



Occupational health management system: A study of expatriate construction professionals

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ABSTRACT

Due to its direct impact on the safety and function of organizations, occupational health has been a concern of the construction industry for many years. The inherent complexity of occupational health management presents challenges that make a systems approach essential. From a systems perspective, health is conceptualized as an emergent property of a system in which processes operating at the individual and organizational level are inextricably connected. Based on the fundamental behavior-to-performance-to-outcome (B-P-O) theory of industrial/organizational psychology, this study presents the development of an I-CB-HP-O (Input-Coping Behaviors-Health Performance-Outcomes) health management systems model spanning individual and organizational boundaries. The model is based on a survey of Hong Kong expatriate construction professionals working in Mainland China. Such professionals tend to be under considerable stress due not only to an adverse work environment with dynamic tasks, but also the need to confront the cross-cultural issues arising from expatriation. A questionnaire was designed based on 6 focus groups involving 44 participants, and followed by a pilot study. Of the 500 questionnaires distributed in the main study, 137 valid returns were received, giving a response rate of 27.4%. The data were analyzed using statistical techniques such as factor analysis, reliability testing, Pearson correlation analysis, multiple regression modeling, and structural equation modeling. Theories of coping behaviors and health performance tend to focus on the isolated causal effects of single factors and/or posit the model at single, individual level; while industrial practices on health management tend to focus on organizational policy and training. By developing the I-CB-HP-O health management system, incorporating individual, interpersonal, and organizational perspectives, this study bridges the gap between theory and practice while providing empirical support for a systems view of health management.

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1. Introduction

Occupational health management has long been a concern in the construction industry. However, the majority of studies in this area focus on the physical health of construction workers. According to a study conducted by the Chartered Institute of Building (CIOB, 2006), nearly 70% of construction professionals suffer from stress, anxiety, or depression as a direct result of work. Factors such as complexity, tight timeframes, complicated work relationships, poor working conditions, and so on mean that they face a work environment full of stressors (Bowen et al., 2014a,b; Haynes and Love, 2004). Stress is closely related to physical health (Spielberger, 2010). Studies show that the psychological state of construction professionals has a direct impact on their physical health, in terms of symptoms

such as migraine, gastrointestinal disorders, skin problems, and sleep disorders (Leung et al., 2010, 2014). This translates into the loss of work days as well as high staff turnover rates. For example, in the UK, an estimated 10.5 million working days are lost per year to work-related physical and psychological illnesses (Health and Safety Executive, 2006). More importantly, poor occupational health is one of the most significant factors in the high rate of injury in the construction sector (Leung et al., 2012, 2014). A comprehensive occupational health management system is therefore essential to enhance occupational safety and organizational functioning for the benefit of construction professionals.

Much of the research into occupational health investigates the isolated causal effects of single factors and proposes individual-level models. The solutions identified are therefore limited to coping behaviors (e.g., problem-focused coping), their impact on other individual actions (e.g., addiction), how other individual factors affect the adoption of coping behaviors (e.g., cultural values), and so on (see for example Chan et al., 2014; Grant and

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Langan-Fox, 2006). These models appear to be simple and to imply that health management is an individualized process that is independent of any interpersonal, organizational, or industrial components. In practice, however, construction stakeholders tend to focus on enhancing occupational health at an *organizational* level through risk control, technical training, education, and so on. Such initiatives, in turn, ignore the importance of individual and interpersonal factors. In fact, research shows that the concept of health management is much more complex (see for example Leischow et al., 2008; Lingard and Rowlinson, 2005). This leads to questions such as: What actually constitutes occupational health? What is the relationship between organizational support, interpersonal relationships, individual motivations and behaviors, health performance, and task and organizational outcomes? and how should these issues inform construction organizations' health management strategies?

The challenge presented by the inherent complexity of health management in an occupational setting means that it is essential to adopt a systems approach. From a systems perspective, health can be conceptualized as an emergent property of a system within which processes operating at the individual and organizational level are inextricably connected. Therefore, the emphasis shifts from isolating causal effects to understanding the holistic functioning of the system. The development of such knowledge will facilitate improvements in health management. To do so requires two things to be managed strategically. The first is individuals' cognitions about the influence of their coping behaviors on their health as well as their task and organizational outcomes; this is captured in the behavior-to-performance-to-outcomes (B-P-O) model (see for example Leung et al., 2006, 2014; Liu and Walker, 1998). The second is the influence of multilevel factors on the B-P-O process. Based on the fundamental B-P-O theory as developed in industrial/organizational psychology, this study therefore aims to develop an I-CB-HP-O (Input-Coping Behaviors-Health Performance-Outcomes) health management system model that would include both individual and organizational variables.

2. Toward a systems framework

This study adopts the B-P-O model, which is a well-established psychological framework for examining how individuals behave, evaluate their performance, and perceive outcomes (see for example Leung et al., 2006, 2014; Liu and Walker, 1998). It uses this to develop ways of promoting task and organizational outcomes by examining coping behaviors and health performance. To investigate how the latter are influenced at the individual level, and simultaneously influence the multilevel, cross-boundary input and output elements in a health management system, a cross-boundary framework is needed. Such a framework enables the discrepancy between individual behaviors and performance to be modeled. Outputs, whether they are task outcomes (individual) or intention to stay (organizational), must be based on theoretical constructs. These constructs include both individual cognitions (i.e., expectancies) and the organizational stimuli leading to different types of coping behaviors, both of which aggregate to form health performance. The discrepancy between expectancies and performance provides the basis for any variation in outcomes. Hence, a cycle can be characterized which moves from interpreting the organizational environment (e.g., gauging levels of support and interpersonal relationships) to formulating expectancies (e.g., from behavior to performance and then to outcomes), then enacting coping behaviors (e.g., problem- and emotion-focused coping) and identifying health performance (physical and psychological). The cycle produces outcomes (task and organizational) and taken as a whole, presents a theoretically rational framework which spans the individual/organizational boundary.

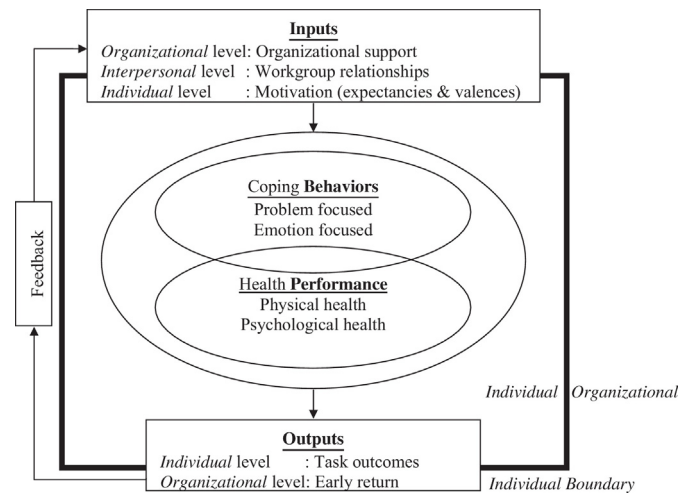


Fig. 1. A conceptual health management system.

Based on the above analysis, a conceptual (I-CB-HP-O) health management system model is proposed (see Fig. 1), a detailed explanation of which follows.

3. Coping behaviors (CB)

Behaviors within such a system are enacted by individuals and can be defined as an ongoing act or process (Naylor et al., 1980). Such an act, which in this context means coping, can be considered as the efforts made by an individual to manage challenges at work and/or the resulting emotions (Lazarus and Folkman, 1984). Coping behaviors generally have two dimensions; problem- and emotion-focused coping. The former refers to the cognitive behaviors adopted by individuals to maintain a state of wellbeing through modifying their own problem-maintaining behaviors or environmental conditions. It includes methods such as planful problem-solving, positive reappraisal, confrontive coping, and instrumental support seeking (Djebarni, 1996; Greenberg, 2001). Problem-focused coping behaviors focus on one's thought processes and emphasize rationality (Naylor et al., 1980).

Planful problem solving refers to self-initiated and overt attempts to deal directly with a problem and its effects (Chang et al., 2006). For instance, construction professionals encountering a quantitative work overload, such as too many tasks or deadlines within a given timeframe, can actively plan their time, work, and/or resource allocation so as to prevent physical and/or emotional exhaustion. This approach is effective in enhancing their project performance (Leung et al., 2014).

Positive reappraisal describes efforts to create positive meaning from work-related challenges through focusing on the opportunities they afford for personal growth (Folkman et al., 1986b). Individuals adopting this strategy tend to reappraise situations or problems arising at work so as to perceive them as ways of strengthening their personal and/or career development. Positive reappraisal is effective in helping individuals to address work-related health problems, particularly psychological ones (Rivera, 2008).

Confrontive coping refers to aggressive efforts to overcome a challenging situation and encompasses a certain degree of hostility and risk taking (Chapman and Orb, 2001). Construction professionals adopting this strategy (for example, where their project has been allocated inadequate resources) may try to get those responsible for the problem within their organization to

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