

# **Knowledge work and stress – beyond the job-strain model**

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## **Abstract**

Increasingly, it is reported that well-educated knowledge workers suffer from serious work-related stress. This appears to be a paradox, because the group of knowledge workers should not be at serious risk of developing stress according to the often-used job-strain model (demand-control model). Knowledge work is typically characterized by high decision latitude and classified as an active job. This paper discusses the apparent paradox and reflects on the model's ability to capture significant aspects and dynamics in relation to knowledge work. The paper concludes that the study of knowledge workers must focus on other parameters than the job-strain model suggests.

## **Keywords**

Knowledge work, work-related stress, work relations, job-strain model.

## **1. Knowledge work and the job-strain model.**

Increasingly, it is reported that well-educated knowledge workers suffer from serious work-related stress. Surveys conducted by professional societies, e.g. The Danish Society of Engineers and The Danish Association of Lawyers and Economists, show that work-related stress has become a serious problem for many knowledge workers. The knowledge workers claim that they are affected by heavy workloads and an increasing pace in work that results in classical symptoms of stress. This appears, however, to be a paradox, because the group of knowledge workers should not be at serious risk of developing stress according to the often used job-strain model (demand-control model) (Karasek & Theorell 1990). Knowledge work is typically characterized by high decision latitude. Due to the nature of their work knowledge workers often have a high degree of influence on how their work is performed and structured. 'Self management' is a predominant form of management when it comes to intellectual, creative, open ended and complex work. The knowledge workers have the expertise, skills and (tacit) knowledge that are crucial for success. In addition they are dedicated to – and often very enthusiastic about – their work. Given this background it is often left to the knowledge workers themselves to determine their methods of work and plan their work. Knowledge workers will come out with a high score when it comes to influence and job control according to the job-strain model.

It is also obvious that knowledge workers often have a high score in the model's 'demand' dimension. Some types of knowledge work are dominated by short deadlines (e.g. journalist), high standards of precision and accomplishment (e.g. engineers), high degrees of responsibility (e.g. managers), complex and vaguely defined codes of performance (e.g. within highly 'politicised' environments). In addition the workload within these types of jobs is often high. The job-strain

model recognize that knowledge workers have very demanding jobs, but deny that knowledge work can be specified as a category for highly stressful jobs. The model claims the high influence reduces job-strain by increasing workplace learning and feeling of mastery in *active jobs*. The model considers job control to be a buffer against stress. The model stipulates that by increasing work control it is possible to cope with increases in demands. By stimulating workers involvement and influence in their jobs through work reforms it is argued that high demands can be balanced and stress turned into stimulating challenges.

The paradox seems to force us to make a choice. Either the reports of knowledge workers suffering from stress are not correct or the job-strain model is flawed. Both of these strategies to the paradox have been vindicated in the debate. In line with the first strategy it is often said that knowledge workers are not *really* suffering from work stress. When knowledge workers claim that they are suffering from work stress in reality they are just busy, under pressure or facing radical changes in their work environment. In relation to the last option, more interestingly, even the founding father of the model (Karasek 1979, 304) admits that at high levels of demands the job-design strategy is faced with problems. (Grönlund 2007, 423) sharpens the critique as follows:

*“[Research] shows that control does not help employees to work ‘smarter’, meeting increasing demands without increasing work hours and rejects [...] the idea that control can moderate the impact of high demands.”*

One of the main problems with the job-strain model in relation to knowledge work is the models inability to differentiate the control dimension. Aronsson (Aronsson 1991) has pointed to the crucial difference between control ‘within’ work and control ‘over’ work. The primary focus of the job-strain model is control ‘within’ work. Most knowledge workers conceive their work as an individual endeavour and do not recognize the importance of collective regulations as a means to get control and minimize job-strains (e.g. by regulating the workload) (Andersen & Rasmussen 2005; Ipsen 2007). This does, however, not affect the fact that the job-strain model is lacking a perspective on control ‘over’ work. The model deals with the workers subjective conceptions of control ‘within’ work (amongst other things variation, the use and development of skills). When knowledge workers report to have high control it is in relation to the operational level of their work – not in relation to workloads (Ipsen 2007).

It seems like the only way for the control-demand-model to cover the problems of the knowledge workers is through a re-interpretation of the control dimension in order to give room for control ‘over’ work. A review of 63 investigations using the job-strain model over a period ranging from 1979 to 1999 shows that many different scales for control, demands and support in relation to psychological strain has been tested. The review concludes that there is no stable support for the model and that the best support for the model is obtained when the control dimension is constructed in relation to the demands that the workers experience (Doef & Stan 1999). In relation to the knowledge workers it is interesting that the majority of studies that focus on the salaried workers do not support the model (10 cases against 3 cases). Furthermore several of the studies show that increasing control within work cannot compensate high demands. If knowledge work is characterized by a potential unlimited number of demands the job-strain model would in consequence be unable to deal with this kind of work. This leads to the conclusion that control ‘over’ work is a much more significant factor than control ‘within’ work in relation to the prevention of work-related stress in knowledge work.

## 2. The social construction of 'Stress' and the job-strain model

The concept of stress has been historically and socially constructed with heterogeneous networks of interests. Viner (Viner 1999) documents how diverse actors and alliances over a period starting in the 1930' ies with Selyes physiological investigations have shaped the concept of stress. Viner's analysis of the concept rests on an approach inspired by Actor Network Theory (ANT) and Science & Technology Studies (STS) and through detailed studies of Selyes work he illustrates how the concept of stress is shaped by enrolling diverse interests from healthcare, military, economic and social domains. Viner ends his historical investigation of the concept in the 1970s, but the construction process has by no means come to a hold. Viner shows how the concept of stress has been turned into an obligatory point of passage (Callon 1986) for the research in work based strains. 'Stress' has become an unavoidable conceptual construction when dealing with work strain – not because of 'irrefutable' facts but because of the concepts interpretative flexibility and immersion in diverse networks of meanings. The concept of stress is still put to different uses and interpreted in accordance to diverse interests. Seen in this historical and social perspective Karasek's and Theorell's job-strain model has played an important role in the ongoing construction process.

The motivation behind the construction of the job-strain model can be traced back to its roots in the social democratic Scandinavian tradition of empowerment of the workers in industrial work (Wainwright & Calnan 2002). Karasek and Theorell are explicit about the alignment to this project (Karasek & Theorell 1990, 3):

*"The goal of promoting well-being at work is not new; it has been the purpose of the occupational health movement since its modern inception in the late 1960s in both the United States and Sweden. These movements have been politically conscious attempts to roll back the residual destructive aspects of modern industrialization with scientific evidence of problems and scientifically formulated solutions."*

When the focus is put on the work relations the causes of stress are removed from the individual and specific environmental domain to a collective and organizational level based on control and development. The job-strain model draws on the work of Piore and Sabel on industrial districts and the destructive impact of Taylorism and automation. This research tradition discusses the impact of *industrial* work and how to reform *industrial* work. The research and the developed visions focus on jobs with low levels of control. The author's argument hinges on the democratic assumption that restrictions in work control will, eventually, restrict the democratization of the work place and society in general.

In conclusion, the focus of the job-strain model is on the empowerment of workers and the democratization of industrial work. Although this is a sympathetic endeavour it is important to keep these ambitions and interests in mind when the scope and the bearings of the model are discussed. We are faced with the crucial questions: Is it possible to re-interpret the job-strain model in a way that is sensitive to the changed working condition in the post-industrial society? Is it possible for the job-strain model to encompass knowledge workers and acknowledge their experiences of work-related stress?

### 3. Strategies for dealing with work-related stress

The job-strain model indicates that the more *active* a job is (high demands *and* high control) the better. This implicitly indicates that the risk of developing stress in these jobs is reduced. But if the risk of stress in *active* jobs is compared to so called *relaxed* jobs (low demands *and* high control) the model indicates that active jobs are more exposed to stress. The design of the model can be seen as a compromise between interests in the increase of productiveness and interest in the increase in workers health (and democratic control). The compromise indicates that a limited level of stress is unavoidable and acceptable. The problem with the model is that the compromise blurs the fact that high control combined with high demands eventually causes stress and that continuous growth in the control *and* demand dimensions worsens the problems. The model does not reflect on this problem because of its exclusive focus on employees with low control. The model implicitly conceives the managers and professionals as privileged groups that are not in need of modified or alternative job-designs.

On this background the job-strain models adequacy in relation to knowledge work should be considered. If it is correct that work related stress among knowledge workers is a serious – and maybe increasing – problem (as the professionals organizations claims) alternative stress models should be considered. Researchers have mainly pointed to the boundless character of knowledge work, the unlimited demands and the unpredictability in the work (opposed to the dominant stressors within industrial work: high work pace and lack of control) (See Figure 1).

*Figure 1. Types of stress problems. (Bason et.al. 2003 – our translation.)*

	<b>Classical stress problems</b>	<b>New classical stress problems</b>	<b>Modern stress problems</b>
Type of work	Industrial work	Welfare work	Knowledge work
Stressors	Monotony High pace Low control	High strain Emotional demands Conflicts	Boundlessness Unlimited demands Unpredictability
Examples of job categories	Cashier Unskilled industrial workers	Nurses Teachers Welfare workers	Computer engineers Advertising agents Government officers

The distinction between classical, new classical and modern stress problems suggests that the job-strain model only has direct application in the case of classical stress problems.

However, we see two major problems in rejecting the job-strain model in relation to new classical and modern stress problems. In the first place the job-strain models focus on workers control and social support is an important message (- maybe this is the reason for its popularity). Control and social support are also relevant criteria for job-design in relation to knowledge work – although these criteria's importance in relation to stress prevention is debatable.

Another problem is that the alternatives to the job-strain model are limited. The preventive element in the job-design tradition is worth preserving. By rejecting the job-strain model without further reflections we risk ending up dealing with work related stress as individual problems in need of coping-strategies (Lazarus 1993; Lazarus & Folkman 1987). These individual coping strategies

typically include coaching, therapy, meditation, etc. and are provided by therapists, medical doctors, consultants and HRM-officers among others (Wainwright & Calnan 2002). The problem with this approach is the tendency to individualize stress problems. This individualization of the stress problems may in fact increase the knowledge workers stress problems due to the close connection between the knowledge workers career and identity (Tynell 2002; Bovbjerg 2003; Wainwright & Calnan 2002).

#### **4. Conclusion**

We have been arguing that the job-strain model faces difficulties in dealing with job-related stress among knowledge workers. However, in the job-design tradition there seems to be no available alternatives at hand. The question is: Is it possible to adjust or re-design the job-strain model in order to cover the new stress problems in knowledge work? One problem in redesigning the model is that it would be difficult to make sense of the control dimension (“knowledge workers do not *really* have control ‘within’ their work”). Alternatively, the model could be redesigned to include control ‘over’ work. This option would, however, open a major discussion as to managerial rights. Maybe this is in fact necessary in relation to knowledge work? The complexity in the new forms of knowledge work suggests that it is necessary to reflect on the close links between demands, control, roles, personal and/or professional identities and (self) management in order to understand work-related stress.

In our oral presentation we will describe some observations and preliminary results from an ongoing research project “Knowledge work and stress – between enthusiasm and strain”. The research project is conducted in joined venture between The Technical University of Denmark, Copenhagen Business School and The National Research Centre for the Working Environment. The findings suggests that we need to develop more sensitive instruments in order to understand how knowledge workers internalize demands in their professional identities and how organizational and managerial structures and technologies affords and limits control.

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