

Discussions: This study suggests that not only unhealthy health behaviors (exercise and eating), but also adverse work organizational factors (particularly, shift work schedule) may increase the risk for obesity among firefighters. In addition, this study indicates that the obesity risk profiles among firefighters may differ by the rank of firefighters so strategies for addressing obesity need to be rank-specific. These preliminary findings will be further checked and tested at the end of the FORWARD survey in November 2012. In addition, these findings will be presented and discussed at the research advisory committee (that was developed by the joint effort between the research team and the firefighter representatives at the beginning of the FORWARD study) and through focus groups with firefighters for taking actions to prevent obesity among this group of firefighters.

\* This study was supported by the Center for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH) (Grant #, R21OH009911). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC/NIOSH.

## OCCUPATIONAL AND HEALTH BEHAVIORAL CAUSES OF OBESITY IN FIREFIGHTERS: A QUALITATIVE STUDY

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### Background

Obesity is a national health crisis in the United States (U.S.) [1] and is a significant risk factor for first responders such as firefighters where sudden cardiac death is consistently the number one cause of line-of-duty deaths [2-4]. Firefighters rank third in obesity prevalence among 41 U.S. male occupations [5, 6]. A handful of studies have examined firefighter health behaviors related to obesity [7-11]. Missing from these studies, however, is a growing research literature which shows a relationship between obesity and working conditions including sedentary work [12-14], shift work [15-17], long work hours [18, 19], and psychosocial stressors [12, 20-24]. The FORWARD study (Firefighter Obesity Research: Workplace Assessment to Reduce Disease) is guided by a theoretical model that links adverse working conditions to obesity in firefighters both directly and indirectly through health behaviors [6]. This presentation highlights findings from qualitative research with firefighters in the ongoing FORWARD study.\*

### Methods

Qualitative research methods provide rich, descriptive data and tend to ask “what” or “why” questions whereas quantitative methods ask questions related to “how often” or “how many.” Qualitative research is being used increasingly in occupational health and is often part of participatory research approaches [25-31]. The FORWARD project incorporated a mixed-methods approach including qualitative methods in conjunction with a cross-sectional epidemiological survey and field study. The qualitative methods included 1) focus group discussions of firefighter perspectives on causes of obesity within the fire service (Phase I), 2) focus group workshops to develop a firefighter-specific work and health questionnaire (Phase I), 3) open-ended questions within the survey about firefighter working conditions (Phase II), 4) after completion of the survey (in November 2012) focus groups will be reconvened and study results will be presented for dialogue with firefighters and their organizations over the design and implementation of future programs for reducing obesity (Phase III).

The fire authority in this study includes 62 fire stations covering 22 cities and unincorporated parts of a diverse, suburban county in Southern California. Structural fires are rare; 1.6% of calls in 2010. Firefighters work a required ten or eleven 24 hour shifts but most work an additional 2 to 3 shifts per month. We conducted four focus groups (90-120 minutes) in Jan-Feb 2011 (Phase I) with 20 firefighters of every rank. Focus group discussions were transcribed and analyzed for common “themes” using grounded theory methodology. During focus group workshops, firefighters also reviewed 13 psychosocial work stressor domains and their items in terms of relevance to their work experiences, clarity of wording, and missing domains or items. In Phase II, we also analyzed, using Nvivo, open-ended questions from the survey (n=279) about the “best” and “most difficult” aspects of the firefighter’s job.

## Analyses and results

Analysis of the discussion with firefighters about causes of obesity revealed five main “themes” of central importance to firefighters: 1) the culture of eating in the fire station, 2) sleep interruption, 3) leadership and physical fitness, 4) sedentary work, and 5) aging and generational differences. These will be discussed using representative quotes. The workshops to refine a firefighter-specific work and health questionnaire revealed that the most relevant psychosocial work stressor domains to firefighters (out of 13) were: workload (e.g., # of shifts), job demands, quality of leadership, sleep problems, and eating culture at work and two domains appeared to be least relevant: reward and discrimination/harassment. Focus group members and subsequent field testing of the survey led to the addition of several questions about eating behaviors at work (e.g. family style vs. eating out) and alternative wording for items that were unclear (e.g., substitute “company” for “group”). Preliminary findings from the survey open-ended questions revealed that most firefighters stated the best parts of their jobs were the social support of coworkers, and helping others. The most often described “difficult” aspects of the job were witnessing traumatic events, lack of sleep, and being away from family.

## Practical/theoretical implications and conclusions

These qualitative research findings suggest that obesity and typical “individual health behaviors” such as eating behaviors and exercise patterns may not be just a product of individual “choice” but may also be influenced by working conditions. These findings confirm that firefighters are exposed to significant work stressors and that along with their work organization, may contribute to poor eating habits and lower physical activity. Integrating these findings along with the survey results will enhance the understanding of the effects of firefighter-specific psychosocial work stressors such as sleep quality, job demands, work-family spillover, and experiencing trauma, on health behaviors linked to weight gain and obesity. Focus groups will then be reconvened to encourage firefighter participation in interpreting these findings and in fostering ongoing dialogue about feasible programs that will target both occupational factors and health behaviors related to obesity.

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## PHYSICAL ACTIVITY AND NUTRITION IN FIREFIGHTERS

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**Background:** Male firefighters are well known as a high risk occupational group for obesity in the United States (US). However, few studies have examined possible work -related mechanisms that might contribute to their tendency to gain weight. Energy balance can be a major mechanism for obesity in the general population. If a certain group has a higher prevalence of obesity, they are likely to have an imbalance between energy intake and physical activity. So it would be very interesting and important to examine their physical activity level and nutrition characteristics on work days and off days (leisure time) among firefighters. This study presents the pattern of firefighters' physical activity objectively measured with actigraph and nutrition data from food diaries collected on two days (one 24-hr duty day and one 24-hr non-duty day). Furthermore, we investigated the relationship between work-related factors and lower physical activity level on an off day.

**Methods:** As part of the on-going FORWARD study, we analyzed the physical activity and nutrition data of 71 firefighters in a Southern California county Wellness Fitness Program. By using actigraphs, we measured objectively measured physical activity on each of two days (a work day and an off day). We calculated total calorie expenditure from physical activity, total count numbers, the amount of time spent on moderate and vigorous physical activity per day from the actigraph. A food-diary was filled out by each firefighter during one “on” and one “off” duty day. The diaries were analyzed using the Windows-based Nutrition Data System for Research (NDSR) developed at the University of Minnesota. We used total calorie intake, sodium intake, fiber intake, added sugar, and fat intake (%) from

**FRIDAY, MAY 17 (continued)**

- Paper 4** The Influence of Work Characteristics on Return to Work Among Long-Term Sick-Listed Employees With Depression
- Dr. Jenny Huijs, TNO, Hoofddorp, The Netherlands; Dr. Lando Koppes; Prof. Toon Taris; Prof. Roland Blonk

**Fresh Perspectives on Workplace Aggression (Symposium)**

*Palos Verdes*

**Chairs:** Jenna C. Shapiro, BS, and Vicki J. Magley, PhD, University of Connecticut, Storrs, CT

- Paper 1** Coping With Abusive Supervision: Long Term Effects on Employee Attitudes and Intention
- Ismael Diaz, MS, Texas A&M University, College Station, TX; Kathi N. Miner, PhD; Mindy E. Bergman, PhD

- Paper 2** Linking Experienced Incivility to Instigated Incivility for Staff Members and Managers
- Arla Day, PhD, Saint Mary's University, Halifax, NS, Canada; Michael P. Leiter, PhD

- Paper 3** Workplace Aggression Normalization: A Scale Development Piece
- Jenna C. Shapiro, BS, University of Connecticut, Storrs, CT; Zandra Zweber, MA; Anna Young, BA; Vicki J. Magley, PhD

- Paper 4** Testing a Model of Civility Training Effectiveness
- Benjamin M. Walsh, PhD, University of Illinois Springfield, IL; Vicki J. Magley, PhD

**Discussant:** Julian Barling, PhD, Queens University School of Business, Kingston, ON, Canada

**Psychosocial Working Conditions and Obesity Research in High-Risk Occupations and Populations (Symposium)**

*San Fernando*

**Chair:** BongKyoo Choi, ScD, University of California Irvine, CA

- Paper 1** Psychosocial Occupational Risk Factors for Obesity in Male Firefighters: Results of the Forward Study Survey
- BongKyoo Choi, ScD, University of California Irvine, CA; Peter Schnall, MD; Marnie Dobson, PhD; Leslie Israel, DO; Javier Garcia, MS; SangBaek Ko, MD; Dean Baker, MD, MPH

- Paper 2** Occupational and Health Behavioral Causes of Obesity in Firefighters: A Qualitative Study
- Marnie Dobson, PhD, University of California Irvine, CA; BongKyoo Choi, ScD; Peter Schnall, MD; Erin Wigger, BA; Javier Garcia, MS; Leslie Israel, DO; Dean Baker, MD, MPH

- Paper 3** Physical Activity and Nutrition in Firefighters
- HyoungRyoul Kim, MD, The Catholic University of Korea, Seoul, South Korea; BongKyoo Choi, ScD; Peter Schnall, MD; Marnie Dobson, PhD; Leslie Israel, DO; Pietro Galassetti, MD; Javier Garcia, MS; Dean Baker, MD, MPH

- Paper 4** Obesity/Overweight and the Role of Working Conditions in Lower Income Workers: A Qualitative, Participatory Investigation
- Nicole Champagne, EdD, University of Massachusetts Lowell, MA; Suzanne Nobrega, MS; Marcy Goldstein-Gelb, BA; Mirna Montano, BA; Isabel López, BA; Jonny Arevalo, BA; Suezanne Bruce, BA; Laura Punnett, ScD

- Paper 5** Work and Obesity in Mexican Working Population From Different Occupations
- Horacio Tovalin Ahumada, DrPH, National Autonomous University of Mexico, Mexico City, México; Marlene Rodríguez Martínez, MSc

**The Impact of Emotional Intelligence and Emotional Labor on Worker Wellbeing (Paper Panel Session)**

*San Bernardino*

**Chair:** Jo Linder-Crow, PhD, California Psychological Association, Sacramento, CA

- Paper 1** The Impact of Personality, Trait Emotional Intelligence and Emotional Labour on Burnout Among Human Resource Professionals in Malaysia
- Angeli Santos, PhD, University of Nottingham Malaysia Campus, Semenyih, Selangor, Malaysia; Gwi Terk Chern, BSc

- Paper 2** “Emotionally Intelligent Labor”: A Multilevel Study About the Multifaceted Role of Emotional Intelligence in the Emotional Labor Process
- Sonja Scherer, Intermediate Diploma, Goethe-University Frankfurt, Frankfurt am Main, Hessen, Germany; Dr. Dieter Zapf; Sabine Machowski

- Paper 3** Effects of Emotional Intelligence and Ways of Coping on Work-Family Conflict: Evidence From the Hospitality Industry
- Sarlaksha Ganesh, PhD, Indian Institute of Technology (Madras), India; Mangadu P. Ganesh, PhD

**Working Outside the Boundaries of Traditional Time and Place (Paper Panel Session)**

*San Pedro*

**Chair:** Arturo Juarez-Garcia, PhD, Universidad Autonoma del Estado del Morales, Mexico



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