increased, (1) F&V healthy consumption increased; and (2) SSB and sugary snack less healthy consumption decreased.

Practical Implications: Determining which factors in the work environment are related to dietary choices can help researchers and practitioners tailor intervention strategies to address these conditions for different occupational groups. For example, messages that acknowledge SSBs may be used to counter fatigue from working long hours may enhance their salience with the intended audience. Future research is needed to better understand how changing work conditions may improve employee health and well-being beyond dietary practices.

Conclusions: The association between working conditions and dietary patterns differs for nurses and PCAs. Intervention development efforts may benefit from these findings by acknowledging these occupational differences in the creation of tailored intervention messages and strategies.

THE RELATIONSHIP BETWEEN ORGANIZATIONAL POLICIES AND PRACTICES WITH WORK LIMITATIONS WITHIN A COHORT OF HOSPITAL PATIENT CARE WORKERS

Emily Sparer, ScD, Dean Hashimoto, MD, Jack Dennerlein, PhD, Gregory Wagner, MD Erika L. Sabbath, ScD, Christopher Kenwood, MPH, Eve Nagler, ScD, Les I Boden, PhD, Glorian Sorensen, PhD

Statement of the problem: Health care is one of the largest and fastest growing industries in the United States and has the most nonfatal injuries and illnesses. Much of the health and safety research among healthcare workers has examined illness and injury endpoints without accounting for the impact of adverse health of workers on their productivity. The work limitations questionnaire (WLQ) measures the degree to which someone is experiencing limitations at work due to health problems, and the degree of health-related productivity loss. Previous research has demonstrated that the WLQ and other similar scales (e.g. workability) with health outcomes. These measures are crucial to understanding worker health, because they measure both chronic health conditions, and the potential impact of these conditions on productivity. While the WLQ is limited in specificity of health conditions, it offers an overall picture of worker health and performance. Previous studies have examined the relationship between work organization factors and the WLQ, however these studies have mostly been conducted among injured workers within the general population, and have not accounted for industry specific factors. With the desired long-term goal of informing and guiding priorities for future workplace interventions within the healthcare industry, we conducted an analysis of the relationship between organizational policies and practices (OPPs) (specifically, safety practices, ergonomic practices, and people oriented culture) and work limitations.

Procedures: The data in this analysis were collected as part of a survey of hospital workers that aimed to quantify the relationship between worksite programs, policies, and practices with worker health and economic outcomes at the unit and individual level. The survey was conducted among registered nurses (RNs), licensed practical nurses (LPNs), and patient care associates (PCAs) in 2014 at two large teaching hospitals in Boston, Massachusetts. Workers were eligible for participation if they worked at least 20 hours per week in patient care services and had direct patient care responsibilities. The questions on ergonomic practices, safety practices, and people-oriented culture were based on a modified version of the Organizational Policies and Practices (OPPs) questionnaire. Work limitations were measured using a modified version of the short form Work Limitations Questionnaire (WLQ). Demographic covariates included age, gender, race/ethnicity, education, and body mass index (BMI, generated from height and weight). Work characteristics included job title, tenure, hours worked, and unit type. Workers in the float pool were excluded from this analysis, as they did not have a primary association with a unit.

Analyses: We first examined correlations in the data between the modified WLQ measure and the three specific OPPs. We then completed a series of random intercept multi-level models for each of the three OPPs using stepwise selection of covariates. Each model included the OPP score as the independent variable, the WLQ score as the dependent variable, and a unit variable as the random effect in the model to account for the unit-to-unit variability in OPP scores. We also explored interactions of the covariates with the main effect. We explored additional models containing interactions between OPPs that were statistically significant in the simple models to assess the effect of confounding and to further explain the relationships.

Results: There were 1398 individuals who completed the survey (response rate 71%), and an additional 73 respondents were excluded from this analysis due to incomplete surveys or status as a float pool nurse. Of the resulting 1325, most were white (81%), female (94%), and nurses (90%), with a mean age of 41 years. Individual OPP scores were weakly but significantly correlated with WLQ scores ($r=0.11$ for safety practices, $r=0.16$ for ergonomic practices and people-oriented culture; p-values for all >0.0001). In the regression models, there was a

statistically significant association between unit safety practices and worker WLQ scores, which grew stronger when adjusting for individual worker characteristics (job title, age, and BMI) (β= -3.22; p-value=0.025). Units with better safety practices were associated with workers with fewer work limitations, meaning better overall health. The direction of the associations between WLQ and unit ergonomic practices and between WLQ and unit people-oriented culture were similar although, each slightly lower in magnitude and not statistically significant. Other models examining interactions between main effects and covariates and other possible confounding did not change the previously described associations.

Practical Implications: Given the high rate of injuries and illnesses among healthcare workers, an increased focus on improving OPPs, specifically safety practices, to improve health and safety outcomes is needed.

Conclusions: This study demonstrated the importance of organizational policies and practices in improving worker health outcomes and reducing work limitations in acute care settings. Specifically, practices related to worker safety should be the focus of intervention efforts by researchers and practitioners, given the strong relationship with work limitations.

A CLUSTER RANDOMIZED CONTROLLED TRIAL OF A TOTAL WORKER HEALTH® INTERVENTION ON COMMERCIAL CONSTRUCTION SITES

Jack Dennerlein, PhD, Justin Rogers, MPH, Michael Grant, ScD, Cassandra Okechukwu, ScD, Justin Manjourides, PhD

Statement of the Problem: Construction jobs are physically demanding. As a result construction workers have high rates of musculoskeletal disorders (MSDs) and negative health behaviors. These poor health outcomes are often influenced by the conditions of work at construction sites;(1) however, work organization in construction is very dynamic with workers and job tasks changing continuously. (2) We evaluated the implementation of an integrated Total Worker Health® worksite intervention for commercial construction sites, which targeted the conditions.

Procedures: To evaluate the intervention, we completed a cluster randomized controlled trial on 10 construction sites in the Boston Metropolitan Area. Sites were block randomized to intervention or reference by general contractor (GC) pairs (5 pairs). That is after a general contractor agreed to participate, we identified and recruited two concurrent worksites. These two sites were then randomized for either the control or intervention treatments.

The intervention worksites received a program consisting of a six week ergonomics program followed by a five day Health Week. The ergonomics program introduced simple ergonomic improvements to construction work practices used in accomplishing daily tasks. The ergonomics program trained both foreman and workers on simple ergonomic solutions for construction and implemented task pre-planning procedure that generated solution for avoiding soft tissue injury hazards. To inform the pre-task planning, program coordinators established and implemented protocols for worksite inspections and communicating hazards and proposed solutions on these worksites. This was followed by a five day Health Week that included on-site health education and encouraged workers to participate in free health coaching to change health behaviors. Monday's messages was about making plans for improving health through health coaching, Tuesday's was about completing task preplans and ergonomic simple solutions. Wednesday's was about diet and energy balance, Thursday's was about tobacco cessation. Friday's messages returned to health coaching. Workers who were interested in health coaching were provided with four free telephone coaching sessions from our collaborators at HealthPartners. The control sites received no program; however, research coordinators were on sites for data collection.

Process evaluation for the intervention included focus groups and key informant interviews of workers and foreman on each site after the implementation of health week for intervention sites or the six weeks data collection period on the control sites.

All construction workers at the worksites were deemed eligible for the study. For both intervention and control sites, we collected baseline surveys during concurrent periods for the GC pairs. After the six week intervention, workers completed follow-up surveys measuring changes in the conditions of work during the program. Six months after that follow-up survey, we fielded another survey to evaluate worker health and health behavioral outcomes.

Analyses: Hypothesis 1: Workers on intervention sites will report improved changes in ergonomic and safety practices compared to workers on control sites at follow up. Hypothesis 2a: Workers on intervention sites will report less new pain and improved work limitations at follow up compared to workers on the control sites.

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FRIDAY, JUNE 9 (continued)

J6 It's All Relative? Multilevel Effects of Relative Demands and Resources on Engagement, Burnout, And Performance
- Jennifer P. Barbour, PhD, Macquarie University, Sydney, NSW, Australia; Shari Hendriks, BA

J7 The Verbalization of Stress: Implications for the Workplace
- Mari-Amanda Dyal, PhD, Kennesaw State University, GA; Todd D. Smith, PhD; Dustin R. Sergent, BS

Prevention/Intervention Methods and Processes

K1 Factors Associated With Interest in Worksite Health-Related Discussions/Events Among Employed Adults With Chronic Conditions
- Lu Meng, MASM, University of Georgia, Athens, GA; April K. Galyardt, PhD; Kayin Robinson, MPH; David M. DeJoy, PhD; Ye Shen, PhD; Heather Padilla, MPH; Heather Zuercher, MPH; Matthew Lee Smith, PhD

K2 Short-Term Outcomes From the MANAGE AT WORK Trial: A Self-Management Group Intervention to Overcome Workplace Challenges Associated With Chronic Physical Health Conditions
- Elyssa T. Besen, PhD, Liberty Mutual Research Institute for Safety, Hopkinton, MA; Torill H. Tveito, PhD; Robert K. McLellan, MD; William S. Shaw, PhD

K3 Identifying Barriers to the Use of Personal Protection Measures: Evidence From the Perceptions of Bite-Prevention Measures and Hearing Protection Devices in Military Members
- Heather McCuaig Edge, PhD, Director General Military Personnel Research and Analysis, Department of National Defence, Ottawa, ON, Canada; Jennifer Born, MSc; Steve Schofield, PhD; Gregory Banta, MD, MSc

K4 Risk Perception in Chemistry Laboratories Among Undergraduate Students
- Luz S. Marin, ScD, Indiana University of Pennsylvania; Clara Rosalia Alvarez, ScD; Karla Pérez, BA; Mariona Portell, PhD; Luis Velasquez, ScD; Francisca Munoz, PhD

K5 Integrity-Based Wellness Interventions With Male Physicians: An Overlooked Population in Occupational Health Psychology
- Nedra R. Lander, PhD, University of Ottawa, ON, Canada; Danielle Nahon, PhD

9:30–10:45 a.m. Concurrent Sessions

The Harvard/NIOSH TWH® Center of Excellence: Research Innovations in Healthcare, Construction, and Small/Medium-Sized Businesses (Symposium)

Marquette I/II

Chair: Erika Sabbath, ScD, Boston College, Chestnut Hill, MA

Paper 1 Working Conditions and Dietary Patterns Among Hospital Patient Care Workers
- Eve Nagler, ScD, Dana-Farber Cancer Institute, Boston, MA; Anne Stoddard, PhD; David Hurtado, ScD; Emily Sparer, ScD; Jessica Williams, PhD; Gregory Wagner, MD; Glorian Sorensen, PhD

Paper 2 The Relationship Between Organizational Policies and Practices With Work Limitations Within a Cohort of Hospital Patient Care Workers
- Emily Sparer, ScD, Dana-Farber Cancer Institute, Boston, MA; Dean Hashimoto, MD; Jack Dennerlein, PhD; Gregory Wagner, MD; Erika Sabbath, ScD; Christopher Kenwood, MPH; Eve Nagler, ScD; Les I. Boden, PhD; Glorian Sorensen, PhD

Paper 3 A Cluster Randomized Controlled Trial of a Total Worker Health® Intervention on Commercial Construction Sites
- Jack Dennerlein, PhD, Northeastern University, Boston, MA; Justin Rogers, MPH; Michael Grant, ScD; Cassandra Okechukwu, ScD; Justin Manjourides, PhD

Paper 4 Associations Between Conditions of Work and Worker Health and Productivity Indicators in Small Manufacturing Companies
- Nico Pronk, PhD, HealthPartners Institute, Minneapolis, MN; Abigail S. Katz, PhD; Deborah McLellan, PhD; Jack Dennerlein, PhD; Jeffrey Katz, MD

***Working on Empty*: A Documentary Film (in the Making) That Explores the Impact the Modern Work Environment Has on the Health of Working People and What Can Be Done About It (Symposium)**

Marquette III/IV

Chair: Peter Schnall, MD, Center for Social Epidemiology, Marina Del Rey, CA

Paper 1 Why a Documentary, Including a Discussion of What Is Wrong With the Modern Workplace
- Peter Schnall, MD, Center for Social Epidemiology, Marina Del Rey, CA; Marnie Dobson, PhD

Paper 2 The Documentary *Working on Empty*—What Is It About?
- Jesus Munoz, Filmmaker, Center for Social Epidemiology, Marina Del Rey, CA

Paper 3 We Need a Change in the Organization of Work
- Paul Landsbergis, PhD, Downstate University, Brooklyn, NY

Discussant: Peter Schnall, MD, Center for Social Epidemiology, Marina Del Rey, CA