item version of the Job Content Questionnaire.[24] Responses were summed, with a higher score representing greater job demands (response categories: strongly disagree=1 to strongly agree=5, scale range: 12–48). The *decision latitude* scale was made up of 3 items that assessed decision authority and 5 items that assessed skill discretion. The decision latitude scale is a weighted sum of decision authority and skill discretion, a higher score reflects more decision latitude (response categories: strongly disagree=1 to strongly agree=5, scale range: 24–96).

To assess *job flexibility*, 3 questions assessing how often respondents changed the shift they work to accommodate family or personal needs were combined (to a more desirable shift, to a less desirable shift, and shift length, response categories: never=1 to always=5). A higher score reflects a more flexible job situation (range: 3–15).

Both the supervisor and co-worker support scales were adapted from the Job Content Questionnaire.[24] *Supervisor support* reflects supervisor help, support, and appreciation of work achievements. *Co-worker support* indicates the extent to which co-workers are helpful and supportive. Responses were summed (scale range for supervisor support: 3–15 and co-worker support: 2–10, response categories: strongly agree=5 to strongly disagree=1). For both scales, a higher score reflects greater support.

Harassment at work was assessed by asking how often in the previous 12 months someone at work yelled/screamed at, made hostile/offensive gestures to, swore at, talked down to, or treated the respondent poorly.[25] Respondents were coded as experiencing workplace harassment if he/she responded "more than once" to any question (yes vs no).

People-oriented culture was measuring using 4 items assessing cooperative working relationships, open and trusting communication, and staff involvement in decision-making (response categories: strongly disagree=1 to strongly agree=5).[26] Responses were averaged. A higher score reflects a more positive culture (range: 1–5).

To assess the degree of *understaffing*, respondents were asked how often there were enough nurses and patient care workers, there was sufficient administrative support, and there was enough time to discuss patient care problems (response categories: always=1 to never=5). Responses were summed. A higher score reflects a greater degree of understaffing (range: 4–20).

Ergonomic practices was assessed with questions regarding the extent to which the respondent's work was designed to reduce lifting, pushing, pulling, bending, stooping and reaching, and to what extent ergonomic factors are considered in work design (response categories: strongly disagree=1 to strongly agree=5). Responses were averaged. A higher score reflects greater consideration of ergonomics in work design (range: 1–5).

Positive workplace safety practices was measured using items that inquired about unsafe working conditions, housekeeping, ramifications for breaking safety rules, supervisory response to unsafe behaviors, and supervisor safety training (response categories: strongly disagree=1 to strongly agree=5).[26] Responses were averaged. A higher score reflects better working conditions (range: 1–5).

Statistical Analyses

Bivariate relationships were assessed between each predictor and each outcome, using chi-square, t-test, or ANOVA tests as appropriate. Predictors were included in the multivariate models if $p<0.2$, using logistic regression for physical activity and multinomial logistic regression for BMI. If $p<0.05$, the predictor was left in model. Age remained in each model, regardless of significance. Interactions between workplace characteristics variables and age were tested if the workplace characteristic was significantly related to the outcome in the multivariate final model and there was a theoretical justification for doing so. All analyses were conducted using SAS, version 9.3 in January–February 2013.

RESULTS

Sample Characteristics

The sample was mostly female, predominantly white, and educated. There were many older workers in the sample, 28% were age 45–54 and 16% were age 55 or older. (Table 1.)

Bivariate Analyses

Inadequate physical activity was associated with sleep deficiency ($p<0.05$), working as a patient care associate ($p<0.01$), less decision latitude ($p<0.01$), less job flexibility ($p<0.01$), lower coworker support ($p<0.01$), and reporting lower levels of people-oriented culture ($p<0.01$). (Table 2.)

Sleep was related to BMI, with a higher risk of sleep deficiency for those who were obese ($p<0.01$). Obesity was associated with working more hours per week ($p<0.02$), having a longer tenure at one's job ($p<0.01$), experiencing harassment ($p=0.04$), less job flexibility ($p=0.05$), and reporting a less people-oriented culture ($p<0.01$). (Table 3.)

Multivariate Analyses

After controlling for sociodemographic characteristics and workplace characteristics, age was no longer significantly associated with physical activity ($p=0.17$). However, a greater amount of decision latitude was associated with a greater likelihood of achieving adequate physical activity (OR= 1.02; 95% CI=1.01, 1.03). Similarly, greater job flexibility was associated with increased likelihood of achieving adequate physical activity (OR= 1.05; 95% CI=1.01, 1.10). (Table 4.)

Risk of overweight and obesity increased with age ($p<0.01$). Respondents who reported sleep deficiency had a 1.56 greater odds (95% CI=1.15, 2.12) of obesity compared to those who did not report sleep deficiency. Those who reported harassment at work had a 1.62

greater odds (95% CI=1.20, 2.18) of obesity compared to those who did not report such experiences. (Table 5.)

To determine if the relationship of workplace characteristics to either BMI or physical activity differed by age group, interaction terms were added, one at a time, to the final model. Interaction terms that were assessed included, for BMI, harassment at work by age and sleep deficiency by age; and for physical activity, job latitude by age, and staff flexibility by age. None of the interaction terms reached significance when included in the multivariate models.

DISCUSSION

This paper examined the relationships of two cancer-related risks – overweight/obesity and inadequate physical activity – with age, and expressly explored the role of workplace characteristics in these relationships. The findings indicated that risk of overweight and obesity increased with age even when controlling for workplace characteristics. In addition, sleep deficiency and experiences of workplace harassment remained significantly associated with risk of being obese, even when controlling for age. The association between physical activity and age did not remain significant in multivariate analyses. However, getting enough physical activity was associated with job decision latitude and job flexibility. These findings underscore the persistent impact of the work environment for workers of all ages.

Body Mass Index and Age

In this model, the relationship between age and BMI changed somewhat after including other predictors in the model, such that the age gradient (increasing age predicting increased BMI) leveled off somewhat after age 45 – for both overweight and obese individuals. It is possible that a healthy worker survivor effect' underlies this finding, as overweight workers with weight-related comorbidities may leave the workforce earlier than normal weight workers. Previous research has demonstrated the importance of the healthy worker effect when examining the relationship between age and health among workers.[16] This may have considerable effect in patient care, which is physically demanding and requires long hours standing.

Further, these results indicate that experiencing harassment at work was the most important workplace characteristic associated with obesity. Previous research has linked workplace harassment to other health issues including psychological distress, elevated blood pressure, and likelihood of injury.[27–29] However, while it is possible that workplace harassment may lead to deleterious health outcomes, such as being overweight, it is also possible that those who are overweight/obese are more likely to experience workplace harassment, given the stigmatization of obesity. In addition, there is evidence that suggests that the healthcare workplace can be a psychologically and emotionally hostile environment.[30] In addition to harassment, healthcare workers may experience bullying, intimidation, and assault from their co-workers,[31] and, like victims of workplace harassment, those who have been the targets of this type of behavior may experience health consequences including severe psychological trauma, depression, anxiety, post-traumatic stress disorder, and physical illness.[32]

In this occupational setting, where rotating shifts and long shifts are common, sleep deficiency may be seen, at least in part, as an occupational risk. These results indicate that, even after controlling for age, sleep deficiency was associated with an increased risk of obesity. There is a well-established link between sleep and BMI.[33] Some, but not all, prospective studies indicate that short sleep causes more weight gain over time, as sleep loss affects the hormones that affect appetite regulation.[34,35] In addition, there is evidence that the relationship between sleep and increased BMI grows weaker with increasing age.[35] However, the data did not support this; rather, the relationship between sleep and BMI was similar across age groups. This finding may be due to the somewhat restricted age distribution in the sample.

Physical Activity and Age

It was surprising that, after adjusting for race/ethnicity and workplace characteristics, physical activity was no longer associated with age. It is well accepted that as individuals age, they become less physically active.[36] However, these results indicate that physical activity was more strongly related to workplace characteristics. This relationship may exist because those with greater latitude in their jobs and more flexibility in their work schedules may find it easier to engage in regular physical activity, regardless of the age. These findings underscore the importance of attending to these core characteristics of the work environment across the age spectrum of workers.

Limitations

It is important to note that this study employed a cross-sectional study design; and determining temporal sequence or causality is not possible. In addition, the measures relied predominately on self-report, and accordingly were subject to recall and social desirability biases. There may be unknown confounders that were not measured or considered in this analysis; however, many known or suspected confounders of the relationship between age and health behavior were included. These findings are based on a study of patient care workers in two large teaching hospitals, most of whom were women; the characteristics of the sample place limits the generalizability of the findings. Finally, while BMI is related to cancer risk, a recent meta-analysis found little evidence for linkages between BMI and all-cause mortality.[37] Nonetheless, this study includes many strengths, including a high response rate (79%) and the use of multiple, validated indicators of work experiences.

Implications

Targeting work environment in physical activity promotion, for all workers— One important finding of this study is that the work environment has comparable impact on worker physical activity, regardless of age. Therefore, workplace-based physical activity interventions should target workers of all ages. In addition, these findings indicate that flexibility in scheduling and latitude in determining job tasks and timing is important for maintaining physical activity. Thus, it may be beneficial to consider these facets of the work environment when designing physical activity interventions.

Targeting obesity prevention and weight control, among older workers—Based on the finding that older workers are at higher risk for overweight and obesity, even when

holding workplace characteristics constant, it may be advantageous to design and test worksite interventions that emphasize obesity prevention and weight control among older workers. In addition, these findings indicate that obesity risk is associated with sleep deficiency. In a previous study using the same sample of healthcare workers, Buxton and colleagues[19] found that sleep deficiency was associated with both co-worker and supervisor support. Thus, interventions that target social support in the workplace may also help improve sleep among workers, which may then affect worker BMI.

Targeting work environment in obesity prevention, for all workers—Finally, these results indicated that the work environment was a contributor to obesity risk. Aside from the occupationally and psychologically damaging effects of harassment within the workplace, these results suggest an association with obesity. Thus, when addressing overweight and obesity within the workplace, it may be beneficial to consider workplace harassment. One way of targeting workplace harassment suggested in the nursing literature is to build social support and encourage individuals in the workplace to share responsibility for negative behavior.[38]

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Table 1

Sociodemographic and workplace characteristics among participants of the Be Well Work Well Study (N=1572)

	n (%)	Mean (S.D.)
Adequate physical activity	825 (54.3)	
BMI		
Normal (< 25 kg/m^2)	698 (49.2)	
Overweight (25 to <30 kg/m^2)	418 (29.4)	
Obese (≥30 kg/m^2)	304 (21.4)	
Age (years)		
21–34	513 (32.6)	
35–44	367 (23.3)	
45–54	436 (27.7)	
≥55	256 (16.3)	
Presence of Sleep Deficiency	963 (63.4)	
Job Characteristics:		
Occupation		
Staff nurse	1103 (70.5)	
Patient care associate	127 (8.1)	
Other occupation	335 (21.4)	
Shift		
Regular days	469 (29.9)	
Regular evenings	158 (10.1)	
Other shifts	939 (60.0)	
Hours worked per week		
Part time (<34)	535 (34.2)	
Full time (35–44)	961 (61.4)	
Overtime (>44)	70 (4.5)	
Tenure with Current Employer (years)		
< 5	555 (35.3)	
5–9	407 (25.9)	
≥10	610 (38.8)	
Psychological demands		35.9 (5.17)
Decision latitude		71.7 (9.67)
Workplace Characteristics:		
Harassment at Work	913 (58.1)	
Job flexibility		6.1 (2.82)
Supervisor support		10.6 (2.98)
Co-worker Support		8.0 (1.49)

	***n* (%)**	**Mean (S.D.)**
People-oriented culture		3.6 (0.75)
Understaffing		9.1 (2.81)
Ergonomic practices		3.1 (0.83)
Positive safety practices		3.7 (0.66)
Sociodemographics:		
Female gender	1369 (90.5)	
Race/ethnicity		
White	1185 (79.1)	
Hispanic	65 (4.3)	
Black	159 (10.6)	
Mixed race/other	89 (5.9)	
Education		
Grade 12/GED or Less	78 (5.2)	
1–3 years of College or Technical School	360 (23.9)	
4-year college degree (graduate)	803 (53.4)	
Any graduate school	264 (17.5)	

Table 2

Bivariate associations with physical activity among participants of the Be Well Work Well Study

	Adequate Physical Activity (*n*=825) N (%)or Mean (SD)	Inadequate Physical Activity (*n*=693) N (%)or Mean (SD)	*p*-Value[1]
Age (years)			0.051
21–34	291 (58.3)	208 (41.7)	
35–44	198 (55.5)	159 (44.5)	
45–54	207 (49.3)	213 (50.7)	
≥55	129 (53.3)	113 (46.7)	
Sleep Deficiency			0.024
No	320 (58.5)	227 (41.5)	
Yes	499 (52.5)	452 (47.5)	
Job Characteristics:			
Occupation			<0.001
Staff Nurse	611 (57.3)	455 (42.7)	
Patient Care Associate	46 (38.3)	74 (61.7)	
Other Occupation	166 (50.9)	160 (49.1)	
Shift			0.094
Regular Days	243 (53.8)	209 (46.2)	
Regular Evenings	72 (46.8)	82 (53.2)	
Others	508 (56.1)	398 (43.9)	
Hours Worked Per Week			0.094
Part time (<34)	303 (58.0)	219 (42.0)	
Full time (35–44)	487 (52.8)	436 (47.2)	
Overtime (>44)	33 (48.5)	35 (51.5)	
Tenure with Current Employer (years)			0.562
< 5	301 (56.1)	236 (43.9)	
5–9	212 (52.6)	191 (47.4)	
≥10	312 (54.0)	266 (46.0)	
Psychological Demands	36.1 (± 5.18)	35.8 (± 5.15)	0.267
Decision Latitude	72.7 (± 9.15)	70.5 (± 10.00)	< 0.001
Workplace Characteristics:			
Harassment at Work			0.271
No	354 (56.0)	278 (44.0)	
Yes	471 (53.2)	415 (46.8)	
Job Flexibility	6.4 (± 2.79)	5.8 (± 2.81)	0.001
Supervisor Support	10.8 (± 3.03)	10.5 (± 2.90)	0.059
Co-worker Support	8.1 (± 1.43)	7.8 (± 1.53)	< 0.001
People-Oriented Culture	3.6 (± 0.72)	3.5 (± 0.78)	0.005
Understaffing	9.0 (± 2.79)	9.2 (± 2.82)	0.236

	Adequate Physical Activity (*n*=825) N (%)or Mean (SD)	**Inadequate Physical Activity (*n*=693) N (%)or Mean (SD)**	***p*-Value[1]**
Ergonomic Practices	3.1 (± 0.84)	3.2 (± 0.82)	0.126
Positive Safety Practices	3.8 (± 0.65)	3.7 (± 0.68)	0.418
Sociodemographics:			
Gender			0.362
Male	83 (58.5)	59 (41.5)	
Female	734 (54.4)	614 (45.5)	
Race/Ethnicity			< 0.001
White	697 (59.4)	477 (40.6)	
Hispanic	25 (38.5)	40 (61.5)	
Black	56 (36.4)	98 (63.6)	
Mixed Race/Other	34 (39.5)	52 (60.5)	
Education			0.001
Grade 12/GED or Less	27 (35.5)	49 (64.5)	
1–3 Years of College or Technical School	181 (51.9)	168 (48.1)	
4-Year College Degree (Graduate)	466 (58.5)	331 (41.5)	
Any Graduate School	140 (53.4)	122 (46.6)	

[1] p-values for continuous variables were based on t-tests; p-values for categorical variables were based on Chi-Square

Table 3

Bivariate associations with BMI among participants of the Be Well Work Well Study

	Normal (n=698) N (%)or Mean (SD)	Overweight (n=418) N (%)or Mean (SD)	Obese (n=304) N (%)or Mean (SD)	p-Value[1]
Age (years)				< 0.001
21–34	303 (64.3)	105 (22.3)	63 (13.4)	
35–44	153 (46.2)	95 (28.7)	83 (25.1)	
45–54	152 (38.8)	142 (36.2)	98 (25.0)	
≥55	90 (39.8)	76 (33.6)	60 (26.5)	
Sleep Deficiency				0.002
No	272 (52.5)	161 (31.1)	85 (16.4)	
Yes	423 (47.1)	257 (28.6)	219 (24.4)	
Job Characteristics:				
Occupation				< 0.001
Staff Nurse	542 (53.3)	284 (27.9)	191 (18.8)	
Patient Care Associate	31 (32.3)	31 (32.3)	34 (35.4)	
Other Occupation	122 (40.3)	103 (34.0)	78 (25.7)	
Shift				0.880
Regular Days	198 (47.1)	129 (30.7)	93 (22.1)	
Regular Evenings	65 (47.8)	42 (30.9)	29 (21.3)	
Others	431 (50.2)	247 (28.8)	181 (21.1)	
Hours Worked Per Week				0.016
Part Time (<34)	254 (51.0)	152 (30.5)	92 (18.5)	
Full Time (35–44)	422 (49.3)	243 (28.4)	191 (22.3)	
Overtime (>44)	19 (30.6)	23 (37.1)	20 (32.3)	
Tenure with Current Employer (years)				< 0.001
< 5	300 (59.9)	122 (24.4)	79 (15.8)	
5–9	174 (46.2)	114 (30.2)	89 (23.6)	
≥10	224 (41.3)	182 (33.6)	136 (25.1)	
Psychological Demands	36.1 (5.21)	36.0 (5.33)	35.7 (4.97)	0.591
Decision Latitude	71.9 (9.47)	71.7 (9.81)	71.9 (9.55)	0.951
Workplace Characteristics:				
Harassment at Work				0.041
No	303 (52.2)	172 (29.6)	106 (18.2)	
Yes	395 (47.1)	246 (29.3)	198 (23.6)	
Job Flexibility	6.4 (2.80)	6.1 (2.87)	5.8 (2.85)	0.052
Supervisor Support	10.7 (2.91)	10.5 (3.02)	10.6 (3.02)	0.661
Co-worker Support	8.1 (1.44)	8.0 (1.47)	7.9 (1.51)	0.260
People-Oriented Culture	3.7 (0.71)	3.6 (0.77)	3.5 (0.78)	0.006
Understaffing	9.1 (2.77)	9.1 (2.70)	9.2 (2.90)	0.836

	Normal (n=698) N (%)or Mean (SD)	Overweight (n=418) N (%)or Mean (SD)	Obese (n=304) N (%)or Mean (SD)	p-Value[1]
Ergonomic Practices	3.1 (0.84)	3.1 (0.83)	3.2 (0.84)	0.875
Positive Safety Practices	3.8 (0.62)	3.7 (0.71)	3.7 (0.69)	0.469
Sociodemographics:				
Gender				<0.001
Male	46 (33.3)	60 (43.5)	32 (23.2)	
Female	650 (50.8)	358 (28.0)	272 (21.3)	
Race/Ethnicity				< 0.001
White	590 (51.8)	326 (28.6)	223 (19.6)	
Hispanic	18 (30.5)	21 (35.6)	20 (33.9)	
Black	40 (29.4)	45 (33.1)	51 (37.5)	
Mixed Race/Other	47 (60.3)	23 (29.5)	8 (10.3)	
Education				< 0.001
Grade 12/GED or Less	22 (34.5)	17 (26.6)	25 (39.1)	
1–3 Years of College or Technical School	129 (39.2)	118 (35.9)	82 (24.9)	
4-Year College Degree (Graduate)	416 (54.2)	205 (26.2)	146 (19.0)	
Any Graduate School	128 (50.6)	78 (30.8)	47 (18.6)	

[1] p-values for continous variables were based on ANOVA tests; p-values for categorical variables were based on Chi-Square

Table 4

Predictors of adequate physical activity among participants of the Be Well Work Well Study[1]

	OR	95% CI	p-Value[2]
Age (years)			0.174
21–34 (REF)	1.00		
35–44	0.81	0.59, 1.11	
45–54	0.71	0.52, 0.97	
≥55	0.89	0.59, 1.34	
Decision Latitude	1.02	1.01, 1.03	0.001
Job Flexibility	1.05	1.01, 1.10	0.029

[1] Model is adjusted for the effect of race/ethnicity

[2] p-values found using Wald Chi-Square test for Type 3 Effects.

Table 5

Predictors of overweight and obese BMI among participants of the Be Well Work Well Study[1]

	Overweight vs Normal BMI		Obese vs Normal BMI		
BMI (3 category) Multivariates (Final Model)	**OR**	**95% CI**	**OR**	**95% CI**	**p-Value[2]**
Age (years)					<.001
21–34 (REF)	1		1		
35–44	1.87	1.32, 2.64	2.65	1.78, 3.94	
45–54	2.97	2.14, 4.13	3.72	2.52, 5.48	
≥55	2.83	1.92, 4.17	3.79	2.43, 5.90	
Sleep Deficiency					0.007
No (REF)	1		1		
Yes	0.97	0.75, 1.25	1.56	1.15, 2.12	
Experienced Abuse/Harassment More Than Once					0.005
No (REF)	1		1		
Yes	1.25	0.97, 1.62	1.62	1.20, 2.18	

[1] Model is adjusted for the effects of gender and race/ethnicity

[2] p-values found using Wald Chi-Square test for Type 3 Effects.