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INTRODUCTION

Firefighting is a high-risk occupation with activities that frequently expose individuals to hazardous conditions, increasing the risk for injuries often with subsequent decreased quality of life. Specifically, a firefighter is injured every eight minutes. The high rate of injury negatively impacts fire departments with a large sum of compensation claims; \$5,168-34,000 per claim with a total of \$2.8-\$7.8 billion annually, which does not account for shift coverage costs. Patient-reported outcomes are a commonly used method to evaluate subjective health information and may be used by fire departments to identify the health status of firefighters and provide insight to promote their health. Our study is a novel analysis of firefighters self-reported health to potentially identify deficiencies and opportunities for health improvement.

OBJECTIVES

Our goal was to identify health statuses of firefighters at a local fire department through use of seven different PRO measures

METHODS

Firefighters (n=35) were evaluated using seven different self-reported health surveys to assess various physical capabilities and quality of life, adapted to online formats using Qualtrics online survey software. The questionnaires included were the Foot and Ankle Ability Measure (FAAM), Disablement in the Physically Active Scale (DPA), Nirschl Phase Rating Scale, Oswestry Low Back Disability Index (ODI), Patient-Rated Tennis Elbow Evaluation (PRTEE), QuickDASH outcome measure, and the RAND-36 measure of health-related quality of life (SF-36). The questionnaires were administered once to provide a snapshot of a suburban Oklahoma fire department.

RESULTS

Using the DPA, 14 of the 35 firefighters answered “slight, moderate, or severe” for the pain and motion variables. The overall score found for the DPA was 12.63 with a standard deviation of 11.51. Only two of the firefighters indicated no stiffness or soreness after activity on the Nirschl Phase Rating Scale. The firefighters mean rating for “energy/fatigue” via the SF-36 was 54.14 out of 100. For the PRTEE, the total score for the left arm was 6.77 with a standard deviation of 13.91, and the total score for the right arm was 6.80 with a standard deviation of 11.70. The frequency of minimal disability (0-20% disability) was 91.4% (32/35 firefighters) via the ODI, and the other 8.6% (3/35 firefighters) answered as having moderate disability (21-40% disability). The perceived function percentage reported by the firefighters on the FAAM had a mean of 96.03 with a standard deviation of 14.74. The QuickDASH total score for the firefighters was 15.06 with a standard deviation of 5.04.

CONCLUSION

Firefighters generally had pain, impaired motion, and soreness as frequently reported symptoms, indicating areas in which interventions may be helpful. Incorporation of periodic health surveys into firefighter schedules can highlight present health issues, as well as intervention effectiveness by means of subjective health status reporting. By combining the health surveys with aerobic and core strength exercises, fire departments may be able to monitor and improve firefighter health.

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Patient-Reported Outcome Measure	Results
Disablement in the Physically Active	Overall Score: 12.63 (Possible: 64), Standard Deviation: 11.51 Frequency of scores 2, 3, and 4 for pain and motion: 14/35 responses, 40%
Patient-Rated Tennis Elbow Evaluation	Left Arm Total Score: 6.77 (Possible: 100), Standard Deviation: 13.91 Right Arm Total Score: 6.80 (Possible: 100), Standard Deviation: 11.70
Nirschl Phase Rating Scale	Frequency of ‘No stiffness or soreness after activity’: 2 responses, 5.7%
Oswestry Disability Index	Mean: 3.97 (Possible: 50), Standard Deviation: 3.82 Frequency of score ‘0-20%: Minimal Disability’: 32/35 responses, 91.4% Frequency of score ‘21-40%: Moderate Disability’: 3/35 responses, 8.6%
Foot and Ankle Ability Measure	Perceived Function Percentage Mean: 96.03 (Possible: 100), Standard Deviation: 14.74
QuickDASH	Total Score: 15.06 (Possible: 55), Standard Deviation: 5.04
RAND-36	Energy/Fatigue Mean: 54.14 (Possible: 100), Standard Deviation: 17.93