



Editorial

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Assessing the psychosocial work environment—“subjective” versus “objective” measurement

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Not counting weekends and vacations, many men and women spend half of their nonsleeping time on the workfloor. It is obvious that the work situation has a major impact on the lives of these working men and women. This influence does not stop the moment that they close the door, leave the company, and go home. There is a large body of evidence indicating that time spent at work may interact with time spent in private life and that negative or positive feelings built up at work may “spill over” to the home (1).

Fortunately, work has many good things to offer, as it may provide salary, structure to the day and week, goal and meaning in life, contact with others, and possibilities to learn and develop (2). A good job can be an important social determinant of good health. For many employees this is the case.

On the other hand, today's work can pose demands that are too high or demands that are not well-suited to the knowledge, skills, and abilities of the worker. Such improperly designed tasks can cause or contribute to stress and ill health. From comparisons of national survey sources (3), it appears that both quantitative and qualitative job demands are indeed high. For example, in Denmark, the percentage of employees who answered “yes” when asked the question “Is your work unevenly spread so that work piles up?” increased from 36% in 1995 to 61% in 2000; in France, in 2004, 49% of the employees reported to have “not enough time to finish the work”. In Sweden (2003) 86% of the employees reported that their work “required undivided attention and concentration” (half of the time or more). As modern work is strongly client-centered, it also poses emotional demands. A Danish study (2000) found that 28% of the employees reported that their work put them in emotionally demanding situations (3). Emotions in organizations (emotion work, emotional labor) are receiving increasing research interest in work and organizational psychology (4).

Over the last few decades, the impact of the psychosocial work environment on the health and performance of workers and organizations has been acknowledged, not only by researchers, but also by various national governments and, increasingly, by both social partners. For example, the European social partners (European Trade Union Confederation; Union of Industrial and Employers' Confederations of Europe; European Association of Craft, Small and Medium-sized Enterprises; European Centre of Enterprises with Public Participation and of Enterprises of General Economics Interest) included work-related stress in the work program of the social dialogue for 2003–2005 and signed the “Framework Agreement on Work-related Stress” (8 October 2004). The objective of this agreement is “to provide employers and workers with a framework to identify and prevent problems of work-related stress. It is not about attaching blame to the individual for stress” (article 2). The agreement also stipulates (article 4): “Identifying whether there is a problem of work-related stress can involve an analysis of factors such as work organization and processes (working time arrangements, degree of autonomy, match between workers skills and job requirements, workload, etc), working conditions and environment (exposure to abusive behavior, noise, heat, dangerous substances, etc) and subjective factors (emotional and social pressures, feeling unable to cope, perceived lack of support, etc).”

The main characteristics of this framework agreement and of the European Framework Directive on Health and Safety at Work (89/391/EEC; 1993) are a proper assessment of risk factors and an emphasis on prevention.

Now, which instruments can be used to identify stress factors and stress problems?

The most utilized instrument in identifying stress factors and stress problems is the questionnaire. Questionnaire studies rely on self-reports of employees. These job incumbents answer standardized questions with respect to the presence or absence of risk factors in their work environment, and with respect to their health status. Questionnaires are widely used; they are inexpensive and easy to quantify and analyze statistically.

They have also been widely criticized. One popular criticism is to qualify self-reported data as "subjective" and to qualify other types of data collection, such as physiological data or archival data as "objective". The term "subjective" is used to point at the individual employee who answers questions. The argument is that his or her responses may be colored or distorted by response styles (eg, cognitive consistency within the person, acquiescence, social desirability), by attribution processes, or personality characteristics and affective states such as negative affectivity. Such factors may indeed play a role in questionnaire studies (5). However, the general disqualification of self-reports in stress research on these grounds would be an overreaction: throwing out the baby with the bathwater.

If design criteria for good questionnaire development are met [eg, neutral wording, factual questions, not mixing the assessment of risk factors with strain reactions; see also the papers by Frese & Zapf (6), Kasl (7), Spector & Fox (8), and Belkic et al (9)] and there is a proper introduction of the study, proper analyses of selective (non)response, analyses at the group level (10), and appropriate statistical analyses (eg, partialing out negative affectivity), self-reports are definitely a useful and valid source of information. I believe that there are two peculiarities with the often-expressed skepticism towards self-reports. First, it seems to reflect a certain "ivory tower disdain" to employees who answer the questionnaires. By definition, their answers seem to be a bit suspect. Second, would the researchers that express their doubts, equally doubt their own answers in case they themselves complete a questionnaire? I think that we should not close our eyes for possible biases, but choose, as a starting point, the assumption that job incumbents are subject matter experts. It is their work, and it is their health, and, accordingly, they deserve to be taken seriously.

Often, as alternative to these "subjective" data, "objective" measures are advertised. Chief among them are observations by nonjob incumbents, such as supervisors, archival data (eg, sickness absence data, performance measures, accidents), and physiological measures, such as adrenaline and cortisol. The often implicit reasoning is that such counts of behaviors or the results of behaviors are less prone to cognitive and emotional processing by individual employees and that, therefore, "objective" data are to be preferred over "subjective" data.

Recently, Norbert Semmer and his co-workers (11) wrote an interesting chapter in which they discuss the pros and cons of self-reports, of observational and physiological measures. For brevity reasons, I will discard the observational data. It suffices to say that observations (evaluations) by nonjob incumbents are not free from individual biases and measurement error. I will concentrate on physiological measures, since, for almost a century, physiological mechanisms have been regarded as a central component of stress responses. Because of their very nature (ie, a response), we should note that such measures may provide knowledge about bodily reactions and not about causal environmental agents (risk factors). We do not know to what environmental exposure, if any, it is linked, nor what change in some exposure or in the risk factor itself, would reduce the reaction or, what is more difficult, would reduce the risk of disease. [See also the report by Kasl (7).] Physiological measures do have face validity, but, with Semmer and his colleagues, I would like to point to the fact that physiological measures have their difficulties as stress markers as well. The most prominent issue is that bodily systems and physiological reactions have not been developed in order to facilitate stress research. Although, even in common language, it is not unusual to speak of cortisol as a "stress hormone", this definitely is a simplification. Essentially, such bodily systems and reactions are functional, and it is very

hard to differentiate between a normal functional response (activation) and an unhealthy “pathological” reaction. “Rather, physiological systems are bodily systems in their own right, and this has to be taken into account when discussing their validity as measures of stress [p 224]” (11). Such bodily systems (eg, the hypothalamic pituitary adrenocortical axis: cortisol; the sympathetic-adrenal medullary system: adrenaline) follow their own laws and are only loosely coupled with each other and with other response systems, such as psychological and behavioral reactions to stress. Just simply calculating correlations between physiological data and self-reports, or between different physiological reactions, may seem tempting, but, theoretically, it makes little sense, for example, due to differing time dynamics, circadian rhythms, influences of third variables, such as food uptake, and the like. [See also the paper by Hjortskov et al (12).] Therefore, as Semmer and his co-workers rightly conclude, the conclusion that a lack of convergence with self-report measures would automatically invalidate self-reports is not necessarily warranted. It would be equally unjustified to conclude that a lack of convergence between two physiological reactions would therefore invalidate these reactions. In a similar vein, in a recent review chapter, Sonnentag & Fritz (13) concluded that “endocrinological strain measures and self-report strain measures do not substitute for each other but might reflect different underlying processes or different aspects of stress responses.”

Where does this lead us now?

I believe that the dichotomy between “subjective” and “objective” measures has not done (occupational health) psychology much good. It is a distinction that has elicited much discussion and confusion in psychology. And there is a sound alternative for this dichotomy. It is called reliability, validity, and usability, and it is called multi-source.

I suggest that we teach our students to no longer use the traditional labels “subjective” and “objective”. And, if they would insist to use these terms, to always put them within quotation marks. We need to point out that each of these methods of collecting data has its strong and weak points and that there are three criteria that should be met to decide upon the quality of data collection in stress research: reliability (over time, interrater), validity, and usability (utility, costs effectiveness). Furthermore, we should teach them to preferably use more than one source of data collection. Of course, this latter point is an echo of what is often proposed in stress research methodology (5, 7).

All this means that there is still a need for reliable, valid, and usable questionnaires in stress research. This issue of the *Scandinavian Journal of Work, Environment & Health* presents such a candidate: the Copenhagen Psychosocial Questionnaire (COPSOQ) (14). This is an interesting questionnaire for several reasons. One of these is that it is scientifically grounded in contemporary theories on job stress and job design. Another is that it has three versions: a long version, most appropriate for scientific research, a medium-length version, to be used by work environment professionals, and a short version for workplaces. A final characteristic is that it, more than most other questionnaires in this field, pays attention to risk evaluation. We believe that the COPSOQ will be of interest to many researchers who aim to assess the psychosocial work environment.

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