Firefighter Perspectives on Occupational and Behavioral Causes of Obesity: A Qualitative Study

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Top 3 and bottom 3 male occupations in obesity prevalence (from Caban et al., 2005)

- **Top 3 occupations**:
  - motor vehicle operators (31.7%)
  - private household occupations (31.3%)
  - **firefighters and police** (29.8%) - %) – the most active group in leisure-time physical activity (Caban et al., 2007)!!!

- **Bottom 3 occupations**:
  - health-diagnosing occupations (11.2%);
  - health technologists/technicians (13.7%);
  - architects and surveyor (14.5%)

FORWARD Study

- National Institute for Occupational Safety and Health (NIOSH) funded the UCI COEH for a 2 year grant "Firefighter Obesity Research: Workplace Assessment to Reduce Disease"

- Supported by the fire chief of the OCFA and president of IAFF Local 3631

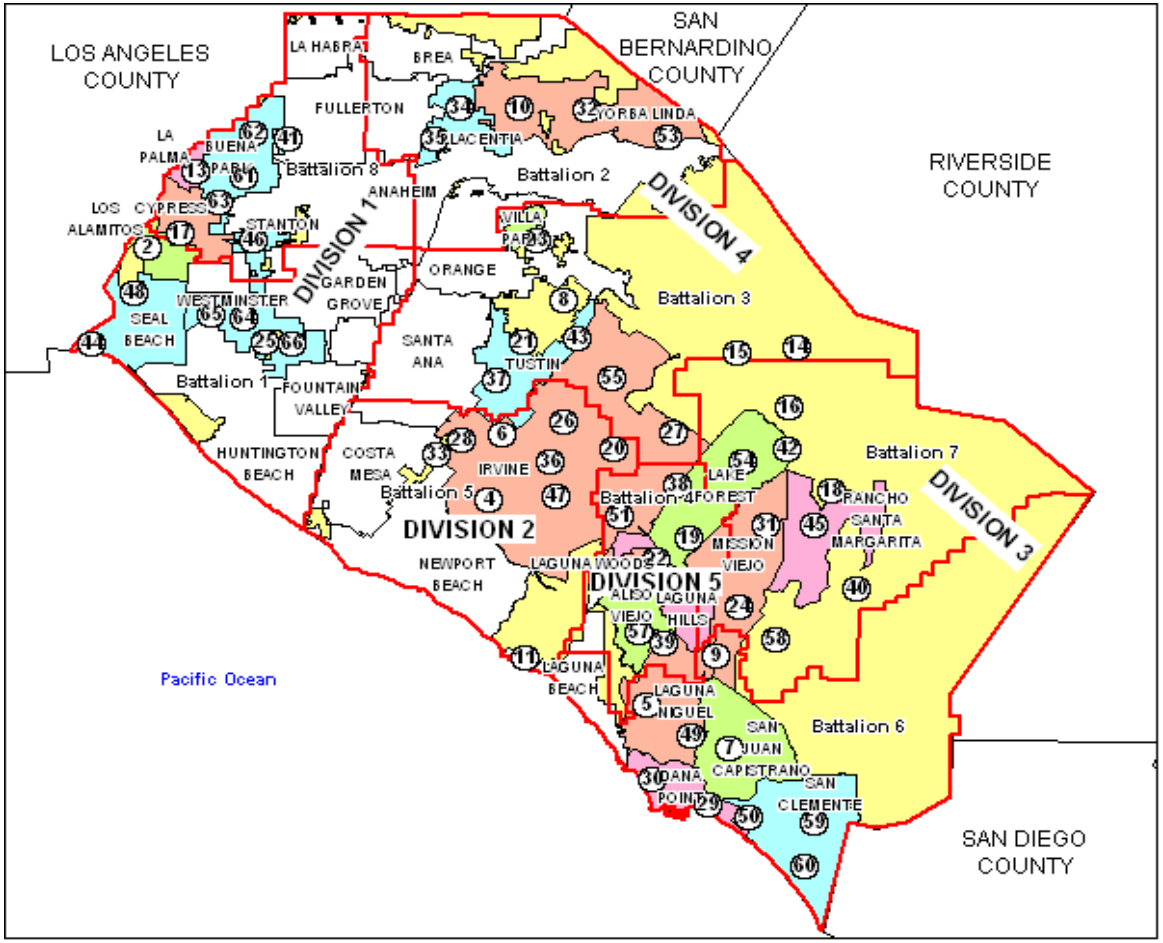
- **The FORWARD study started in November 2010**

- Identify possible **role of working conditions and health behaviors** in development of **obesity among firefighters (Choi et al 2010)**

Orange County Fire Authority (OCFA) –

Covering 22 cities (1.4 million residents from 61 stations) in OC

Participates in Wellness Fitness Exams at UCI COEH



Methodological merits of the FORWARD Study

- **A participatory action research approach –** A research advisory committee with the management, local union, and firefighters
- **Multi-methods approach**
  - **Qualitative and quantitative –** focus groups (4 groups of 20 firefighters); a survey (n=370 firefighters), and a sub-study (n=80 firefighters among the survey participants)
  - **Subjective and objective –** e.g., self-reported physical activity (in a survey) and objectively measured physical activity (in a sub-study)
- **Comprehensive information on** working conditions, health behaviors, obesity, and other biological CVD risk factors
- **Multidisciplinary research team**

Qualitative Methods

Like Quantitative Methods:

- Addresses causation
- Involves observation and interpretation of events

Unlike Quantitative Methods

- Answers the "what" question not the "how often" one.
- Holistic perspective which preserves the complexities of human behavior

Black, N. Why we need qualitative research? Journal of Epidemiology and Community Health 1994 48:425-426

Types of Qualitative Methods

- Interviews, focus groups, observation of activities, interpretation of written material
- Combined with quantitative methods it can:
  - improve the accuracy and relevance of quantitative studies by increasing our understanding of the creation of quantitative data, an activity known as ethnostatistics.
  - Identify the appropriate variables to be measured
  - Explain unexpected or unexplained findings
  - Provide fertile sources of hypotheses
- Qualitative methods can replace quantitative methods at times
  - complex situations where the relevant variables associated with an outcome are not apparent better investigated with qualitative methods

Black, N. Why we need qualitative research? Journal of Epidemiology and Community Health 1994 48:425-426

FORWARD study plan

Part I: Research Advisory Committee/Focus Groups of FF's

- Participatory Action Research approach
- Develop a firefighter work and health questionnaire

Part II: Start survey

- 15-month data collection
- N ≥ 357
- Obesity measures (BMI, body fat %, and waist circumference at WEFIT exams)

Conduct sub-study

- 6-8 month data collection, N ≥ 80
- Physical activity monitoring (Actigraph)
- Food record diary
- A short form of the firefighter work and health questionnaire (test-retest reliability)

Part III: Data Analysis

- Archival data for call information

Part IV: Focus groups of FFs/ Final report

- Evaluation of the study and recommendations for preventing obesity in firefighters

Goals of the focus groups

1. **Open-ended discussion** with firefighters to gain their perspectives on behavioral or occupational causes of obesity among firefighters.
2. **Firefighters feedback on the development of a firefighter work and health questionnaire** to be used for exploring occupational and behavioral risk factors for obesity and heart disease in OCFA firefighters.

4 focus groups with firefighters (n=20)

- Volunteers were recruited in collaboration with the Research Advisory Committee
- 2 focus groups **with firefighters/engineers** (n=11) at a local station and UCI-COEH
- 1 focus group **with captains** (n=4) at OCFA headquarters
- 1 focus group **with battalion chiefs** (n= 5) at a local station

Analysis

- Focus groups (90-120 minutes) were recorded, transcribed, and reviewed for accuracy
- Grounded Theory Methodology (Strauss & Corbin, 1990)
  - Inductive – begins with observation to build theory
  - Systematic evaluation of textual information (transcripts)
  - Identifying underlying "themes"

Strauss, A. and J. M. Corbin (1990). Basics of qualitative research: Grounded theory procedures and techniques. Thousand Oaks, CA, Sage Publications.

Findings

Five underlying "explanatory" themes were identified from discussions with firefighters about causes of obesity:

1. **Fire-station eating culture**
2. **Night calls and sleep interruption**
3. **Supervisor leadership and physical fitness**
4. **Sedentary work**
5. **Age and generational influences**

Each will be discussed using a quote representative of the concepts.

1. Fire station eating culture

- Family Style Eating – portion size
- Traditions and Peer-pressure – pressuring new recruits to overeat, "fueling up"
- Call interruptions and eating – meal preparation to withstand interruptions/eating fast
- High Caloric Snacking – desserts from public, high calorie energy drinks

*"I think first of all it is **portion size**…When you cook and because we cook as a group you have to make sure that you don't run out, guys always go back for seconds, there's got to be a lot of it and it's got to be cheap" (Focus Group 1, FF)*

"…it better be hot, brown and plenty of it"(Focus Group 1, FF)

"When I got hired and I went to this one station, there were 15 guys on and they were all 55 years old plus and they were all huge, like 6'5", 250 pounds; just big men. And so it's your first time at the fire station with all these big men, so you are kind of nervous about how much you are supposed to eat and when, and all that stuff. So one guy came over, he was the biggest guy, he said 'hey, you really want to impress all these guys? Eat as much food as you can, stuff it down as fast as you can, they will give you another plate and you will really impress these guys.' I said, really? Yeah. I started doing that and they said [he's alright] from day one. And I remember getting a call afterwards and I had to spit out all my food because it was almost twofold more than I [usually] eat."(Focus Group 1, FF)

2. Night Calls and Sleep Interruption

- 24 hour shifts and calls at night = sleep interruptions

  "The bottom line is, and I can remember this from our paramedic days, I said "you know what? I am not going to go to bed because I am probably going to get a call." You know what? Half the time, maybe a third of the time, I didn't get a call. I could have gotten some more sleep but you stayed up anyway. The sleep patterns in this job are terrible especially on the busier days. And if you are up, or you are up and between calls, you've got more of an opportunity to snack."(Focus Group 4, BC)

- Greater control over schedule with promotion and age:

  "It's not unlike being parents, you are not in control of your schedule [in early stages of career]. And don't get me wrong, there is a reason why someone was promoted. It wasn't for the fame and fortune and glory of it, it was because it was time to get a few less calls, it was time to be able to sleep a little bit more at night, maybe controlling your deal."(Focus Group 4: BC)

3. Supervisor Leadership and Physical Fitness

- There are no required physical fitness standards to continue to perform the job.
- Captain's responsibility to ensure physical fitness of crew:

"*The tone for the station is set by the Captain. I worked for Captains where fitness was not a priority…Some Captains sit on the rig when the guys work out and that puts pressure on the guys to hurry through their workout. There are Captains who participate and are supportive, Captains who don't participate and are neutral, and Captains who do not participate and are not supportive. It's a top down thing…"(Focus Group 3, FF)*

4. Sedentary Work

- Number of calls responding to fires in OCFA has declined from 2.6% in 2007 to 1.6% in 2010 (2011) which reflects an overall trend in the fire service nationally (14.7% in 1990 to 4.7% in 2010) (Karter 2010; Fahy, LeBlanc et al. 2011).

"I don't think we run the number of physically demanding jobs that we once did. I think that … running those types of calls we were physically exerting ourselves … I think - at least for me - working out as much as I do now didn't happen [then]. Early on I just got by being young and running calls and having a physically demanding job, [now] those calls have tapered off"(Focus Group 2 – Captain)

4. Sedentary Work cont.

- Greater use of technology in the fire service:

"Today we sit down in front of that computer screen regularly for a good portion of a day to do training, to do reports, research - whatever it may be, and so the number of hours your ass is in a chair has increased…(Focus Group 1, FF)

"We are going to take a look at different types of vegetation and how it's going to affect fire behavior during wildfire season.Well now we will sit there … and we will look at a hill on videotape whereas before we would go out on the engine and we would have to climb that hill and actually look at the brush."(Focus Group 2, Captain)

5. Age and Generational Influences

- Interrelatedness of health behaviors and motivations related to age, with work and non-work characteristics:

"When you are younger you get by on being young AND running a lot of calls. If you don't change your dietary habits or change your routine (add working out) it's easy to get hit with 30 extra pounds"(Focus Group 2, Captain)

"I am not the man I used to be 15 years ago. I am just not. Every day I tell myself, I want to be, I'd like to be, but it becomes less and less important, as I go further and further in my career and as I get older in age. I used to run 10 miles a day. I don't care about running 10 miles any more… I want to survive my career. I don't care if I am the fastest, the biggest, the best… I go much more into a self-preservation mode where I am far less concerned about being the most physically fit, or even how I look compared to other people. (Focus Group 2, Captain)

5. Age and Generational Influences cont.

- Younger firefighters are more interested in health and fitness than firefighters who were hired thirty years ago.
- Younger firefighters are doing more sedentary activities than firefighters of the past:

"But the younger generation also spends a lot more time doing activities that are more stationary, whether it's checking Facebook or tweeting or all that stuff whereas I couldn't figure out how to tweet if you threw the book at me … So I am wondering even with the younger guys … where after hours we would go out and play basketball after dinner until dark or maybe play under the lights … maybe that doesn't happen any longer, because somebody sits down on their laptop and then starts checking e-mail or checking their Facebook page… (Focus Group 2, Captain)"

Discussion

- Confirms previous findings from NVFC Report on "Nutrition in the Firehouse" – over-eating, portion size and high calorie foods common.
- Eating behaviors related to the "gendered" culture of the firehouse – "fueling up", "new recruits pressured to prove themselves by overeating."
- 24 hour shifts influence on snacking and sleep quality. Related to metabolic dysregulation (Knutson, Spiegel et al. 2007) perhaps contributing directly to obesity
- Constraints to on-duty exercise – depends on dedication of Captain to on-duty exercise time (inconsistent) and number of calls - combined with greater sedentary work ➔ weight gain (?)
- Younger generation may represent a change in some organizational cultural practices (hazing and overeating) BUT they may also participate in more sedentary activities (e.g. emails, Facebook etc.)

Summary

- These qualitative findings suggest that obesity and health behaviors such as eating behaviors and exercise patterns are not just a product of individual choice but are also influenced by the working conditions of firefighters, the "culture" of the fire station, and possible generational differences, reflecting cultural and organizational changes, in the firefighter workforce.

Usefulness of Qualitative Methods in Single Occupation Studies

- Qualitative findings may not be generalizable to all firefighter populations, but provide a rich source of contextualized data from the standpoint of those being studied and situating the "researched" as experts of their own work worlds.
- This qualitative study has contributed to consolidating an on-going, collaborative relationship with the firefighters, the union and OCFA which will continue capacity-building efforts in future intervention programs.

Future studies

- Findings will be triangulated with FORWARD survey and sub-study findings.
- Firefighter focus groups will be reconvened so that the overall FORWARD results can be presented to and discussed with firefighters
  - Identify best methods for disseminating results and recommendations broadly.
  - Develop recommendations for intervention programs tailored to the organization and specific study findings.

FORWARD
Firefighter Obesity Research:
Workplace Assessment to Reduce Disease

www.coeh.uci.edu/forward

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Welcome questions
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