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Correlates of fruit and vegetable consumption among construction laborers and motor freight workers

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Abstract

Purpose—To compare and contrast correlates of fruit and vegetable consumption in two blue-collar populations: construction laborers and motor freight workers.

Methods—Cross-sectional data were collected from two groups of male workers: (1) construction laborers (N=1013; response rate = 44%) randomly selected from a national sample, as part of a diet and smoking cessation study; and (2) motor freight workers (N=542; response rate = 78%) employed in eight trucking terminals, as part of a tobacco cessation and weight management study. Data were analyzed using linear regression modeling methods.

Results—For both groups, higher income and believing it was important to eat right because of work were positively associated with fruit and vegetable consumption; conversely, being White was associated with lower intake. Construction laborers who reported eating junk food due to workplace stress and fatigue had lower fruit and vegetable intake. For motor freight workers, perceiving fast food to be the only choice at work and lack of time to eat right were associated with lower consumption.

Conclusion—Comparing occupational groups illustrates how work experiences may be related to fruit and vegetable consumption in different ways as well as facilitates the development of interventions that can be used across groups.

INTRODUCTION

Disparities in fruit and vegetable consumption exist by occupation, with blue-collar workers consuming fewer servings than white-collar workers (1). Among blue-collar workers, disparities also exist in terms of chronic disease risk (2). For example, construction laborers and motor freight workers have a higher risk for developing chronic diseases than the general adult male population (3–5). While the strength of evidence that consuming fruits and vegetables reduces cancer risk has weakened with recent studies, (6–9) the United States (US) government recommends consuming at least 3 ½ cups of fruits and vegetables per day

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to lower risk of cardiovascular disease, stroke, type 2 diabetes and lower the risk of developing obesity, which can indirectly affect cancer risk (9–17). Thus disparities in consumption faced by blue-collar workers may contribute to occupation-related gaps in morbidity and mortality.

Workers in some blue-collar industries, such as construction and transportation, may experience common job-related barriers to consuming the recommended amounts of fruit and vegetables. For example, construction laborers switch job sites frequently and may work long hours of overtime. Motor freight workers, including truck drivers and dockworkers, are under the "obligatory vigilance" of extended driving and pressure to deliver goods on time (18). In addition, the lack of healthful food options at construction sites and truck stops are structural barriers that may make eating fruits and vegetables challenging for these mobile blue-collar workers (19, 20). One study found that while long-haul truck drivers in the Midwest of the US placed a high value on healthful food choices, due to large-vehicle parking restrictions, they were limited by the food options that truck-stops and fast food places offered (20). Because of the higher risk for chronic diseases experienced by these workers, it is crucial to understand how factors on and off the job may influence dietary patterns. Doing so may inform interventions seeking to enhance fruit and vegetable intake.

Some studies have looked at individual factors related to fruit and vegetable consumption in these two working populations, such as sleep adequacy in truck drivers and the role of work-family spillover in construction laborers (21, 22) However, the reasons these workers don't eat the recommended daily amount of fruits and vegetables are mutlifacted and need to be examined at multiple levels within a comprehensive framework. Additionally, instead of looking at each occupational group individually, there may be benefits to comparing the same factors in different groups. First, it identifies how different occupations may operate through the same social contextual factors to influence fruit and vegetable consumption. Second, identifying common factors can facilitate the development of interventions that can be used across multiple groups, including blue-collar workers in other mobile industries, thus optimizing intervention effects.

The main purpose of this study is to compare and contrast correlates of fruit and vegetable consumption in two blue-collar populations: construction laborers and motor freight workers. Both groups completed similar baseline surveys as a part of two different intervention studies. The Social Contextual Model of Health Behavior Change (SCM) was used as a framework to develop the surveys, and in this study, to organize potential predictors of fruit and vegetable consumption according to their level of influence (Figure 1).

METHODS

Study Design

This study used cross-sectional data from baseline surveys from two studies: (1) the background survey from *Tools for Health,* and (2) the baseline survey from *Gear Up for Health.* Details of both studies are provided elsewhere and briefly described below (23–25).

Tools for Health—The *Tools for Health* study was part of a collaboration between the Dana Farber Cancer Institute (DFCI) and the Laborers' Health and Safety Fund of North America (LHSFNA) on behalf of the Laborers' International Union of North America (LIUNA), representing approximately 400,000 construction workers in the US and Canada. The study was a randomized-controlled trial that tested the efficacy of a tailored, telephone-delivered and mailed intervention to promote smoking cessation and fruit and vegetable consumption among construction laborers throughout the US.

Gear Up for Health—*Gear Up for Health* was a partnership between DFCI and the International Brotherhood of Teamsters (IBT) – one of the largest American unions representing 1.4 million U.S. workers –and the Motor Freight Carriers Association (MFCA), the trade association of unionized motor freight carriers. The study used a pre/post design to test the efficacy of a tailored, telephone-delivered and mailed intervention to promote tobacco use cessation, healthful eating (increased fruit and vegetable consumption; decreased consumption of sugar-sweetened beverages and sugary snacks; and decreased consumption of fast food) and weight management among truck drivers and dockworkers who worked in terminals in four states along the East Coast of the US.

The DFCI Institutional Review Board approved all procedures in both studies.

Study Population and Data Collection

Tools for Health—As part of the formative research conducted with LIUNA, a random sample of 3239 LIUNA members in the continental United States who met the study criteria was selected to participate in a background survey between May 2001 and November 2002. Study eligibility criteria included (1) current LIUNA membership; (2) not retired or on permanent disability; (3) working in construction; and (4) ability to complete the survey in English or Spanish. Investigators initially attempted to reach the entire sample by telephone, making up to 20 attempts at different times of the day and the week. For the 1360 members they were unable to reach by phone, investigators re-formatted the survey as a self-administered questionnaire and mailed it to these members. On the basis of the information they obtained from those they were able to contact by telephone, investigators estimated 21% of the selected sample to be ineligible. Of the 2547 members estimated to be eligible, a total of 1108 (44%) completed the survey (754 by phone and 354 by mail). In order to provide a comparable comparison to the 100% male *Gear Up for Health* study sample, we've included only male participants (n=1013 or 93.6% of the total sample) in this study.

Gear Up for Health—Eight trucking terminals were randomly selected from the 17 eligible terminals in four states along the East Coast of the US (Maryland, New Jersey, North Carolina and Pennsylvania). Eligible terminals were affiliated with the MFCA and employed 150–175 workers who were members of the IBT. Those eligible were permanent employees, worked at least 15 hours/week, were IBT members, and had not been out of work on workers' compensation for more than two weeks at the time the baseline survey was administered. Participants were employed as over-the road truck drivers, pick-up and delivery truck drivers, dockworkers or a combination of truck driving and dock work. The self-administered baseline survey was conducted on-site, during work time, in each of the participating terminals between November 2005 and August 2006. Of the 697 eligible workers, 542 completed the baseline survey (78% response rate).

Measures

Outcome—Fruit and vegetable consumption was assessed in both groups using the seven survey items that make up the National Cancer Institute's (NCI) fruit and vegetable screening tool that was used in the NCI's 5-A-Day for Better Health research projects (26). Respondents indicated how frequently they ate each of the seven items in the last four weeks with response categories: never; 1 to 3 times in the last four weeks; 1 or 2 times a week; 3 or 4 times a week; 5 or 6 times a week; once a day; 2 times a day; 3 times a day; 4 times a day; 5 or more times a day. Responses were converted to times per day of the midpoint of the category and summed over the seven items. For example, a response of one or two times a week was converted to 0.214 times per day.

Social Contextual Factors—We employed the Social Contextual Model of Health Behavior Change as a framework to examine the association between our outcome and independent variables (Figure 1) (27, 28). The model defines the social context as including life experiences, social relationships, organizational structures and societal influences, which can be operationalized as either *mediating mechanisms* or *modifying conditions*. Mediating mechanisms are factors found on the pathway between an intervention and the outcomes, while modifying conditions are factors found in the social environment that can independently affect outcomes, but which are not influenced by a given intervention. Accordingly, this framework allowed us to explore the role of modifying conditions at the individual-level (financial ability, perceiving fast food was the only choice at work, not having time to eat right, eating in response to workplace stress, and the importance of eating right because of work), interpersonal-level (having children under 18, and being responsible for cooking for people at home), and organizational-level (job shift, hours worked and job strain).

Individual Level Factors: Financial ability was assessed by respondents' rating their financial situation according to four categories: (1) comfortable, with some extras; (2) enough, but no extras; (3) have to cut back; and (4) cannot make ends meet.

Participants were asked to agree or disagree with the following statements: (1) "Eating fast food is often my only choice when I am working;" (2) "Because of my work, I don't have enough time to eat right;" (3) "I often eat junk food because I am tired and stressed from work;" and (4) "Because of my work, it is especially important that I eat right." Participants in *Tools for Health* had the additional response category of "no opinion," which was combined with the "disagree " category to create a dichotomous, agree or disagree/no opinion with the statement.

Interpersonal Level Factors: Participants were asked if they had children under age 18 living at home. Responsibility for food shopping and cooking for the people they lived with was assessed differently in the two samples. In *Tools For Health,* participants were asked, "How much responsibility do you have for food shopping and cooking for the people you live with?" while *Gear Up For Health* participants were asked separately about how much responsibility they had for shopping and cooking. Because these items were highly correlated (r=0.92), we choose to use the cooking measure because this has shown to be positively associated with fruit and vegetable consumption (29). In both groups, the response categories were: (1) most or all; (2) about half; (3) little or none; or (4) does not apply to me – I live alone. These four categories were collapsed into three, with "most or all" and "does not apply to me - I live alone" being combined into one category.

Organizational Level Factors: Job shift was assessed by asking participants whether or not they worked the day shift. Participants were also asked to record the number of hours they worked per week. Job strain was assessed using the abbreviated version of Karasek's Job Content Questionnaire, focusing on the three sub-scales: psychological job demand (5 items = conflicting job demands, job requires working harder, asked to do excessive amount of work, do not have enough time, and job requires working faster); decision authority (3 items = a lot of decisions on my own, little freedom to decide, and lot of say about what happens on the job); and skill discretion (5 items = job requires learning new things, involves repetitive work, allows for creativity, requires a high skill, and involves a variety of different things) (30, 31). Decision latitude was created as a weighted sum of decision authority and skill discretion. A worker was defined to have job strain if his psychological demand was greater than the national median and his decision latitude was lower than the national median (31, 32). National medians were re-scaled to adjust for the different number of items used in our study.

Sociodemographic characteristics—Participants were asked to report their age, if they were married or living with a partner, and the highest grade or level of school they had completed. They were also asked to indicate if they were of Hispanic or Latino origin and what race(s) they belonged to. Participants were asked to report yearly household income from all sources.

Statistical Analyses

To examine the associations between the factors in our model and the outcome measure of fruit and vegetable consumption for each group, we analyzed the two groups separately using linear regression analysis (33). We first tested the association between each factor alone with daily servings of fruit and vegetables, controlling for trucking terminal as a random effect in the *Gear Up for Health* group to account for the possible clustering of participant responses within each site. We then created the same multivariable model for each group in which we selected all variables that were statistically associated with fruit and vegetable consumption in either group ($p<0.05$) in the bivariate analyses, controlling for trucking terminal in the *Gear Up for Health* sample. P-values less than or equal to 0.05 were considered statistically significant.

The slope coefficients reported from these analyses represent differences in fruit and vegetable intake per unit change in the explanatory variable. We retained the same variables in the models in both groups, so that we could compare the slope coefficients across samples and so that all associations would be adjusted for the same covariates. Data analyses were conducted using the personal computer version of SAS statistical software (version 9.2) (34).

RESULTS

Characteristics of the study samples

The study samples differed on several characteristics, as would be expected with the different study populations. The incomes of the two groups differed substantially with more than half of laborers earning $50,000 or less, while two-thirds of the motor freight workers made over $60,000 a year. Laborers were also more diverse by race/ethnicity with 64% being White and 19% Hispanic/Latino as compared to 83% of motor freight workers being White and only 3% of them being Hispanic/Latino. Laborers were also, on average, almost 10 years younger than motor freight workers.

For both groups, more than a quarter of the samples had some college education or post-high-school training; the mean fruit and vegetable consumption for both groups was also below the recommend number of servings per day (Table 1).

Bivariate analysis between social contextual factors and fruit and vegetable consumption

We tested the bivariate association between each factor shown in Table 1 and fruit and vegetable consumption, controlling for trucking terminal in the *Gear Up for Health* sample. We also tested the association between response mode (mail verses phone) and fruit and vegetable intake in the *Tools for Health* sample (data not shown). Because this association was not statistically significant ($p=0.56$), we combined the data from both response modes in our analyses.

For both motor freight workers and construction laborers, fruit and vegetable consumption was significantly associated with the same seven factors (Table 2). Agreeing with the statements, “Eating fast food is often my only choice when I am working;” “Because of my work, I don’t have enough time to eat right;” “I often eat junk food because I am tired and

stressed from work," and being White were associated with lower daily intake of fruits and vegetables, with larger effects observed in the motor freight workers. Fruit and vegetable consumption was also positively associated with income and agreeing with the statement "Because of my work, it is especially important that I eat right." The only difference between the two samples was the direction of the effect for "responsibility for shopping/cooking": motor freight workers who were responsible for most or all cooking had a −0.29 lower mean servings of fruit and vegetables than those who did not. Among laborers, those who reported responsibility for cooking had a mean consumption of 0.38 servings higher than those who did not.

Multivariate analysis between social contextual factors and fruit and vegetable consumption

We used the same multivariable model in each group by selecting the variables that were statistically significant in either group. The seven predictors included in each multivariable model were: (1) "Eating fast food is often my only choice when I am working"; (2)"Because of my work, I don't have time to eat right"; (3) "I often eat junk food because I am tired and stressed from work"; and (4) "Because of my work it is especially important that I eat right," (5) Responsibility for cooking or shopping for people they live with; (6) Race/ethnicity; and (7) Income. Because responsibility for cooking was significant in both bivariate samples but in opposite directions, and was then not significant in the multivariable models when other variables were controlled for, we believed this may have been a spurious association and therefore did not include it in our final models.

Table 3 shows our final multivariable models. For both construction laborers and motor freight workers, fruit and vegetable consumption was positively associated with income – as income increased, so did fruit and vegetable intake after controlling for other variables in the models. For both groups, agreeing with the statement, "Because of my work it is especially important that I eat right," was positively associated with consumption as compared to those who disagreed with this statement, holding other variables constant (0.51 for laborers and 0.64 for motor freight workers). Fruit and vegetable consumption was also negatively associated with being White, as compared to other racial/ethnic groups.

We also found that construction laborers who agreed with the statement, "I often eat junk food because I am tired and stressed from work," had lower intake of fruits and vegetables, compared to those who disagreed with this statement. For motor freight workers, agreement with the statements, "Eating fast food is often my only choice when I am working," and "Because of my work, I don't have time to eat right," was negatively associated with fruit and vegetable intake, compared to those who disagreed with these statements.

DISCUSSION

The purpose of this study was to compare and contrast correlates of fruit and vegetable consumption in construction laborers and motor freight workers. In these two samples of workers, we found three factors that were shared between the groups and others that were unique to each one.

When other variables were controlled for, greater fruit and vegetable consumption was associated with higher income and agreeing with the statement, "Because of my work, it is especially important that I eat right" for both construction laborers and motor freight workers. Across all income categories for construction laborers, we found a positive gradient in consumption - as income increased, so did fruit and vegetable intake - which is consistent with the literature (35, 36). However, we observed a somewhat different pattern for motor freight workers: while the group making $40,000–$59,000 had lower consumption

as compared to the reference group (>$80,000) was anticipated, it was even less than the group making $40,000–$59,000, which was not expected. Additionally, both construction laborers and motor freight workers who agreed that it was especially important to eat right because of their work, consumed more fruits and vegetables compared to those not agreeing with this statement. As part of the formative research conducted in the *Tools for Health* and *Gear Up for Health* studies, focus group participants articulated a 'strong concern about being physically fit for work' and wanting to 'fuel their bodies' to be better able to do their jobs. This corroborates with qualitative research conducted by Sabinksy and colleagues with Danish, unskilled male workers who expressed that "becoming more effective and a greater asset to one's workplace," were key motivators for improved nutrition and weight loss (37). Thus it appears believing it is important to eat a healthful diet in order to be effective in the workplace has the potential to shape blue-collar workers' fruit and vegetable intake.

Finally, construction laborers and motor freight workers who were White had a lower consumption of fruits and vegetables compared to non-white responders. This finding supports other studies which have found that White men on average consume fewer servings of fruits and vegetables compared to other racial/ethnic groups (38, 39).

Other perceptions related to each group of workers reflect the specific nature of the job experiences of these two occupations. In terms of unique factors, construction laborers who agreed with the statement, "I often eat junk food because I am tired and stressed from work" had lower fruit and vegetable intake as compared to those who disagreed with this statement. Given this finding, we would have expected job strain also to be significantly associated with lower intake but it was not in this study. It is conceivable our measure of job strain did not capture elements of strain or stress that were pertinent to the job experiences of construction laborers. For example, it is possible that continually changing worksites - sometimes from week-to-week or even day-to-day – which may involve long commutes could be a source of stress, which is something our measure would not capture (23). While some studies have suggested that workers decrease their intakes of fruits and vegetables in response to job strain, others have found that there was either a weak or no association between the two (33, 40–42). More research is needed to better understand this finding.

For motor freight workers, lower fruit and vegetable intake was significantly associated with agreeing with the statements: "Because of my work, I don't have enough time to eat right," and "Eating fast food is often my only choice when I am working." In the context of their work, these findings were expected. Truck drivers often spend long days on the road and are under time pressures to deliver their loads. Their job experiences involve irregular shifts and mealtimes, and anxiety about traffic, schedules and economic pressures (4, 43–45). Because Federal law restricts the number of hours they can drive, to maximize them, they may continuously snack and eat one large meal at the end of their shift (20). Due to large-vehicle parking constraints, they are confined to eating at truck-stop restaurants and fast food outlets, which may have limited selections of fresh produce (19, 20, 25, 46, 47). Our findings that motor freight workers believed they did not have enough time to eat properly and eating fast food was often their only choice at work are consistent with other research on truck drivers conducted in the US, Europe and Brazil (19, 20, 46–48).

This study had many strengths, most notably that this was amongst the first that examined similarities and differences between social contextual factors and fruit and vegetable consumption in two groups of male, blue-collar workers. By using similar questions and measures, we harmonized the variables used in this study to the best comparability. In addition, we had representation of workers from trucking terminals in four states along the Eastern seaboard of the US and representation from LIUNA's national membership of construction laborers.

There are also limitations to this study. The construction laborer and motor freight worker data were collected at different time periods and consequently the effects of the modifying factors are not constant over time; the income categories were also not adjusted for inflation or converted to a standard. We used different survey and administration techniques (telephone and mail verses completing the survey on-site). In some cases, there were different response categories, which we addressed in our methods by trying to make them as similar as possible. Our study did not control for the form in which in which the fruits and vegetables were consumed. We also had a low response rate (44%) in the construction laborers background survey, which limits the ability to generalize our findings beyond construction laborers who would respond to a similar type of survey. As others have noted, this in part reflects the challenges of conducting telephone surveys at a time when many calls are blocked or screened as well as for a population that is mobile by profession (23, 49). All data were self-reported. Furthermore, the data are cross-sectional precluding conclusions about temporality or causation.

Nonetheless, this study has important implications for practice and research to improve fruit and vegetable consumption among blue-collar workers. For example, because most construction laborers (89%) and motor freight workers (86%) believed it was especially important to eat right because of work, future interventions could take advantage of this strong belief and provide health messages related to “the importance of healthy eating to workplace effectiveness” through different channels. In addition, management can demonstrate its commitment to healthful eating through organizational changes, such as increasing the availability of fruits and vegetables at worksites. For example, an intervention in bus garages in the US Midwest increased the sale of healthful foods and beverages sold in vending machines by lowering prices and increasing the availability of these items (50). In California, low-income workers increased both fruit and vegetable intake when fresh fruit deliveries were made to their worksites (51) Furthermore, a Swedish intervention improved the eating habits of lorry drivers by educating restaurant staff in healthful food preparation and using truck stop staff as proxy health promoters for customers (52). These types of interventions hold promise for motor freight workers and construction laborers by modifying the offerings at truck stops, trucking terminals, and on food trucks near construction sites.

An interesting finding from this study was that individual approaches to coping with job experiences (i.e. eating in response to workplace stress) were significantly associated with fruit and vegetable intake, but not the organizational factors themselves, such as hours worked or job strain. The nature of these occupations, in which there are relatively loose ties to the work environment, may contribute to the week associations of organizational factors to these dietary factors. This underscores the need for future research to examine the mechanisms through which these experiences may influence dietary behavior. For example, researchers using similar questions could probe “why” workers don’t have time to eat right and “what” about the workplace makes them tired and stressed. In this way, specific features of the work context can be targeted in order to improve worker health.

In conclusion, this study highlights the importance of examining associations between the same set of social contextual factors and fruit and vegetable consumption. It illustrates how work experiences may be related to consumption in different ways and facilitates the development of interventions that can be used across blue-collar occupational groups. Given that construction and motor freight are large and growing industries (53), efforts to help these workers eat a healthful diet may close occupation-related health disparity gaps.

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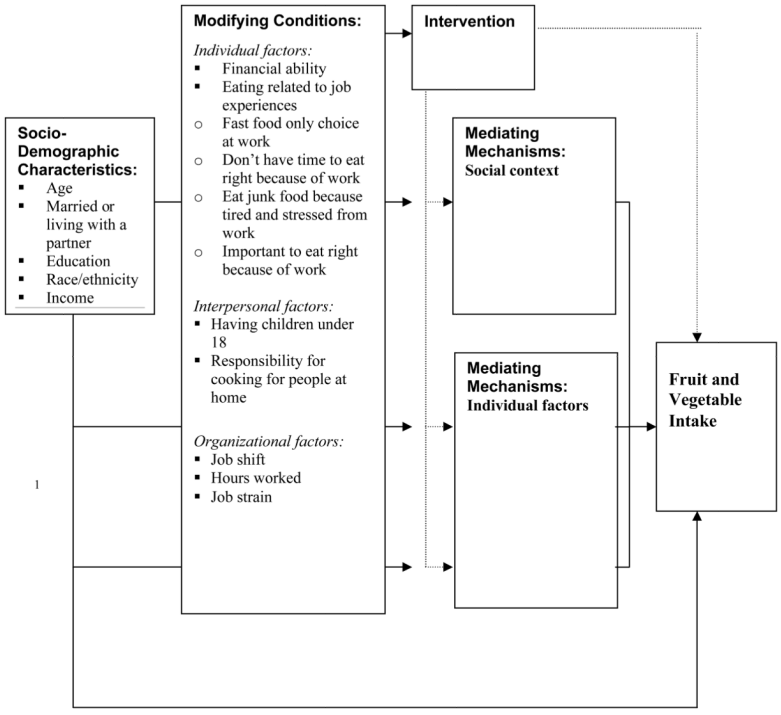

Fig. 1. Conceptual framework for examining the association between social contextual factors and fruit and vegetable consumption among construction laborers and motor freight workers[1]

[1] Adapted from Sorensen G, Emmons K, Hunt MK, et al. (2003) Model for incorporating social context in health behavior interventions: Applications for cancer prevention for working-class, multiethnic populations. Preventive Medicine. 37: 188–97.

TABLE 1

Characteristics of the samples from Tools for Health (n=1013) and Gear Up for Health (n=542)

Worker Characteristic	***Tools for Health*** **CONSTRUCTION LABORERS (n= 1013)** **Distribution – n (percentages) & means (SD)**	***Gear Up for Health*** **MOTOR FREIGHT WORKERS (n=542)** **Distribution – n (percentages) & means (SD)**
Outcome measure		
Servings of fruits & vegetables - Mean (SD)	3.01 (1.9)	2.72 (2.3)
Social contextual factors		
Individual factors		
Financial ability		
- Comfortable, with some extras - n (%)	408 (40.8)	286 (52.8)
- Enough- n (%)	332 (33.2)	167 (30.8)
- Have to cut back- n (%)	190 (19.02)	62 (11.4)
- Cannot make ends meet- n (%)(REFERENCE GROUP)	69 (6.9)	18 (3.3)
Eating related to job experience		
• Eating fast food is often my only choice when I am working	325 (32.2)	206 (38.3)
• Because of my work, I don't have time to eat right – yes – n (%)	280 (27.8)	258 (47.6)
• I often eat junk food because I am tired and stressed from work – yes – n (%)	211 (21.0)	135 (24.9)
• Because of my work it is especially important that I eat right – yes – n (%)	895 (89.2)	465 (86.4)
Interpersonal factors		
Has one or more children under age 18 in the house	541 (55.3)	286 (52.8)
Responsibility for cooking or shopping		
- most or all - n (%)	297 (30.4)	300 (55.4)
- about half - n (%)	370 (37.9)	129 (23.8)
- little or none - n (%)(REFERENCE GROUP)	309 (31.7)	37 (6.8)
Organizational factors		
Works day shift – n (%)	945 (94.3)	260 (48.0)
Hours worked – mean (SD)	44 (9.5)	45.9 (14.9)
Job strain – yes – n (%)	117 (12.3)	163 (30.1)
Sociodemographic characteristics		
Age – mean (SD)	40 (10.4)	49 (8.4)
Married or with partner- n (%)	759 (76.3)	420 (77.5)
Education – some college or higher – n (%)	312 (31.1)	152 (28.0)
Race/ethnicity – n (%)		
• White	• 651(65.0)	• 448 (82.7)
• Hispanic/Latino	• 191 (19.1)	• 16 (3.0)
• African American	• 101 (10.1)	• 77 (14.0)
• Other race	• 59 (5.9)	• 0
Income – n (%)		

Worker Characteristic	***Tools for Health*** **CONSTRUCTION LABORERS (n= 1013)** **Distribution – n (percentages) & means (SD)**	***Gear Up for Health*** **MOTOR FREIGHT WORKERS (n=542)** **Distribution – n (percentages) & means (SD)**
• <$15,000	• 30 (3.1)	
• $15,000–$49,000	• 552 (57.5)	
• $50,000–$74,00	• 259 (27.0)	
• >$75,00 (REFERENCE GROUP)	• 119 (12.4)	
• <$40,000		• 12 (2.3)
• $40,000–$59,000		• 147 (28.4)
• $60,000–$79,000		• 188 (36.9)
• >$80,000 (REFERENCE GROUP)		• 171 (33.0)

TABLE 2

Bivariate associations of variables with fruit and vegetable consumption in study samples from Tools for Health (n=1013) and Gear Up for Health (n=542)

	Tools for Health		*Gear Up for Health*	
	CONSTRUCTION LABORERS		**MOTOR FREIGHT WORKERS**	
Worker Characteristic	**Slope[1]**	**P-value**	**Slope[1]**	**P-value**
Individual factors				
Financial ability				
• Comfortable, with some extras	0.19	0.37	0.93	0.35
• Enough	0.01		0.71	
• Have to cut back	−0.08		0.91	
Beliefs about eating related to job experience				
• Eating fast food is often my only choice when I am working	−0.32	0.01	−1.07	<.0001
• Because of my work, I don't have time to eat right	−0.32	0.02	−0.91	<.0001
• I often eat junk food because I am tired and stressed from work	−0.52	0.0005	−0.88	<.0002
• Because of my work it is especially important that I eat right	0.69	0.0003	0.76	0.01
Interpersonal factors				
Has one or more children under age 18 in the house	−0.18	0.14	−0.05	0.79
Responsibility for cooking or shopping				
• most or all	0.39	0.04	−0.29	0.02
• about half	0.20		0.54	
Organizational factors				
Works day shift	−0.14	0.58	0.05	0.83
Hours worked	−0.01	0.86	−0.01	0.06
Job strain	0.07	0.70	−0.01	0.96
Sociodemographic characteristics				
Age	0.007	0.25	0.02	0.20
Married or with partner	−0.08	0.59	0.38	0.16
Education – some college or post high school training	0.21	0.11	0.33	0.14
Race/ethnicity – white	−0.51	<.0001	−0.75	−0.009
Income				
• <$15,000	−0.83	0.007		
• $15,000–$49,000	−0.65			
• $50,000–$74,00	−0.59			
• <$40,000			−0.88	0.0027
• $40,000–$59,000			−0.97	
• $60,000–$79,000			−0.37	

[1]The slope coefficient represents differences in mean fruit and vegetable consumption per unit change in the independent variable. For categorical variables, it represents the mean difference between each category and the reference category

TABLE 3

Multivariable associations of variables with fruit and vegetable consumption in study samples from Tools for Health (n=1013) and Gear Up for Health (n=542)

	Tools for Health		*Gear Up for Health*	
	CONSTRUCTION LABORERS		**MOTOR FREIGHT WORKERS**	
Worker Characteristic	**Slope[1]**	**P-value**	**Slope[1]**	**P-value**
Individual factors				
Beliefs about eating related to job experience				
• Eating fast food is often my only choice when I am working	−0.19	0.15	−0.65	0.005
• Because of my work, I don't have time to eat right	−0.08	0.59	−0.49	0.03
• I often eat junk food because I am tired and stressed from work	−0.42	0.01	−0.31	0.22
• Because of my work it is especially important that I eat right	0.51	0.01	0.64	0.03
Sociodemographic characteristics				
Race/ethnicity – white	−0.63	<.0001	−0.57	0.045
Income				
• <$15,000	−0.94	0.0006		
• $15,000–$49,000	−0.79			
• $50,000–$74,00	−0.66			
• <$40,000			−0.81	0.0057
• $40,000–$59,000			−0.94	
• $60,000–$79,000			−0.34	

[1]The slope coefficient represents differences in mean fruit and vegetable consumption per unit change in the independent variable. For categorical variables, it represents the mean difference between each category and the reference category