Evaluation of a Work-Family Intervention on Health and Safety

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Stress is a Workplace Hazard!!!

Taking a TWH perspective we argue that by reducing stress in the workplace environment we can improve health behaviors via increased behavioral and psychological resources, and via decreased negative coping behaviors, leading to improved health, safety, and well-being of workers (Hammer & Sauter, 2013, JOEM)
Study Theoretical Model

SHIP Intervention

- Team Cohesion
- Work-to-Family Conflict
- Family-to-Work Conflict

• FSSB (+)
• Team Effectiveness (+)
• Work-Life Effectiveness (+)

• Health
  – Blood Pressure (-)
• Safety
  – Group Level Safety Climate (+)
  – Safety Motivation (+)
  – Safety Participation (+)
Safety and Health Improvement Program (SHIP)

• Randomized Control Trial Design

• Examine integrated intervention with construction workers, focused on:
  – Supervisor Training
  – Supervisor Behavior Tracking
  – Team Effectiveness Training

• Improve supervisor support for non-work life and safety, while also increasing and team effectiveness, and subsequently improve health and safety
SHIP Intervention Components that Target the Work Environment

• Work-life (FSSB) and Safety Supervisor Training
  – cTRAIN: Online training (1 hr)

• Supervisor Behavior Tracking
  – HabiTrak: (2 wks)

• Team Effectiveness Process
  – TEP: Team as a whole (4.5 hrs)
## TEP Session Information Collected

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team’s Vision of Success</td>
<td>Working in a respectful and organized environment</td>
</tr>
<tr>
<td>Operating Principles (&quot;We will...&quot;)</td>
<td>Respect each other’s opinions and boundaries</td>
</tr>
<tr>
<td>Priority Issues for Action</td>
<td>Need for improved communication around task planning</td>
</tr>
<tr>
<td>Root Causes of Identified Issues</td>
<td>Conflicting priorities communicated from supervisors, crew leaders, and coworkers</td>
</tr>
<tr>
<td>Solutions</td>
<td>Hold weekly team meetings to discuss potential issues and clarify priorities</td>
</tr>
<tr>
<td>Feedback for Management</td>
<td>Team would like to have more input to top management regarding work processes</td>
</tr>
<tr>
<td>Action Plan</td>
<td>Detailed plan outlining specific actions to be performed, individual(s) responsible, and scheduled completion dates</td>
</tr>
</tbody>
</table>
TEP Session Information Given to Teams for Progress Tracking

Sample Operating Principles

TEAM EFFECTIVENESS OPERATING PRINCIPLES

List the guidelines and practices that the team has agreed are important to achieving our desired work environment and vision of success.

1. Work together
2. Use Safety Gear
3. Practice positive reinforcement
4. Support each other in sharing personal stories in moderation or within reason
5. Respect each other's boundaries
6. Point out safety hazards
7. Train the new guys; Bring new people up to speed
8. Practice less negativity/sarcasm; Know when to stop negative talk
9. All pull our own share
10. Practice strong work ethic
11. Acknowledge others
12. Continue to communicate;
13. Keep up morale with fantasy football
14. Keep grumpy face at home
TEP Session Information Given to Teams for Progress Tracking

Sample Action Plan (identifying information removed)

ACTION PLAN

The team has agreed upon the following recommended actions, responsibilities, and timelines for implementation in order to address the top issues.

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RESPONSIBILITY</th>
<th>TIMELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:</td>
<td>Review Operating Principles</td>
<td></td>
</tr>
<tr>
<td>2:</td>
<td>Identify products from stores that are unsafe; replace with better quality</td>
<td></td>
</tr>
<tr>
<td>3:</td>
<td>Meetings with other work groups ( ) at the crew level</td>
<td></td>
</tr>
<tr>
<td>4:</td>
<td>Pre-construction meetings - on special projects/unique jobs as appropriate</td>
<td>Oct. 28th</td>
</tr>
</tbody>
</table>

Note: These Action Plans were used to benchmark progress achieved at the 30-, 60-, and 90-day team check-ins
SHIP Study Design

Workgroups randomly assigned to...

**Receive SHIP**
- 11 Workgroups
- 117 Employees

**Control**
- 9 Workgroups
- 154 Employees

Baseline (Prior to SHIP)

Surveys & Health Assessments

SHIP

Surveys & Health Assessments

6 months

Surveys & Health Assessments

12 months
Study Sample

• Metropolitan public works agency
• Construction/Field Workers
  – e.g., utility worker, construction equipment operator, sidewalk repair
<table>
<thead>
<tr>
<th>SHIP Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>45.5 yrs old (SD = 9.09)</td>
<td>45.7 yrs old (SD = 10.06)</td>
</tr>
<tr>
<td>93% male</td>
<td>88% male</td>
</tr>
<tr>
<td>83% white</td>
<td>75% white</td>
</tr>
<tr>
<td>High School or GED: 45%</td>
<td>High School or GED: 39%</td>
</tr>
<tr>
<td>Some College or Tech School: 44%</td>
<td>Some College or Tech School: 51%</td>
</tr>
<tr>
<td>College Graduate: 8%</td>
<td>College Graduate: 8%</td>
</tr>
<tr>
<td>65% married</td>
<td>57% married</td>
</tr>
<tr>
<td>60% children at home</td>
<td>51% children at home</td>
</tr>
<tr>
<td>29% elder care</td>
<td>37% elder care</td>
</tr>
</tbody>
</table>
SHIP Intervention Effects on Health & Safety Outcomes

Significant Intervention X Wave effects found on Diastolic Blood Pressure

No significant intervention effects found on SBP, or any of the safety outcomes (safety climate, safety participation, and safety compliance)
Effect on Diastolic Blood Pressure

Baseline	
6 Months	
12 Months

Significant Intervention Effect

*
SHIP Intervention Effects on Mediators

No significant intervention effects found at either 6 or 12 months on:

FSSB
Team Effectiveness
Work-Life indicators
Moderating Effects

Significant moderating effects were found for WTFC, FTWC, and Team Cohesion
### Interpreting Moderator Patterns

<table>
<thead>
<tr>
<th>Outcome</th>
<th>When is SHIP helpful?</th>
<th>Take Away</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health</strong> (Blood Pressure)</td>
<td>Low WTFC/FTWC High Team Cohesion</td>
<td>Participants are better able to capitalize on SHIP when they had more <strong>resources</strong> prior to intervention implementation</td>
</tr>
<tr>
<td><strong>Safety</strong> (Motivation and Participation)</td>
<td>Low WTFC High Team Cohesion</td>
<td></td>
</tr>
</tbody>
</table>
Moderating Effect of WTFC

*Outcome:* Diastolic Blood Pressure
(similar pattern for FTWC)

**Low Work-to-Family Conflict**

- **Baseline:**
  - Control: 76
  - SHIP: 77

- **6 Months:**
  - Control: 76
  - SHIP: 75

**High Work-to-Family Conflict**

- **Baseline:**
  - Control: 80
  - SHIP: 79

- **6 Months:**
  - Control: 79
  - SHIP: 77
Moderating Effect of Team Cohesion

*Outcome*: Diastolic Blood Pressure

**High Team Cohesion**
- **Baseline**: 74
- **6 Months**: 78

**Low Team Cohesion**
- **Baseline**: 74
- **6 Months**: 76

**Control**
- Blue

**SHIP**
- Red
Moderating Effect of WTFC

Outcome: Safety Participation (similar pattern for Safety Motivation)

Low Work-to-Family Conflict

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>3.50</td>
<td>3.60</td>
</tr>
<tr>
<td>SHIP</td>
<td>3.55</td>
<td>3.75</td>
</tr>
</tbody>
</table>

High Work-to-Family Conflict

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>3.70</td>
<td>3.75</td>
</tr>
<tr>
<td>SHIP</td>
<td>3.75</td>
<td>3.80</td>
</tr>
</tbody>
</table>
Moderating Effect of Team Cohesion

**Outcome**: Safety Participation

**High Team Cohesion**
- Baseline: 3.00
- 12 Months: 3.75

**Low Team Cohesion**
- Baseline: 3.50
- 12 Months: 3.50

Control | SHIP
Discussion

• The SHIP intervention that addressed the work environment had significant effects on diastolic blood pressure at both the 6 and 12 month follow-ups

• Baseline resources allow individuals to capitalize on SHIP, leading to improved health and safety outcomes
  – High team cohesion
  – Low WTFC and FTWC

• Future directions:
  – Examination of alternative mediators such as health behaviors
  – Exploration of intervention uptake data
Thank You!

Questions?
Please contact Dr. Leslie Hammer...hammerl@pdx.edu
Measures

- **Paper Survey**
  - FSSB-Short Form (4 items; Hammer et al., 2013)
  - Team Effectiveness (WFD Consulting, 2001)
  - Work-Life Effectiveness (WFD Consulting, 2001)
  - Team Cohesion (6 items; Chin et al., 1999)
  - Work-to-Family Conflict (5 items; Netemeyer et al., 1996)
  - Family-to-Work Conflict (5 items; Netemeyer et al., 1996)
  - Group Level Safety Climate (6 items; Zohar & Luria, 2005)
  - Safety Motivation to Participate (6 items, Neal et al., 2000)
  - Safety Participation (3 items, Neal et al., 2000)

- **Diastolic and Systolic Blood Pressure**
  - Omron automatic blood pressure monitor (arm cuff)
  - Measurements taken after a resting period of 5 minutes
  - Average of 3 consecutive measurements, with one minute wait between readings
Scale Reliabilities

• Team Cohesion  
  \( \alpha = 0.92-0.93 \)

• Work-to-Family Conflict  
  \( \alpha = 0.92-0.94 \)

• Family-to-Work Conflict  
  \( \alpha = 0.89-0.90 \)

• Family Supportive Supervisor Behaviors  
  \( \alpha = 0.90-0.91 \)

• Team Effectiveness Process  
  \( \alpha = 0.87 \)

• Work-Life Effectiveness Indicators  
  \( \alpha = 0.73-0.75 \)

• Group Level Safety Climate  
  \( \alpha = 0.82-0.89 \)

• Safety Motivation to Participate  
  \( \alpha = 0.85-0.86 \)

• Safety Participation  
  \( \alpha = 0.86-0.91 \)