Occupational Health Psychology: Understanding the Psychosocial Factors behind Workplace Accidents, Injuries, and Musculoskeletal Disorders

Daisy Chang, PhD
Dept of Environmental & Occupational Health
University of South Florida

**Occupational Health Psychology (OHP)**
- Application of psychology to
  - Improving the quality of work life
  - Protecting and promoting the safety, health and well-being of workers

**Major OHP topics**
- **Accidents**
  - Often result in acute injuries
- **Illnesses**
- **Musculoskeletal disorders (MSD)**
  - Cumulative exposure
- **Occupational stress**
- **Workplace violence**
- **Work-Family issues**

**Accidents and acute injuries**
- Major workplace issue
- In 2006
  - 5,840 total workplace fatalities
  - 86% of them were due to accidents
  - 3.9 million cases of nonfatal workplace injuries
  - Nonfatal accidents and injuries resulted in an average of 7 days away from work annually for employees
  - Fatal and nonfatal accidents cost an estimated $140 billion annually in the U.S. alone

**Accidents and acute injuries**
- Most dangerous occupations
  - Agriculture/forestry/fishing/hunting
  - Construction
  - Mining
- Safest occupations
  - Education/health service
  - Services

**Causes of accidents**
- Unsafe working conditions
- Unsafe behaviors
Making the workplace safer

Physical concerns
- Lighting
- Noise
- Equipment
- Confined space
- Extreme temperature
- Typically covered by OSHA regulations

Making the workplace safer

Behavioral safety approach
- Focus on promoting the target safety behaviors by
  - Identifying the antecedents and consequences of the target behaviors
  - Design programs to change target behaviors by altering their antecedents, consequences, or both

Making the workplace safer

Typical behavioral safety program
- Training safety behaviors
- Goal setting to encourage safe performance
- Periodic monitoring
- Providing feedback concerning safety performance
- Offering rewards for meeting the safety performance goals

Making the workplace safer

Psychological factors
- Job skills
  - Ensure that employees have the right knowledge, skills, and abilities to perform the job safely
  - Selection vs. training
- Personality
  - Low on conscientiousness
  - Low on agreeableness
  - High on openness to new experiences
  - Risk-taking, sensation seeking

Making the workplace safer

Psychological factors
- Self-efficacy
  - Employees’ belief about whether they can successfully perform their job safely
- Job attitudes
  - Dissatisfaction
  - Low organizational commitment
- Stress
  - Hindrance stressors
    - Heavy workload
    - Ambiguous and/or conflicting work expectations
  - Stressful life events

Making the workplace safer

Organizational factors
- Balance between production speed vs. safety
- Hourly-rate vs. piece rate
- Safety climate
  - Shared perceptions among members of an organization regarding the safety policies, procedures, and practices
  - Positive when
    - Good organizational safety policies and procedures
    - Consistent application of policies and procedures
    - Supervisors’ important role
  - Has positive effects on safety
### Illnesses

- **Infectious disease**
  - Exposure in occupations dealing with public
    - Healthcare
    - Teachers
    - Police officers
    - Hairstylists
- **Toxic substances**
  - Acute exposure
  - Cumulative exposure over time

### Infectious Disease

- Some examples:
  - Hepatitis B: 12,000 cases/year from work
  - HIV: Major source of stress in healthcare
  - Self-exposure is much like accident
  - Failure to follow protocols

### Musculoskeletal disorders (MSD)

- Injuries or disorders of the muscles, nerves, tendons, joints, cartilage, and spinal discs
- In 2006
  - Disorders associated with repeated trauma accounted for 67% of all work-related illnesses in the US
  - More than 70 million physician office visits can be attributed to MSD

### Stress

- Prolonged exposure
- Linked to hypertension, heart diseases, and reduced immune functioning
- Type A personality

### Some universal precautions

- **CDC Recommendations**
  - Wearing gloves
  - Sharp containers
  - Washing hands
  - Clearing bodily fluid spills with disinfectant

### Different types of MSD

- **Acute**
  - Onset is sudden
  - Back injuries
- **Cumulative exposure**
  - Repetitive strain injury due to overuse
  - Carpal tunnel syndrome
Common MSD areas
- May depend on the type of jobs
- Low back
- Upper extremities
  - Neck, shoulders, elbow, hand/wrist, fingers
- Lower extremities
  - Toes, foot/ankle, knee, hip

Symptoms
- Numbness
- Pain
- Muscle
- Tendon
- Joint
- Weakness
- Inflammation
- Fracture

Physical Vs. Psychological
- Physically verifiable symptoms
  - Fracture
  - Herniated disk
- Physically unverifiable
  - Soft tissue damage
  - Psychosomatic
    - Neuroticism and pain
  - Malingering
    - Counterproductive work behavior
    - Unfair treatment

Removing risk factors for MSD
- Physical environment
  - Better ergonomic designs
  - Use machines to aid physically strenuous work
  - Mandatory breaks

Psychological factors
- High job demands
  - Time pressure, unpredictable work schedule
- Negative emotions and attitudes
  - Anxiety
  - Job dissatisfaction
- Low autonomy
  - Lack of control over tasks
  - Lack of social support
- These psychological risk factors may exacerbate the physical demands of the job and make the MSD symptoms worse

Conclusion
- Both physical and psychological factors are important
- Interventions targeting psychosocial factors are typically cheaper, and can have equal if not stronger effects
- Psychologists not only sit on chairs and write notes!
Finally...

For further information about OHP, occupational safety, or programs available at USF, please contact:

Daisy Chang, PhD  
cchang@health.usf.edu  
813-396-9597