

Organizational approach to studies of job demands, control and health

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This paper presents an organizational approach to studies of job demands, control, and health. The main issue is whether the two dimensions, demands and control, are rooted in organizational conditions or in factors related to the individual person. In this paper, theoretical support and empirical evidence for organizational determinants of job stress are described, and conclusions for future studies of job stress are drawn. It was concluded that organizational approaches facilitate evaluations of exposure–outcome relationships in light of contextual factors, and knowledge about the organizational factors involved in shaping healthy work conditions is of great value in preventing job stress. Therefore, several levels of data and analysis should be involved in empirical studies. In addition, more knowledge is needed about the processes that give both managers and workers in organizations the discretion to act in ways that lead to healthy workplaces.

Key terms healthy workplace; job stress; multilevel study; prevention; work organization.

After 30 years, the job demand–control model is still widely used in research on job stress. It is a great success although worklife has changed considerably since the model was constructed. One of the reasons for the success of the model is that it is scientifically clear and easily understood by practitioners, even though it combines two different scientific disciplines—psychophysiological stress theory and sociological alienation theory. However, all theoretical models have to be continuously evaluated and developed as work conditions change. The validity, the operationalizations, and the theoretical and conceptual understanding of the demand–control model have been debated and tested (1–5). Many empirical studies have shown that high demands in combination with low decision authority and few opportunities for learning and development constitute a work situation that is hazardous to health (6). However, it could be questioned whether the job demand–control model remains accurate and whether it functions in accordance with its hypothesis in today’s worklife (7). An “active work situation”, with high control and high demands, has been shown to be related to ill health, in contrast to the predictions of the job demand–control model (8–11). This finding may be better understood with an organizational approach. For example, in certain organizations

with specific forms of control and responsibility distribution, job demands may be internalized to such an extent that employees no longer attempt to moderate them, even if they have the influence to do so. It is also possible that people in work organizations with decentralized responsibilities become exposed, vulnerable, and unsupported in the task of balancing contradictory demands from employers, customers, and service receivers (12, 13). Decentralization and multiple sources of demands also make the use of collective forms of influence more difficult (14–16). If knowledge about the organization (mesolevel) is added, it is possible to explore whether active job situations are hazardous to health only in specific types of organizational contexts.

To determine how generalizable the job demand–control model is to all types of work situations and organizations, studies need to be conducted in a broad sample of workplaces. Such studies should look at both organizations and employees, examining how control is distributed and exercised and how workers exert control in order to balance multiple demands. So far there has been little interest in exploring whether the dimensions included in these models are, in fact, rooted in “upstream” conditions such as the organization of work. This paper aims at presenting a theoretical background

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and some empirical evidence for an organizational approach to studies of job demands, control, and health.

Theoretical background

The main issue is whether the two dimensions, demands and control, are rooted in organizational conditions or in factors related to the individual. The question has both theoretical and practical implications. First, in order to combat job stress, we need to know more about the determinants for job demands and control and selection processes into “good” and “bad” jobs. We also need to understand how much organization matters, what aspects of the organization are important, and where, in an organizational intervention, would be the most effective. This situation implies that several levels of data and analysis have to be involved in studies in which this question is investigated. In stress theory, the individual is the focal unit for measurement and analysis (17). In the sociological theories underlying the demand–control model, the mesolevel, such as the workplace, is the main focal unit (18). The theoretical roots of decision authority are found in sociological theories on alienation and participation developed in the 1960s and 1970s (16, 19–23). Examples of theories related to skill discretion, the other aspect of the control dimension, concerns complexity at work and the qualification level for job tasks (24–27). All of these theories identify the organization of work as an important determinant of workers’ decision authority and skill discretion. Research on job stress has so far mainly explored the association between demands and control and health. A quite different issue is identifying the organizational and individual determinants of job strain. Studies that take a contextual approach, exploring organizational determinants, are less common, although such knowledge has strong implications for the prevention of job stress. Should the organizational level or the individual level be targeted?

There have been only a few empirical studies of the distribution and variety of psychosocial risk factors between workplaces and how they are linked to organizational structures and management technologies. It is more or less taken for granted that the organization matters, but very little is known about which organizational factors are the most important. Is it the organizational context (eg, market position, technology, influence exercised by owners and customers) or the organizational structure (eg, degree of hierarchy, principles for the division of work) that matters the most? Do different management, reward, and control systems have a great impact on workers’ decision latitude and job demands? Finally, “softer” aspects of an organization, such as organizational culture, leadership style, arenas for dialogue,

and support probably have an impact on employees’ job control and the demands placed on them.

Earlier studies on the importance of decision latitude for health indicate that the solution to adverse work organization is to improve democracy by increasing workers’ decision latitude (28). The founders of the model draw attention to macro-level processes that affect the psychosocial work conditions of people. They want to “link causes based in the environment and causes based in the individual, but with environmental causes as the starting point” (9). It is therefore theoretically assumed that psychosocial work conditions are multivariate phenomena determined by processes at different organizational levels. Theorell & Karasek (29) wrote that “decision latitude is determined to a great extent by the content of work in the occupation, whereas the demands and social support to a greater extent reflect local work site conditions and individual perception [p 18]”. The democratic idea behind the model, as well as the theoretical foundation, indicate that we have to focus on the organization when the aim is intervention if workers’ decision latitude is to be increased and the job demands balanced.

Empirical studies of organizational impact

Studies that explore the impact of higher level organizational conditions on psychosocial work conditions are rare, even though this methodology has been recommended for such purposes (30, 31). A few studies have used multilevel analyses to explore the organizational impact on work conditions and health at the individual level. The theory behind multilevel analyses suggests that people interact with their social context (32). Therefore, when work conditions are explored, the organizational level has to be taken into account (31). The organizational level can, in fact, be several hierarchical levels, such as the corporation, the enterprise, the workplace, and the department or unit, depending on the size and the type of organizational hierarchy, but the organizational level is defined in this paper as all hierarchical levels “above” the individual level. Workplace is used as a synonym for organization and is used particularly when described in empirical studies. Organizational conditions or characteristics refer to phenomena existing at the organizational level (such as management technologies, formalization, and gender distribution), and work conditions (such as demands and control) refer to phenomena existing at the individual job level.

The magnitude of the organizational effects on job demands and control differs between studies when multilevel analyses are applied, possibly because the samples of organizations and individuals vary. In the

Swedish MOA³ study, which looked at a strategic sample of 72 workplaces in a broad range of industries in the private and public sectors, it was found that the variance in demands and control between workers attributed to the organizational level was 38% for decision latitude and 15% for job demands (33). Therefore a substantial proportion of the variance in demands and control should not be explained by conditions at the individual job level. Instead, we should search for explanatory factors at the organizational level. When organizational conditions at the workplace (in this study, type of organizational change and sector) were added as explanatory factors, the variance decreased to 26% for decision latitude and to 12% for job demands. In the last step, in which age, gender, and educational level at the individual level were adjusted for, the variance attributed to the organizational level was still significant (18% for control and 12% for demands). In another paper from the same study, gender distribution at the workplace and type of organizational structure (constituted by, eg, centralization, management technologies, formalization, size, and the disposition of work in time and space) were tested. The results showed that both factors were significant determinants of control, but not demands, when individual characteristics were adjusted for (34). However, it seems that aspects other than organizational structure are important, as the variance attributed to the organizational level did not decrease very much when these organizational aspects were added to the model. The most important was that control is, to a large extent, rooted in organizational characteristics according to the theory. In the case of job demands, the individual-level impact seemed substantial. The organizational characteristics tested as determinants did not remain significant when age, gender, and education were adjusted for at the individual level.

In another Swedish study (the healthy workplace study) of a broad sample of 51 organizations and 3500 workers, 20% of the variance in job control and 12% of the variance in job demands were attributed to the organizational level (35). Results from a subsample of only service organizations in the same study showed that a similar variance in control and demands was attributed to the organizational level (36). Similar to the results from the MOA study, the organizational impact remained significant for the variance of control, but not for job demands, after adjustment for individual characteristics. The study of the broad sample referred to earlier (35) tested which level of the organization matters most, the parent organization (or company level), the establishment or worksite, or the department or subunit level. The results showed that all three levels had an impact, but the lowest organizational level (subunit)

was the most important with respect to the variance of control among the workers, and the establishment level was the most important as regards the individual variance in job demands.

These studies indicate that organization matters with respect to the individual variance in demands and control in accordance with what has been proposed in the theory. Although the size of the variance attributed to the organizational level varied from study to study, all the studies showed that organization matters more with respect to the variance in control than as regards the variance in demands. This assumption is reasonable from a theoretical point of view. Self-reported demands should be more affected by a person's own perception both of the demands and of his or her own capacity in relation to them (29).

Other multilevel studies have investigated the organizational impact on the individual variance in health outcomes in combination with an exploration of job demands and control as intermediating determinants at the individual level. In a Dutch study of a cross-sectional sample of 90 organizations and 2565 persons, the proportion of the variance attributed to the organizational level was 9% for job strain and 12% for well-being (37). Results from a Swedish study of human service organizations showed that organizational conditions had a small but significant impact on demands and control, and this impact affected employees' health (38). A Dutch study of a sample of 260 employees in 31 working groups in a national bank also applied multilevel analysis when exploring the health effects of job demands and control. The results showed that job demands and control should be conceptualized as having both group and individual foundations (39). Similar results were found in another Dutch study of 1489 employees in 64 units in 16 health care institutions. Karasek's job demand and control model was partly confirmed since interaction effects were found at both the group and individual levels (40).

There is still too little research on the magnitude of organizational impact to draw general conclusions, partly due to differences in samples and study design. There are even fewer studies in which organizational aspects are the most important. In the MOA study, the analyses (Spearman correlations) gave some indication that centralization, result measurement, and numeral flexibility were negatively related and that the integration of the work process, innovativeness, and economic incentives were positively related to the level of decision authority (34). The same factors, with the exception of centralization and result measurement, were related to the level of skill discretion. In addition, production based on social interaction with customers was related

³ Swedish acronym for "modern work and living conditions".

to a high degree of skill discretion. The results for job demands showed fewer significant associations with organizational factors. Individualization and a production process based on social interaction with colleagues and customers were positively related to the level of job demands. In the healthy workplace study, similar results from multilevel analyses of the organizational impact on different health outcomes were found (41). The results showed that customer adaptation has a significant impact on the level of sickness absence when adjusted for job demands and control. The effect on sickness absence is very low, but significant, when gender and age are added as confounders. Thus it seems that, in organizations in which daily work is characterized by social interaction with customers and is highly controlled by customers' or clients' requests and needs, job demands, control, and sickness absence are higher when gender and age are also taken into account.

Organizational approach

There are several arguments for the integration of organizational level data and data on work conditions and health at the individual level. First, there is theoretical support and some empirical evidence for organizational determinants of job stress. An organizational approach facilitates evaluations of exposure–outcome relationships in light of contextual (higher level) factors (ie, potential effect modification can be estimated).

Another argument is that worklife is changing. Work practices and the organization of work are greatly interdependent. Thus, when the organization of work in society changes, our understanding of how work practices and work conditions affect health must be reexamined. We cannot take the validity of theories founded on old empirical studies of the organization of work and work practices for granted. Furthermore, research into organizations has been detached from research into work and health since the late 1960s. Barley & Kunda (42) advocate bringing work back into organization research. The same argument is valid from the opposite starting point; knowledge about organizations needs to be integrated into work and health research in order to increase our understanding of how work affects people in contemporary worklife.

A third argument for an organizational approach concerns the implementation of the results of research. Since a person's work environment is formed by both job tasks at the individual level and conditions at the organizational level, the relationship between these two aspects needs to be more fully explored. Knowledge about the situational or organizational factors involved in the shaping of healthy job assignments and work conditions

would be of great value in the prevention of job stress. The workplace is—in contrast to an occupation—a specific social context for the employee; in other words, the workplace is an arena in which preventive actions can be implemented. There is empirical support for the idea that organizational intervention is worthwhile (43). Several intervention studies at the workplace level that aimed at improving psychosocial work conditions such as demands and control have shown that single companies are the most effective targets for intervention approaches. Furthermore, organizations are economic entities in addition to being social contexts. The main power over how work is organized lies in the hands of the employers, a right sanctioned by legal regulations within the limits of work environments and labor law regulations. Therefore, managers must be involved in any practical application of knowledge about how work should be organized in order to promote workers' health.

Concluding remarks and implications for future studies

Although the job demand–control model is relevant for studies of job stress, alternative approaches would add valuable knowledge about the complex relations between psychosocial work conditions and health, as well as about the importance of organizational level conditions that affect the quality of worklife. Knowledge is still lacking about which organizational factors are important for work conditions in contemporary worklife. According to the empirical studies referred to in this paper, it seems that customer orientation of the production process has great impact on both demands and control. There are also indications that individualized responsibility may have a negative impact on job demands, particularly if there are unclear goals and lacking resources in the organization (12). Working in a female-dominated workplace also seems to have a negative impact on work conditions. One explanation may be that the effects of some organizational factors differ depending on the work object in production (44). Modern management technologies in the public sector, in line with new public management, seem to have negative implications for job demands and control (13). Furthermore, we have observed that a similar type of organizational change does not have the same influence on women and men and on highly and lowly educated groups. It is also important in future studies to explore how different groups of the workforce are affected by different ways to organize work. Further studies in this field, for example, by applying multilevel analysis, would add valuable knowledge on the organizational determinants of control and demands. The theoretical

perspective of an organizational approach to studies of the psychosocial work environment is in line with what has been called "new structuralism in organizational theory" (45). In this tradition, organizations are regarded as important means of social stratification, and the focus is on general patterns and systemic conditions. On the other hand, in order to link organizational behavior to individual behavior, both people and organizations must be seen as actors. The choice of action, for the organization or for the person, may be restricted or structured in different ways. Thus, we need to know more about the processes involved in organizations that give both managers and workers discretion to act in ways that lead to healthy workplaces.

References

- de Jonge J, Kompier M. A critical examination of the demand-control-support model from a work psychological perspective. *Int J Stress Manage.* 1997;4:235–58.
- Kasl S. The influence of the work environment on cardiovascular health: a historical, conceptual and methodological perspective. *J Occup Health Psychol.* 1996;1(1):42–56.
- Kristensen T. The demand-control-support model: methodological challenges for future research. *Stress Med.* 1995;11:17–26.
- Kristensen T. Job stress and cardiovascular disease: a theoretical critical review. *J Occup Health Psychol.* 1996;1(3):246–60.
- Peterson CL. Work factors and stress: a critical review. *Int J Health Serv.* 1994;24:495–519.
- Karasek R, Theorell T. *Healthy work.* New York: Basic Books; 1990.
- Waldenström K, Härenstam A. Does the job demand-control model correspond to externally assessed demands and control for both women and men? *Scand J Public Health.* In press.
- Eaker ED, Sullivan LM, Kelly-Hayes M, D'Agostin RB Sr, Benjamin EJ. Does job strain increase the risk for coronary heart disease or death in men and women? *Am J Epidemiol.* 2004;159:950–8.
- Krantz G. Living conditions and women's health: the influence of psychosocial factors on common physical and mental symptoms in Swedish women—an epidemiological study [dissertation]. Malmö (Sweden): Lunds universitet; 2001.
- Krantz G, Östergren PO. Do common symptoms in women predict long spells of sickness absence?: a prospective community-based study on Swedish women 40 to 50 years of age. *Scand J Public Health.* 2002;30:176–83.
- Vahtera J, Pentti J, Uutela A. The effect of objective job demands in registered sickness absence spells: do personal, social and job-related resources act as moderators? *Work Stress.* 1996;10(4):286–308.
- Waldenström K, Härenstam A. Hur skapas bra arbetsförhållanden?: en studie av strategier hos chefer och anställda [How are good working conditions created?: a study of employer and employee strategies; Internet]. Stockholm: Arbets- och Miljömedicin; 2006 [cited 23 April 2008]. Available from: <http://www.folkhalsoguiden.se>.
- Forsberg Kankkunen T. Könade verksamheter: en studie av hur stressande arbetssituationer för kommunala enhetschefer hanteras inom tekniska respektive omsorgs- och utbildningsförvaltningar [Gendered operations: a study of how stressful work situations for managers are copied within technical, health care and education local authorities]. Stockholm: Arbetslivsinstitutet; 2006. Arbetslivsrapport, 43.
- Lindgren G. Alone in a team?: a sociological perspective on new organisational models within health care. In: Thörnqvist A, editor. *Work life, work environment and work safety in transition.* Stockholm: Arbetslivsinstitutet; 2001. Arbetsliv i omvandling, 9.
- Johnson J. Collective control: strategies for survival in the workplace. *Int J Health Serv.* 1989;19:469–80.
- Lysgaard S. *Arbeiderkollektivet [The worker collective].* Oslo: Universitetsforlaget; 1961.
- Selye H. *The stress of life.* New York (NY): McGraw-Hill; 1974.
- Burke W. *Organization change.* Thousand Oaks (CA): Sage Publications; 2002. p 156–64.
- Blauner R. *Alienation and freedom: the factory worker and his industry.* Chicago (IL): University of Chicago Press; 1964.
- Dahlström E. *Teknisk förändring och arbetsanpassning [Technical change and adjustment of work].* Stockholm: Prisma; 1966.
- Emery F, Thorsrud E. *Form and content in industrial democracy.* London: Tavistock; 1969.
- Trist EL, Sofer C. *Exploration in group relations.* Leicester (United Kingdom): Leicester University Press; 1959.
- Gardell B. Autonomy and participation at work, I: society, stress and disease, vol IV. In: Levi L, editor. *Working life.* London: Oxford University Press; 1980.
- Braverman H. *Labor and monopoly capital.* New York (NY): Monthly Review Press; 1974.
- Hacker W. Objective and subjective organizations of work activities. In: von Cranach M, Harré R, editors. *The analysis of action.* Cambridge (): Cambridge University Press; 1982.
- Kohn ML, Schooler C. *Work and personality: an inquiry into the impact of social stratification.* Norwood (NJ): Ablex Publishing Corporation; 1983.
- Volpert W. *Handlungsstrukturanalyse [].* Köln (Germany): Pahl-Rugenstein Verlag; 1974.
- Theorell T. Review: work stress: the making of a modern epidemic [book review]. *Eur J Public Health.* 2004;14(2): 218–9.
- Theorell T, Karasek R. Current issues relating to psychosocial job strain and cardiovascular disease research. *J Occup Health Psychol.* 1996;1:9–26.
- Kalleberg A. Studying employers and their employees: comparative approaches. *Acta Sociol.* 1994;37:223–9.
- Klein KJ, Kozlowski SWJ. From micro to meso: critical steps in conceptualizing and conducting multilevel research. *Organ Res Methods.* 2000; 3:211–36.
- Hox JJ. *Multilevel analysis: techniques and applications.* New Jersey (NJ): Lawrence Erlbaum Associates Inc; 2002.
- Härenstam A, Bejerot E, Schéele P, Waldenström K, Leijon O, the MOA Research Group. Multilevel analyses of organizational change and working conditions in public and private sector. *Eur J Work Organ Psychol.* 2004;13(3):305–43.
- Härenstam A, Rydbeck A, Karlkvist M, Waldenström K, Wiklund P, the MOA Research Group. The significance of organisation for healthy work: methods, study design, analyzing strategies, and empirical results from the MOA-study. Stockholm: Arbetslivsinstitutet; 2004. Arbete och Hälsa, 13.

35. Bolin M, Bliese P, Marklund S. Organizational impact on job demands and control—a multilevel analysis of three organizational levels. *Work*. In press.
36. Höckertin C, Härenstam A. The impact of ownership on psychosocial working conditions: a multilevel analysis of 60 work sites within different types of operations in the service sector. *Econ Ind Democr*. 2006;27(2):245–84.
37. Van Veldhoven M, de Jonge J, Broersen S, Kompier M, Meijman T. Specific relationships between psychosocial job conditions and job-related stress: a three-level analytical approach. *Work Stress*. 2002;16(3):207–28.
38. Söderfeldt B, Söderfeldt M, Jones K, O'Campo P, Muntaner C, Ohlson C-G, et al. Does organization matter?: a multilevel analysis of the Demand-Control Model applied to human services. *Soc Sci Med*. 1997;44:527–34.
39. Van Yperen NW, Snijders TAB. A multilevel analysis of the Demands-Control Model: is stress at work determined by factors at the group level or the individual level? *J Occup Health Psychol*. 2000;5(1):182–90.
40. de Jonge J, Breukelen GJP, Landeweerd JA, Nijhuis FJN. Comparing group and individual level assessments of job characteristics in testing the job demand-control model: a multilevel approach. *Hum Relat*. 1999;52:95–122.
41. Marklund S, Bolin M, von Essen J. Can individual health differences be explained by workplace characteristics?—a multilevel analysis. *Soc Sci Med*. 2008;66:650–62.
42. Barley SR, Kunda G. Bringing work back in. *Organ Sci*. 2001;12:76–95.
43. Marmot M, Siegrist J, Theorell T. Health and the psychosocial environment at work. In: Marmot W, Wilkinson RG, editors. *Social determinants of health*. Oxford (United Kingdom): Oxford University Press; 2006. p 97–130.
44. Bejerot E, Söderfeldt B, Härenstam A, Aronsson G, Söderfeldt M. Towards healthy work or ruthless efficiency?: the effect of managerial changes on professional work with life or things. In: Bejerot E. *Dentistry in Sweden—healthy work or ruthless efficiency?* [dissertation]. Solna: Arbetslivsinstitutet; 1998. Arbete och Hälsa, 14.
45. Lounsbury M, Ventresca M. The new structuralism in organizational theory. *Organization*. 2003;10(3):457–80.