



# Modeling the relationship between occupational stressors, psychosocial/physical symptoms and injuries in the construction industry

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## ABSTRACT

Injury statistics place the construction industry as a high-risk industry, making it necessary to investigate factors that influence accidents to be able to protect workers. Research was carried out to investigate the relationship existing among occupational stressors, psychological/physical symptoms and accident/injury and work days lost outcomes as experienced by manual workers engaged in a range of industrial construction occupations. Some of the occupational stressors significantly associated with self-reported and OSHA logged injuries were training, job certainty and safety climate of the company. The OSHA logged injuries were associated with the occurrence of headaches and feelings of tenseness on the job. These results imply that non-physical stressors should be included as a potential input associated with injuries in injury risk models for construction workers.

**Relevance to industry:** Traditional approaches to workers' safety in the construction industry have focused on the physical and biomechanical aspects of work by improving tools, equipment and task completion methods. The impact of psychosocial factors, specifically stress as experienced by construction workers, is an area of growing research, which is yielding results that suggest overall work safety on the construction site should take into account psychosocial aspects of work.

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## 1. Introduction

According to the Bureau of Labor Statistics (BLS), in 2007 the construction industry ranked highest among all industries in the United States for total fatalities with 1178 fatalities. The fatality rate for the construction industry per 100,000 workers was 10.3, the fourth highest after mining, agriculture and transportation industries (Bureau of Labor Statistics (BLS), 2008). Reports from the National Institute for Occupational Health and Safety (NIOSH) also show that the construction industry consistently ranked highest from the period of 1976–2001 for number of non-fatal injuries (National Institute for Occupational Safety and Health, 2004). Traditionally, studies on health and safety in the construction industry propose interventions to construction workers' injuries from a physical standpoint, (e.g., making modifications to the biomechanical demands on the job through redesign of tools and equipment) (Hess et al., 2004; De Jong et al., 2003; Bernold et al., 2001). However, there is a growing amount of research that is focused on investigating and establishing a link between psychological factors/occupational stress and workers' injuries in

occupations like farming (Glasscock et al., 2006), oil and gas offshore work (Cooper and Sutherland, 1987) and construction (Goldenhar et al., 2003; Sobeih et al., 2006).

The aim of this study was to investigate the level of significance of the relationship existing among occupational stressors and in addition to injury outcomes, psychological/physical symptoms and lost work days as experienced by industrial construction manual workers engaged in a range of construction occupations. Responses about perceived levels of occupational physical and psychological stressors and psychological/physical symptoms were collected from workers by administering a questionnaire used in previous research (Goldenhar et al., 2003). Injuries and resulting lost work days were obtained through recorded OSHA accident reports along with employee self-reports. Correlation and regression analyses were carried out to determine the relationships among the following sets of data acquired:

- (1) Occupational stressors and (a) the duration of routinely doing a particular construction task, (b) physical/psychological symptoms exhibited by workers, (c) all injury outcomes, and (d) lost work days
- (2) The duration of routinely doing a particular construction task and (a) physical/psychological symptoms, and (b) injury outcomes

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