



**Mental Capital and Wellbeing:
Making the most of ourselves in the 21st century**

**State-of-Science Review: SR-C I
Current Sources of Workplace Stress and Wellbeing**

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Summary

Stress appears to be a problem for one in three workers worldwide, and the pace of change in the modern workplace suggests that stress will likely increase, not decrease, over time without targeted prevention efforts. This article reviews sources of work stress that influence worker wellbeing using studies in the peer-reviewed literature and information from international government reports. Models of work stress are reviewed and the scope of the problem is addressed, followed by a review of work content and context stressors. Many stressors identified 40 years ago remain important contributors to worker wellbeing today, while some new stressors have appeared as a function of changes in the economy (shift from manufacturing to service work) and new organisational philosophies and work systems (downsizing, lean production). Emergent stressors associated with flexible work arrangements are identified and discussed. For instance, technological developments (email, cell phones, and personal data assistants) allow connection to work 24 hours a day, seven days a week, further blurring the boundary between work and home life and increasing work-family conflict. New scientific advances are expected in the areas of stressor measurement, increased attention to contextual factors, international surveillance, and economic modelling of the costs of stress. Future research will need to devote special attention to the changing nature of work and the workforce in order to keep abreast of stressors that influence mental wellbeing.

1. Workplace stress: a threat to wellbeing

The experience of work offers many positive features beyond pay and benefits, such as opportunities for personal growth, self-esteem and social interaction which contribute to worker health and wellbeing. From a mental wellbeing point of view, having a job is certainly better than not having a job, and return to work following illness or disability is often health enhancing. On the other hand, when jobs are poorly designed or when the organisational context does not provide resources and support, worker wellbeing suffers.

This brief article reviews what is known about work stress and wellbeing, how work stressors are changing in the modern workplace, and what scientific advances might be expected over the next two decades. The definition of work stress, how stress influences mental wellbeing, and the scope of the work stress problem are discussed first, followed by a listing of work content and context factors which have been firmly linked to mental wellbeing outcomes. Next, emergent sources of work stress are discussed followed by a final section on anticipated scientific advances in the field.

2. Definition of work stress

Stress at work has been one of the fastest growing research topics over the past 30 years. Work stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker (NIOSH, 2002). Such responses include nervousness, irritability, anxiety, depression, hostility, burnout, low morale, job dissatisfaction and fatigue, as well as behavioural symptoms such as trouble with sleeping, absenteeism and personnel turnover.

Early research emphasised that perceptions of job conditions can play a larger role in the experience of stress than objective conditions, and later research indicated that certain work factors are negative for most workers in most cultures. Job stress is different from 'challenge' which energises us psychologically and physically and is an important ingredient of healthy work.

3. Scope of the problem

At the outset, it is useful to have a sense of the scope of the problem of work stress. On the American side, nationally representative, personal interview surveys of US households from 1989 through 2002 found that between 31% and 39% of workers reported that their job was 'always' or 'often' stressful (NIOSH, 2002). National surveys in Canada, Australia and the European Union report roughly similar percentages (Statistics Canada, 2002; Commonwealth of Australia, 2006; Houtman, 2005), indicating that stress seems to be a problem for over 30% of workers.

Work stress also is a costly problem, estimated at 20 billion euros for the EU (Bejean and Sultan-Taib, 2005), \$300 billion for the USA and \$16 billion for Canada (Tangri, 2003). However, pinning down the true cost is difficult and attempts to compare costs across countries must be made with caution and will require more work before reliable cost figures can be offered.

4. Models of stress and health

All work stress models propose some type of arousal activation and psychological and physiological imbalance at their core. Early models (e.g. French and Kahn, 1962) specified that objective work environment conditions give rise to appraisals which create affective, physiological or behavioural responses (symptoms) which, if sustained, lead to mental and physical health disorders. The model acknowledged the potential influence of personal characteristics, non-work factors, and protective factors like social support. A variation of the model targeted a lack of fit between the needs and abilities of the person and the supplies and demands of the environment (Kahn and Byosiere 1992).

The currently popular demand-control-support model (Karasek and Theorell, 1990) proposes that strain (stress) results when the psychological demands of the job are high, and worker control and social support are low. Lack of control creates a state of arousal that inhibits learning which, in turn, further increases arousal by lowering self-esteem.

Alternatively, the effort-reward imbalance model (Siegrist, 1996) focuses on reward rather than control and proposes that the lack of effort-reward reciprocity leads to increased autonomic arousal and associated mental and physical health outcomes. While both of these models have provided important insights into the relationships between work stress and health, each limits the range of important stressful job conditions, the former more so than the latter. Thus, a more comprehensive model is needed that includes attention to contextual factors (e.g. stage of career development, adequacy of communication) and newly identified factors (organisational justice, emotional labour).

Generic models such as that offered by French and Kahn (1962) are the most inclusive and provide an over-arching conceptual framework within which embedded models such as demand-control-support and effort-reward imbalance could be tested. Although these generic models incorporate a large list of stressors, symptoms and disorders, they do not highlight interactions among work content and context factors as do the demand-control-support and effort-reward models.

5. Current sources of work stress

Psychosocial factors respect no occupational boundaries so the potential for exposure is ubiquitous. In this section, work stressors are grouped into two over-arching categories, work content and work context, acknowledging that, while work is typically organised around jobs/tasks (content), it is embedded within an organisational structure which provides the context for work performance. Table I (adapted from Leka,

Griffiths, and Cox, 2003) lists work stressors commonly identified in the research literature as influencing worker wellbeing.

As Table 1 shows, jobs that underutilise worker skills and abilities, involve high workload and intense time pressure, long hours, and low worker control are examples of content stressors. Role relationships, career development, interpersonal relationships, and organisational climate are examples of contextual factors that influence mental wellbeing. Contextual factors play a dual role: they have direct effects on wellbeing, but also can moderate the work content-health relationship.

Work content	Work context
<p>Job content</p> <ul style="list-style-type: none"> • boring, monotonous tasks • lack of variety in the job • underutilisation of skills and abilities • unpleasant, aversive tasks 	<p>Role in the organisation</p> <ul style="list-style-type: none"> • ambiguity about one’s role • conflicting roles in the job • responsibility for people • boundary roles (customer contact)
<p>Workload and workplace</p> <ul style="list-style-type: none"> • too much or too little work to do • understaffing • time/deadline pressures • inadequate tools or equipment • machine-pacing of work 	<p>Career development</p> <ul style="list-style-type: none"> • job insecurity • lack of promotion potential • under- or over-promotion • work of ‘low social value’ • unfair performance evaluation
<p>Work hours/schedule</p> <ul style="list-style-type: none"> • inflexible work hours • long hours • mandatory overtime • unpredictable hours • rotating shift schedules 	<p>Interpersonal relationships</p> <ul style="list-style-type: none"> • lack of support from supervisor • lack of support from co-workers • bullying, harassment, violence • isolated or solitary work • inadequate conflict resolution
<p>Participation and control</p> <ul style="list-style-type: none"> • lack of participation in decision-making • lack of control over work methods, workplace, work schedule 	<p>Organisational climate/culture</p> <ul style="list-style-type: none"> • inadequate communication • poor leadership • discrimination (age, race, sex) • violence, harassment, bullying

Table 1. Sources of work stress.

6. Moderating factors

Individual characteristics and non-work factors can influence or modify worker perceptions of the job and stress-health relationships. For instance, research on personality factors has shown small to moderate effects on worker perceptions of stress and the stress-health relationship. Likewise, there is evidence that negative affectivity (a disposition to experience aversive emotional states) acts to colour workers’ perceptions in a slightly more negative way. Those with a generalised belief that events in life are controlled by their actions (internal locus of control) tend to report better mental health than those with an external locus of control.

How workers cope with stress also can influence wellbeing, although the coping strategies that alleviate stress in one situation (family) may not alleviate stress in other situations (work). Finally, workers do not leave their personal problems behind when they go to work, nor do they forget job-related problems on returning home. Interpersonal, marital, financial and child-rearing factors can exacerbate stressors on the job and vice versa. For example, a worker whose child or elderly parent is ill may arrive at work fatigued due to lack of sleep, be less able to cope with difficult customers and feel increased stress. Likewise, a worker facing tight deadlines at work arrives home exhausted such that even minor domestic conflicts seem very stressful. These spillover effects are significant because, since the 1970s, there has been a steady rise in the proportion of households where both spouses work, from 36% in 1970 to 80% in 2006, and the presence of dual earners has increased further the level of work-family conflict.

7. Emergent sources of stress

Rapid changes in the fabric of work and the composition of the workforce have potential to increase stress in the modern workplace (Cooper, 2006). New work systems, downsizing and restructuring, flexible work arrangements and increasing diversity are prime examples.

- **New work systems.** Total quality management (TQM), business process reengineering, lean production and just-in-time inventories are examples of 'high performance' work systems introduced into the workplace to improve productivity and lower costs. On the face of it, some aspects of these systems could improve worker wellbeing if they result in substantive increases in worker involvement, empowerment, and learning opportunities. But there is evidence that other aspects (increased workload, insufficient staff and resources, low job security) may counterbalance any positive effects (NIOSH, 2002).
- **Downsizing/restructuring.** In many countries, downsizing and reorganisation has increased significantly over the past two decades. In the US, downsizing has continued almost unabated since the 1980s and over 30,000 jobs were lost monthly during the 1990s. The negative effects of job loss on worker mental health are well known, but even workers who retain their jobs after downsizing show health effects. Noer (1993) identified a 'survivor syndrome' characterised by feelings of fear, insecurity, frustration, anger, and sadness which persist up to five years.

In addition to increasing the workload of 'survivors' (fewer workers doing the same amount of work), downsizing has resulted in job insecurity becoming a salient stressor for more workers than ever before. Job insecurity is fast becoming an intrinsic feature of work and needs to occupy a more prominent place in work stress models.

- **Flexible work arrangements.** The modern workplace barely resembles its counterpart of 30 years ago, with its growing number of contingent, contract, temporary, part-time and teleworkers (Kompier, 2006). The number of contingent workers now comprises about 5% of the US workforce, with companies increasingly employing more contract, temporary, and part-time workers instead of hiring permanent, full-time staff. The number of teleworkers in the United States alone rose from 11 million in 2000 to 28 million in 2005.

Some of these work arrangements (e.g. flexibility in starting and quitting times) offer potential to lower work stress and improve job satisfaction. Others, like contingent work, may have the opposite effects due to higher job insecurity, while still others (telework) seem to have mixed effects. For instance, Saltzstein, Ting, and Saltzstein (2001) found that working at home had a positive influence on job satisfaction but a negative influence on work-life balance. Such mixed

effects also can be expected depending on age, sex, stage of career development, presence of children at home, dual-earner couples, and so on.

Flexible work arrangements also have increased the presence of virtual work teams. The spatial separation of team members eliminates opportunities for daily face-to-face social interactions and can reduce peer and supervisor support. Communication can be a source of stress in virtual teams owing to the absence of verbal and face-to-face cues and attendant misinterpretations. Videoconferencing might help improve social interactions, but many workers are uncomfortable with the technology and prefer not to use it.

Technological advances have allowed for increased productivity but also increased the connectedness of workers to the job. From fax machines and beepers to laptops, email, cell phones, and personal digital assistants, it is now possible to stay connected to the job 24 hours a day, seven days a week. This has increased workload but also has further blurred the boundary between work and home, hampering the stress recovery process and adding to already high work-family conflict.

- **Diversity.** As the modern workplace increasingly becomes more diverse, there is potential for increased stress due to minority status, discrimination, harassment/bullying, and perceived injustice. For instance, women are disproportionately represented in jobs with restricted benefits, and minority workers are more likely to be employed in temporary jobs than enjoy traditional work arrangements. Ethnic minorities report greater discrimination than whites, and those identifying discrimination report poorer mental health than their same-race counterparts who did not acknowledge being discriminated against.

When individuals believe they have been treated unfairly (organisational injustice), they mistrust their organisation and show lower commitment to their job. Lack of trust and commitment are contextual factors that influence not only worker perceptions of the job but also the work stress-health relationship. Organisational justice includes issues of fairness in decision outcomes (layoffs, promotions) and in how decisions are made (whether groups of employees are treated fairly). Of course, workers' concerns over organisational justice are not specific to minority groups but apply to all workers.

It is noteworthy that many of these emergent stressors create conditions at work that give rise to bullying, harassment and violence (di Martino, Hoel, and Cooper, 2003).

8. New advances in science

Research attention to psychosocial factors will increase as the modern workplace and workforce continue to change. In this section are offered some speculations on relevant, new scientific advances.

First, we have learned a great deal about the nature and scope of work stressors, but we are only beginning to appreciate the complexities involved. Thus, advances in the measurement of work stressors to allow examination of the inter-relationships among discrete work stressors and how these patterns influence worker wellbeing can be expected. Moreover, new analysis techniques (e.g. sequential tree analysis) promise to provide a clearer picture of the underlying mechanisms among stressors and the specificity or generality of stressor-health relationships (Trenberth and Dewe 2006). Finally, the routine addition of objective indicators of work stress (work hours, shift schedules, staffing, human resource policies, etc.) to complement findings from self-report measures would be a welcome development.

Second, new work stress models will devote more attention to contextual and health-promoting factors and be amenable to the inclusion of new sources of stress (e.g. organisational justice). Inclusion of contextual factors such as organisational justice and job insecurity, both as stressors and as moderators of the stress-health relationship, should increase the amount of explained variance in mental wellbeing. In addition, research on healthy work organisations has identified factors such as meaningful work which utilises worker skills and participation in decision-making, that jointly foster worker wellbeing and organisational productivity (Murphy and Cooper, 2000). These factors could be included as counterbalancing forces in work stress models.

Third, job stress models typically depict job stressors as antecedents to health and wellbeing outcomes, but do not consider the reverse, namely that health outcomes may influence perceptions of job factors. A number of studies have found reciprocal relationships between work stressors and health and in some cases, reverse causation paths have been reported (de Lange et al., 2005). Additional studies of this type should appear and will provide more precise estimations of the true contribution of stress to worker wellbeing.

Fourth, an international system for work stressors can be expected within the next decade. Dollard, Skinner, Tuckey, and Bailey (2007) provided a thorough review of international survey systems for psychosocial risk factors and offered ideas for an international system. Active surveillance is useful for identifying work stress risk factors, tracking trends in these across countries and recommending interventions to improve worker wellbeing.

Finally, advances in modelling the economic burden of work stress are noteworthy and should produce more reliable cost estimates (e.g. Bejean and Sultan-Taib, 2005), opening the door to more collaborative research with the private sector. Cost estimates cannot help but have a major impact on management decisions related to work stress and its prevention.

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