

## Occupational Stress: Towards an Integrated Model

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**Abstract:** Occupational stress impacts employees' physical and mental health, as well as productivity and performance. This literature review provides an overview of occupational stress, highlighting two major models. The relationship between supervisory behavior and occupational stress is explored.

The Occupational Health and Safety Act of 1970 was passed in order to protect and promote employee health. The OSHA Act is a clear indication of the importance placed on providing a healthy work environment and conditions for all employees. Scholars have also taken an interest in understanding the cause, relationship, and impact of occupational stress in over two thousand articles published on this topic between 1990 and 1999 (Hart & Cooper, 2001). Although most employees experience some level of stress at work, chronic exposure to occupational stress has been linked to negative health effects, both physical and mental, such as hypertension, cardiovascular illnesses, and decreased cognitive functioning (Andre-Peterson, Engstrom, Hedblad, Janzon, & Rosvall, 2007; Bridger, Brasher, Dew, Sparshott, & Kilminster, 2010; Theorell & Karasek, 1996). The OSHA Act of 1970 has made occupational stress an area of concern, and employers must comply to provide and promote a healthy environment.

The Bureau of Labor Statistics reported 44% of occupational stress incidents resulted in 31 or more days away from work in 1999. Their study also found that white-collar workers and women reported higher incidents of occupational stress than men and blue-collar workers. Occupational stress is detrimental both to employees' health and to organizations. It is also costly to organizations, causing a loss of productivity due to days missed, intentions to turnover (i.e., the idea of the employee to leave the current organization, or resign from their current position), decreased job satisfaction, and performance (Motowidlo, Manning, & Packard, 1998; Yahaya, Yahaya, Tamyas, Ismail, & Jaalam, 2010). The purpose of this paper is to review the literature of occupational stress by first discussing three models of occupational stress, social support and occupational stress, and an integrated occupational stress model to guide research.

### Models of Occupational Stress

Selye (1936) defined stress as a non-specific response to demands. However, since his broad-proposed definition of stress, there has been a lack of consensus in the occupational stress literature for a definition of stress. Stressors are work-related demands or events which lead to strain; strain is the physical or mental outcome of stress (Beehr, 1995). Beehr (1995) defined occupational stress as occurring when work characteristics (stressors) lead to poor physical or mental health (strain). In the occupational stress literature, stress has been defined and conceptualized depending on the perspective (e.g., individual, interaction, or environment) and, therefore, is a model used to study this construct (Cox & Griffiths, 2005). Siegrist's (1996) model of effort-reward imbalance is based on social reciprocity of the work contract, which posits that the level of effort exerted should be congruent or in balance with the level of rewards received. The effort-reward imbalance model characterizes stress as a transaction between the individual and the environment; a contractual reciprocity is expected based on an exchange of adequate rewards (money, esteem, or career mobility/job security) based on the effort (task) that

is required to complete the task (Siegrist, 2008). If there is an imbalance between the amount of effort required and the reward received in exchange for the effort, then emotional distress will be experienced. Two dimensions of effort exist: extrinsic (e.g., external pressures and demands), and intrinsic (e.g., individual's motivation). Reward is characterized by three factors: money, esteem, and career (mobility and job security). The effort-reward imbalance also has an element of fairness that is manifested, contingent on the effort exerted and the reward received. The action of not providing adequate rewards in exchange for effort may be perceived as unfairness; this perception of unfairness may impact an individual's self-esteem (Siegrist & Marmot, 2004).

Research in using the effort-reward imbalance model to understand the impact of occupational stress on employees has found detrimental health outcomes. Additionally, high demands and low control adds to the state of emotional distress which has been linked to poor physical health, such as increased body mass index and cholesterol concentration (Kivimäki et al., 2002), higher risk of coronary heart disease (Kivimaki et al., 2005), depression, cardiovascular disease mortality, and incident type 2 diabetes (Siegrist, 2004). Organizations need to develop policies that will lessen the incidence of stress and alleviate the impact once it occurs. Siegrist (2005) proposed stress management training for employees and leadership training for supervisors, focusing on how to provide esteem and recognition to employees.

The job demand-control model developed by Karasek (1979) conceptualizes stress as the interaction between the demands of the job and the control of the individual. Psychological demands are characterized as the demands that are placed on an individual to complete a task. On the other hand, control or decision latitude is the degree in which the individual can impact the load or has the skill set to facilitate completing the task. This model states that high job demands and low control will result in job strain and therefore, lead to negative health outcomes.

The model can be further delineated to four levels of strain: high-strain jobs, active jobs, low-strain jobs, and passive jobs (Karasek & Theorell, 1990). High-strain jobs are characterized by high job demands and low control (e.g., nurse's aide, health technician). On the other side of the spectrum are low-strain jobs which are described as having low job demands and high control (e.g., repairman and architect). Active jobs are referred to jobs which have high demands and control (e.g., surgeons and electrical engineer). On the other side of coin are passive jobs which have low demands and low control (e.g., janitor and billing clerk; Karasek & Theorell, 1990). Personality traits have also been studied in conjunction with this model—in particular, type A behavior and locus of control. Karasek and Theorell (1990) explored the relationship of type A behaviors, which are characterized as having a need for control with their model. They found that type A individuals' need for control makes the experience of having low control more exacerbating; they are also at higher risk of heart disease when exposed to high strain.

The job demand-control model is one of the most widely used models to understand the impact of occupational stress on health. There have been several studies conducted which have used this model to test the impact on a variety of health outcomes. Sun, Wang, Zhang, and Li (2007) conducted a study with industrial employees and found a relationship between high levels of job strain (high demands-low control) and higher allostatic load, body mass index, and systolic blood pressure. Additionally, Agardh et al. (2003) found that high job strain is associated with type two diabetes. High levels of job strain have also been linked to increased risk for major depression and, for women this relationship, was moderated by the level of social support they received (Blackmore et al., 2007). Also, individuals exposed to chronic high strain, which is characterized as experiencing strain in at least two out of the three time periods in a longitudinal study, were associated with increased risk of recurrent coronary heart disease

(Aboa-eboule et al., 2007). Job strain has also been associated with increased risk of hypertension and increased left ventricle (Schnall et al., 1990).

### **Social Support and Occupational Stress**

Just as there has been a significant interest in understanding occupational stress, social support has also gained momentum in the stress literature. In the last 40 years, studies have explored the relationship of social support and occupational stress. The study of this relationship was also further developed to understand how social support can moderate or buffer the perception of stress and, therefore, its impact on health. Social support has been defined as the level and quality of social interactions at work (Karasek & Theorell, 1990; Viswesvaran, Sanchez, & Fisher, 1999). Instrumental, emotional, esteem, and informational social support which have been identified in the literature (House, 1981). Instrumental support refers to providing resources, while information support refers to providing information. Emotional support focuses on demonstrating empathy, while esteem support refers to providing feedback essential to self-evaluation (Rooney & Gottlieb, 2007).

Johnson and Hall (1988) used the demand-control model to guide their study of occupational stress and included the social support construct to test whether this new construct moderated the relationship between strain and health outcomes. The authors found that employees who reported low levels of social support also reported higher levels of strain. Johnson, Hall, and Theorell (1989) explored the relationship with strain and social support further, testing whether low social support would impact the physiological outcome of strain. The authors found that employees who reported high levels of strain and low levels of social support were at higher risk of cardiovascular disease morbidity. Given these findings, the demand-control model was expanded to include a third dimension of social support, which aligns with the conceptualization of the social process of work life (Karasek & Theorell, 1990). Social support includes interactions among supervisors and co-workers to ease the high demands.

Social support is an important dimension to add to the job-demand control model. Social support has added value to the framework of this model and to the way that we view and study occupational stress. It is important to understand not only the work characteristics (stressors) that can lead to strain but also the coping mechanisms used by employees, and their gender differences. This further understanding can help in the development of interventions, which can be put in place in order to alleviate the impact of strain. For example, McGowan, Gardner, and Fletcher (2006) found that employees used different coping mechanisms, depending upon whether they perceived the demands as a threat or a challenge (task-focused vs. emotional-focused). The authors found supportive supervisors included their employees in the decision-making process; their employees perceived the additional demands as a challenge and, therefore, were better able to cope with the new demands.

Supervisors can have a direct impact on their employees' mental and physical health due to the control they have on the work environment, job duties, and deadlines (Leiter, Gascon, & Martinez-Jarreta, 2010; Leiter & Harvie, 1998). In fact, supervisors are able to shape employees' perception of control of their demands and, therefore, impact how they respond to strain (Wong & Lin, 2007). In addition, supervisors play an important role in shaping employees' perceptions of their working environment and their sense of value to the organization. These perceptions can impact organizational outcomes such as job satisfaction, organizational commitment, job performance, and intentions to turnover. Employees who perceive their supervisors as supportive report higher levels of job satisfaction, organizational commitment, and job

performance, and are able to cope with stressful situations (Harris, Harris, & Harvey, 2008; Rooney, Gottlieb, & Newby-Clark, 2009).

### **Integrated Occupational Stress Model**

It is important for organizations to understand the causes and risks of occupational stress. The work environment is changing. Employees' work demands have increased, staffing has decreased, the amount of hours has increased, and the barriers between work and home life are less clearly defined due to the advances in technology. These ever-present pressures heighten the importance to study and understand occupational stress. Additionally, occupational stress can cost organizations about \$150 billion per year, due to loss of productivity, absences, and other health-related costs (Cartwright & Cooper, 1997). As detailed above, occupational stress impacts employees' physical and mental health, as well as their job performance, job satisfaction, and intentions to turnover (Jex, 1998; Shirom, Toker, Berliner, & Shapira, 2008).

Literature has shifted towards a holistic approach of studying and understanding the cause and impact of occupational stress (Dai, Collins, Yu, & Fu, 2008; Peter, Siegrist, Hallqvist, Reuterwall, & Theorell, 2002). The job demand-control-support model and the effort-reward imbalance model have been used more frequently in the literature to explore the relationship between occupational stress and both health and organizational related outcomes (Choi et al., 2008; Probst, 2010). The integration of the models will help capture a more comprehensive view and study of occupation stress by exploring the dimensions of support, control, and intrinsic factors. Ostry, Kelly, Demers, Mustard and Hertzman (2003) found that the combined models explained 11.7% and 41.1% more variance than using the models separately. Dai and colleagues (2008) conducted a study combining job stress models in order to predict burnout. They found that the effort-reward imbalance model explained emotional exhaustion and depersonalization, while social support was a predictor of personal accomplishment; both models demonstrated significant power in predicting three dimensions of burnout. Adding the effort-reward imbalance to their study provided additional information on coping mechanisms of participants. Additional studies have also demonstrated the increased predictive power by combining both the job demand-control and the effort-reward imbalance models (Dai et al., 2008; Fillion et al., 2007).

Karasek (1990) found that increased control is indicative of better health and organizational outcomes. Specifically, the authors found that employees who experienced higher levels of control also decreased incidence of coronary heart disease, psychological strain, absenteeism, and increased job satisfaction (Karasek & Theorell, 1990). Individual, who experience high levels of strain and low levels of social support have been found to also be at higher risk of cardiovascular disease (Jonson & Hall, 1988). It is essential that supervisors shape employees' perception of control by including them in the decision making process, adjusting their workloads, and providing additional resources. Finally, increased control reduces illnesses, such as coronary heart disease, among full-time employees (Karasek, 1990).

As noted above, employees' perception of control has mitigated the relationship between occupational stress and strain. Social support has also played a role in this relationship; supervisors who were trained on how to provide esteem and recognition had employees who had reduced levels of cortisol secretion (Theorell, 2001). Additionally, employees' motivation and coping mechanisms is another factor that should be measured in order to have a more holistic view of occupational stress and its outcomes. Mark and Smith (2008) proposed a comprehensive model of occupational stress. The authors' initial findings support the important role and relationship among demands, control, and social support, especially from supervisors. Similarly, Spector (1998, 2002) proposed an occupational stress model that also highlights the pivotal role

of control and support, which stresses understanding the coping mechanisms of individuals, so that the organization can better help them alleviate occupational stress.

As the work environment and the way that we function at work evolve, we need to look towards model integration to understand the process of occupational stress. The job demand-control model focuses on the job characteristics of the organization, which are extrinsic demands and extrinsic control. The job demand-control-support model adds a third dimension of support. Karasek and Theorell (1990) propose in their model that having more decision-making latitude will reduce occupational stress and increase learning. On the other hand, low control will result in increased occupational stress (high strain). Increased psychological demands combined with increased control increases not only occupational stress but also learning—the domain referred to as active job. At the core of the effort-reward imbalance is the notion of reciprocity. Adequate rewards are received in exchange for effort that is required. Unlike the job demand-control model, this model includes both extrinsic and intrinsic factors, aiming to understand the effect of occupational stress on the employee (Benavides, Benach, & Muntaner, 2002).

Van der Doef and Maes (1999) conducted a review of the job demand-control model literature from the last 20 years. The authors found substantial support for the demand-control model and its impact on well-being. Specifically, high-strain jobs were associated with having a negative impact on both physical and mental health. About half of the studies reviewed found the demand-control-support model successful, indicating that social support affected the relationship of stress and strain. Social support mitigated the impact of stress when the support provided matched the stressor. This insight provides additional information for practitioners on how supervisors can more effectively support their employees.

The effort-reward imbalance model focuses on the social reciprocity between effort and rewards. When adequate rewards are not received in exchange, distress occurs and feelings of injustice may also emerge (Siegrist, 2005). This model provides insight on how individuals perceive the imbalance between demands and rewards and their coping mechanisms. Both the job demand-control-support model and the effort-reward imbalance model have been linked to exploring the relationship between occupational stress and health outcomes. Now, however, both models need to be integrated to understand the role of social support. Kelloway and Day (2005) reviewed the occupational stress literature and suggest an integrated model that tests specific supportive supervisor behaviors. Their review suggests that transformational leadership behaviors need to be furthered studied since transformational leadership has a positive effect on employees' well-being, specifically, psychological well-being. Additionally, transformational leadership was also linked to increased trust and self-efficacy. In the effort-reward model, if injustice is perceived, self-efficacy decreases. Directing research efforts toward understanding transformational leadership behaviors may yield new insights in the study of occupational stress.

Literature reviewed highlights the relationship between social support and strain (Searle, Bright & Bochner, 2001). Since supervisors play an important role in the work life of their employees, it is important to identify both the supportive and unsupportive behaviors in which supervisors engage that can lead to or decrease occupational stress (Rooney et al., 2007). Supervisory support continually emerged as an important factor to the strain relationship (Andre-Petersson et al., 2006; Harris et al., 2008). Control or perceived control was also found to be an important factor in mitigating the relationship between stressors and strain. Organizations need to provide comprehensive development programs for supervisors, so that they can understand how their actions or lack of actions impact staff's health-related stress (Andre-Petersson et al., 2007). The work environment has also changed from a strict hierarchical work structure to one

in which employees both seek more autonomy and value supervisors who trust them and provide the same. A comprehensive and holistic model can explore the relationship of control and supervisory social support that leads to a better understanding of how to work towards reducing occupational stress.

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