TNO-paper

Organisational interventions to combat stress risks in the Netherlands: design oriented approach

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1 Introduction

1.1 Purpose of this paper

The members of PEROSH, Partnership for European Research in Occupational Safety and Health, are concerned with the issue of 'work organisation and psychosocial factors of stress'. The group observed a need to enhance knowledge on the theme 'Organisational interventions to combat psychosocial factors of stress'. A first step in doing so was to create opportunities to learn from each (participating) country about activities undertaken in this field. The group has a special interest in the organisational interventions and measures and their effects in reducing work related stress (risks). The PEROSH group decided to organize a workshop at the 6th Annual Conference of the European Academy of Occupational Health Psychology to exchange experiences from different countries. Each participating country was invited to deliver a statement-paper about the state of the art in their country. This paper is the Dutch contribution.

1.2 Framework for approaches to study psychosocial risk factors

There are at least two aspects which hinder a comparison among European countries. Despite a focus on psychosocial factors which are work related and work organisation related, not all countries participating in PEROSH already have developed approaches from an organisational perspective. There are, however, many approaches used which are individually oriented. Another comparison hindrance to put forward is that approaches used may differ in the degree to which they are oriented on research or on intervention. In order to position the variety of approaches, a common framework was developed. Figure 1 presents four possible approaches of projects on stress along two dimensions. By 'stress' we mean to include all work related psychosocial effects. The two dimensions indicate:

1. a focus on stress approaches either at the level of individuals (i.e. individual / personal characteristics) or at the level of organisations (i.e. characteristics of jobs and organisations);
2. a focus on either explaining stress and effects of stress (scientific and policy research) or on interventions and measures to preventively or curatively combat stress and stress risks (consultancy, action research).

We do realise that this classification has restrictions. At the level of individuals, for example, individually oriented approaches not only address personal characteristics, but also individual complaints, absenteeism behaviour and work reintegration. Another point to mention is that the division between individual and organisational interventions is less strict in practice. Several research projects and interventions affect both individuals and the organisation. Primary prevention, for example, can be aimed both at improving the work environment and at enhancing personal efficacy and competencies. Alternative classifications, however, bare the same kind of problems. Another classification using the dimension individual/group versus organisation and a dimension stressing intervention distinguishing between primary prevention versus secondary and tertiary prevention, meets the problem where to place interventions that can be positioned in more than one quadrant (Bossche & Houtman, November 2003; Kompier, 2003; Kompier & Kristensen, 2001). Here, distinguishing between individual and organisational interventions is troublesome too, because group interventions

can be aimed at both personal stress reactions and organisational redesign. Such indistinctness comes to the fore, for example, when one asks oneself whether installing team based work is a group intervention or an organisational intervention. Anyhow, we use our classification primarily to produce an inventory of the variation of approaches and to make this variety visible, and not as a system to exclude approaches.

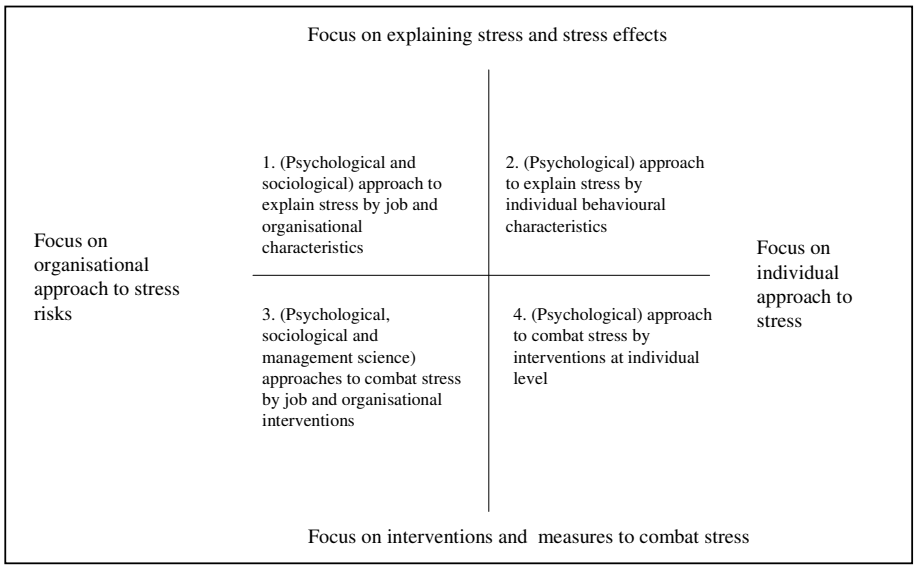

Figure 1. Approaches to research and combat stress and other psychosocial factors

The two dimensions lead to four different positions in Figure 1. All quadrants include 'psychological approaches' (related to the study of psychosocial phenomena) including epidemiological, medical disciplines, biological psychology and related disciplines. Quadrant 1 and 3 also exhibit contributions from 'sociological and management science approaches' (including ergonomics, industrial engineering, operations management). We assume that many (but probably not all) used stress / psychosocial factor approaches can be positioned in one of the four quadrants. The quadrants 1 and 2 are oriented to enhance (scientific) knowledge, whereas quadrants 3 and 4 have a direct relation with practical purposes and solving stress related problems. Looking at interventions, the aim of the PEROSH group is to identify approaches to combat psychosocial factors related to the two lower quadrants 3 and 4. Our main focus in this paper, however, is to treat Dutch *organisational* intervention approaches to combat psychosocial factors: quadrant 3.

With respect to the situation in the Netherlands we will go into three questions:
- 1 What kind of approaches are used in the Netherlands to combat psychosocial factors of stress?
- 2 What specific organisational interventions and measures are undertaken and what were their main incentives?
- 3 What are the results of interventions and measures?

Related to the first question, the Netherlands are facing many approaches. The most relevant organisational and non-organisational approaches from a general perspective are positioned in the presented Figure and only mentioned in the main text, because the main text deals with organisational interventions in quadrant 3. Therefore, approaches corresponding with quadrants 1, 2 and 4 and important approaches that cannot be placed in one quadrant, because these approaches overlap with several quadrants, are

briefly discussed in Appendix B. With respect to the second and third question about organisational interventions we will describe a number of sub approaches that we are heading under the 'Combat Workstress Approach'.

We will start in Section 2 with briefly mentioning the most relevant approaches in the Netherlands within all the quadrants of Figure 1. In Section 3 we will treat the organisational interventions and measures of the 'Combat Workstress Approach'. The approach will be evaluated as well. In Section 4 we concentrate on the background of this approach, namely its design orientation towards psychosocial risk factors. Section 5 wraps up the statement paper with conclusions and discussion.

1.3 Reading instruction

The part dealing with the central aim of this contribution, organisational interventions in the Netherlands, is Section 3. For the reason that this intervention, the Combat Workstress Approach, is uniquely related to a design theory originating in management science a description of this design theory is given in Section 4.

To better understand how it became possible for this Combat Workstress Approach to take roots the Dutch political context of combating psychosocial risk factors will be highlighted in Appendix A.

For those interested in Dutch approaches with reference to quadrants 1, 2 and 4 we outline the main contributions in Appendix B.

Appendix C covers the evaluation criteria that were presented in the 'Instructions for papers and programme' (Beate Beermann, Evelyne Morvan, Peter Oeij, September 2004).

Appendix D lists the participating member institutes of PEROSH.

2 Research and interventions

2.1 A general view

We will mention the most relevant approaches in the Netherlands covering all four quadrants (Figure 2). It will be no surprise that there are many different ways how psychosocial factors are studied and dealt with in the Netherlands. The field we discuss is broad since we are dealing with the 'psychosocial work environment', which is the domain of the content of jobs - including social and functional contacts - and the organisation of work (Kompier, 2003: 193). Psychosocial risks differ from material and physical risks, in the sense that psychosocial risks refer to aspects that affect employees cognitively, emotionally and socially. Major psychosocial risk factors are high job demands and lack of control options. Psychosocial factors, however, are part of a larger policy scope in which safety, health and well-being risks are tackled in the Netherlands. The framework for this policy scope is the Dutch Working Environment Act (issued in 1989 and renewed in 1998). The purpose of this act was to improve the working conditions of workplaces in order to reduce social costs by taking away the risks. In practice, attention was paid to organisational change and individual change separately as well as simultaneously.

It is difficult to determine the main trends how the community of researchers, consultants, policy makers and work organisations are approaching the issue of psychosocial factors. The most relevant (national) approaches are placed in Figure 2.

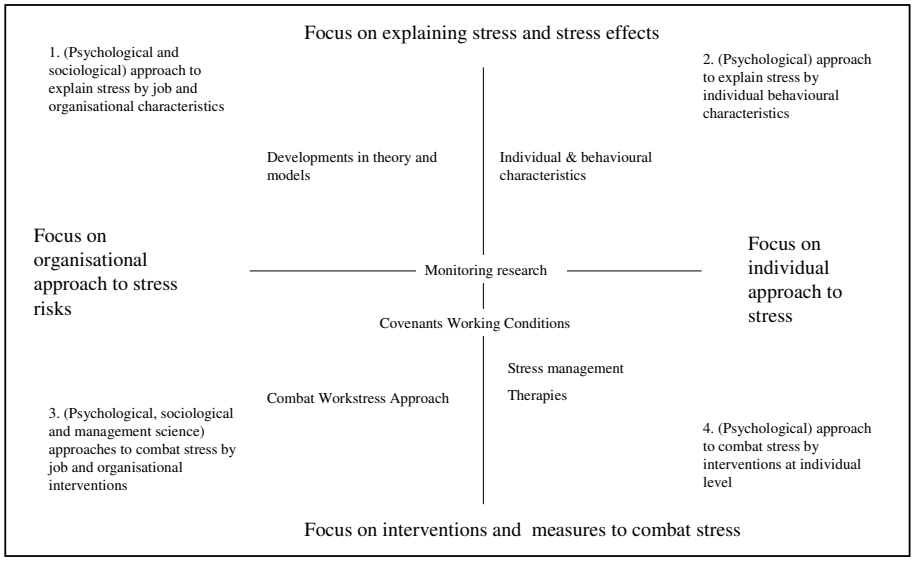

Figure 2. Approches to combat psychosocial risk factors in the Netherlands

When studying combating psychosocial risk factors in general several researchers observe that there is a stronger accent on changing the worker (reducing complaints) than on changing the psychosocial work environment (reducing exposure) (Bossche & Houtman, November 2003; Cox, Griffiths, & Rial-González, 2000; Semmer, 2003). The goal of interventions on the work environment is to eliminate, reduce or change job stressors ('primary prevention'), whereas individual stress interventions aim at altering the way employees respond to job stressors once they start showing symptoms

of stress from getting sick ('secondary prevention') or treating employees who suffer from severe stress consequences, and rehabilitating employees to work after a protracted sickness absenteeism ('tertiary intervention') (Bossche & Houtman, November 2003; Kompier & Kristensen, 2001).

In quadrant 1 and 2 we placed approaches oriented towards enhancing scientific knowledge, of which the focus is on explaining stress and stress effects. Quadrant 1 houses theories and models with much attention for work characteristics, like the Demand-Control-Support model and the Effort-Reward Imbalance model. Quadrant 2 pays more attention to individual and behavioural characteristics, like coping style, personality traits, and physiological responses. Again we stress that both quadrants show much overlapping research. An absolute division cannot be made. Quadrant 3 and 4 are concerned with the combat of stress and causes of stress. In quadrant 4 stress management and therapies are positioned. Here, there is overlap with quadrant 2 concerning clinical research and clinical interventions. In quadrant 3 the Combat Workstress Approach is positioned, which is an organisational intervention consisting of various sub instruments. It will be extensively discussed in Section 3. One intervention is crossing borders between quadrant 3 and 4, the Covenants on Working Conditions, a conglomerate of highly diverse industrial sector activities directed at individual and organisational interventions, dependent on agreements of social partners in each sector. These covenants are related to the Dutch social policy, which we will discuss together in Appendix A. One approach in Figure 2, monitoring research, is overlapping all quadrants. Monitoring is performed by governmental research bureaus, the labour inspection, sector research commissioned through Covenants on Working Conditions and by non-governmental research bodies. Appendix B provides a further description of approaches within this model, including a few not mentioned in Figure 2. Having said that we will now turn to the organisational interventions.

3 Organisational interventions: Combat Workstress Approach

3.1 Quadrant 3: 'organisational interventions'

Referring to 'organisational interventions' to combat psychosocial risks in Figure 2, quadrant 3, we will discuss the Combat Workstress Approach. The Combat Approach is not a single instrument and not a single approach, but can instead be seen as a number of different activities that are somehow interconnected. It consists of various sub instruments that are mostly used separately. Sometimes one or two sub instruments are combined in a project. Such projects are research and or consultancy projects in individual organisations. This approach is related to the Working Conditions Act (Appendix A).

Combat Workstress Approach

The organisational intervention concerning the Combat Workstress Approach is a combination of sub instruments (Figure 3).

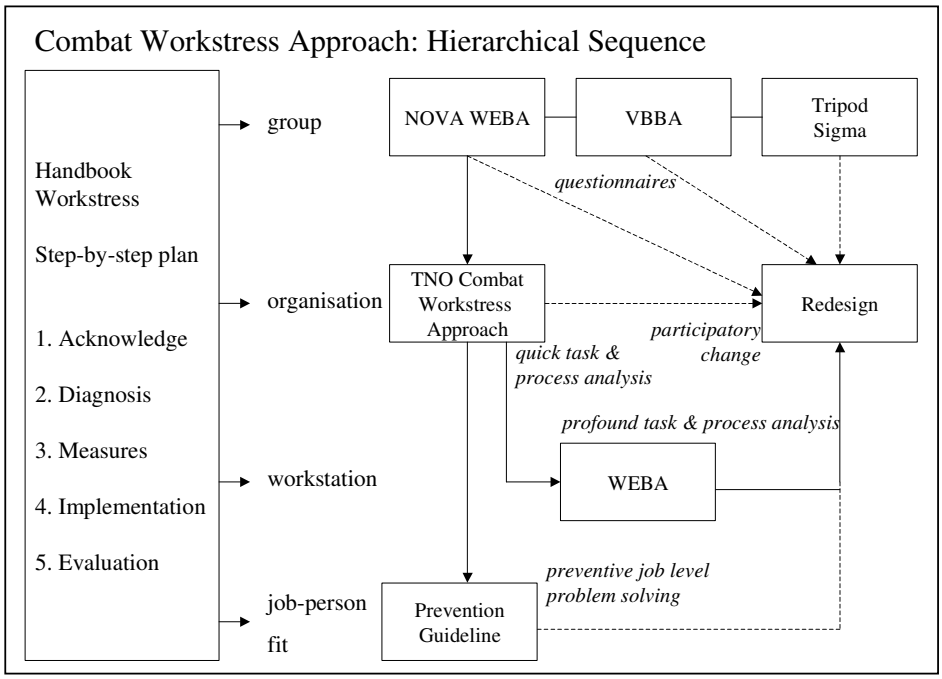

Figure 3. Hierachical sequence of the workstress approach

The approach makes a distinction between two elements: the *process* of how to combat psychosocial risks and the *contents* about what should be done. A useful framework to combine these elements is offered by a step-by-step plan published in the Handbook Workstress more than a decade ago (Kompier & Marcelissen, 1990). This step-by-step plan distinguishes between five activities, namely first acknowledging that there are stress problems and something needs to be done; second to perform a diagnosis of the situation by establishing risk factors, risk groups and options for interventions; third to select a coherent set of measures; fourth to implement these measures

in order to solve the stress problems, fifth and finally to evaluate the effects of the measures and plan follow up actions (see the left column in Figure 3).

The step about the diagnosis leaves a number of options for users. It is possible to diagnose problems at different levels. Figure 3 exhibits four levels. For each level there are different instruments to diagnose the stress related problems. These four levels are: 1] groups at departmental level, but possibly also the total working population or personnel of the organisation, 2] the organisation or its separate departments or teams, 3] the workstation or separate jobs, and 4] the job-person fit, that is the function, the person and the relation between a person and his or her function. The sub instruments in Figure 3 can sometimes be used for more than one level, as we will see below.

The ideal way to work with the Combat Workstress Approach is to follow an hierarchical sequence, namely, starting by diagnosing stress related complaints by *groups* of employees with a 'questionnaire' (NOVA WEBA, VBBA or Tripod Sigma) which results in a listing of risk factors and risk groups. The next step is a 'quick task and process analysis' (TNO Combat Workstress Approach), meant to connect these finding to the *organisation* by asking yourself in which departments and teams the risk groups are located and at which point in the process of production or services, the primary process of the organisation, the risk factors are located. It is possible to proceed to the 'redesign' step from here after the questionnaires are analysed or as soon as the 'quick task and process analysis' is made. The object of redesign, embedded in a process of 'participatory change', can be threefold: the organisation's primary process, the work process of departments or teams, and the contents of jobs. This includes changing policies concerning planning and control, ICT application, Human Resources, etcetera. Before redesign is taken up, the user can also go a step deeper and perform a 'profound task and process analysis' (WEBA). During this step expert knowledge from inside or outside the organisation is needed to make a systematic and thorough analysis of the relation between the primary process, the task structure in jobs and the stress risks at the level of a *workstation*. Such an analysis can be performed for separate functions but also at departmental level. Once this has been done the redesign step can be taken up. A final step at the *job-person fit* level is 'preventive job level problem solving' (Prevention Guideline). The objective at this job-person level is to retrospectively make an inventory of reasons why a person became long term sick and disintegrated from work by looking at both the design of the job as well as at individual characteristics. The purpose is that the organisation can learn from individual cases, why and where things went wrong, in order to prevent it to happen again to others.

The reason for this hierarchy is simple. General risks factors may affect all personnel, whereas differences in coping styles and coping capacities may lead to situations in which some risks affect some individuals but not all. General risks should be combated by an approach that eliminates risks at their source. This benefits all personnel. Redesigning the work environment is such a structural approach, while stress management programmes, for example, are not. The first type combats causes and roots while the second combats effects and symptoms.

Group

Each level has its own sub instrument. At the 'group' level various questionnaires have been developed which provide a cross sectional overview of stress related problems. These questionnaires are addressed to employees (supervisors and non supervisors) and present information on how these respondents evaluate work environment characteristics and how they affect health related behaviour, like emotional exhaustion, intentions to sick leave, and job satisfaction. We briefly discuss three such instruments: NOVA WEBA, VBBA and Tripod Sigma.

The NOVA WEBA ('NIPG-TNO OnderzoeksVragenlijst Arbeidsinhoud WElzijn Bij de Arbeid', TNO questionnaire on job content and well-being at work) is a questionnaire to signal and locate stress related risks (Dhondt & Houtman, 1992; Kraan, Dhondt, Houtman, Vroome, & Nelemans, 2000). Results indicate objective risks caused by job contents and work organisation assessed at the level of the organisation as a whole, and divided into groups at departmental and functions. In most cases NOVA WEBA is used to diagnose at group level. Results also identify risk groups in the organisation (age, sex, function, educational background, etc.). The quality of NOVA WEBA is tested and meets scientific standards concerning reliability and validity. NOVA WEBA was tested on a data set of over 11 thousand employees, which is used as a reference for individual firms to compare their results with those of firms from the same sector at sector level or with other sectors. NOVA WEBA consists of the following 14 scales (156 items) divided over four themes:

Control requirements / Job demands: -quantitative job demands, control problems
Control options: -job autonomy, contacts, organising tasks, information provision
Job composition: -completeness of functions, cycle times, demanded craftsmanship, cognitive complexity / mental effort
Assorted risks: -job uncertainty, time constraints, job-education fit and job-experience fit, emotional effort / exhaustion

VBBA ('Vragenlijst Beleving en Beoordeling van de Arbeid', Questionnaire experience and evaluation of work) is a questionnaire to more or less objectively assess if employees impend to drop out due to psychological complaints as high mental strain (mental exhaustion) and burnout (Veldhoven & Meijman, 1994; Veldhoven, Meijman, Broersen, & Fortuin, 1997). VBBA is owned by SKB Centre for Expertise on Work and Health and applied by various specialised workplace health and safety agencies ('Arbodiensten'). These agencies support organisations to execute legal obligations resulting form the Working Environment Act, like medical control and physical check ups of employees. SKB has a reference dataset containing more than 70 thousand employees. VBBA consists of 14 scales (108 items):

work tempo and work quantity, emotional effort / exhaustion, job variety, learning opportunities, job autonomy, relation with colleagues, relation with direct supervisor, participation / involvement, uncertainty about the future, job satisfaction / pleasure in working, organisational commitment, need for recovery, worrying behaviour

Tripod Sigma is a stress management tool to be used by managers (Nelemans, Wiezer, Vaas, Gort, & Groeneweg, 2003; Wiezer & Nelemans, 2004; Wiezer, Nelemans, Groot, Gort, & Vaas, December 2003). More explicit than NOVA WEBA and VBBA the stress related problems from employees are related to the primary process, which should clarify the interest for managers to combat their employees' stress risks. Although the questionnaire is the heart of the method (which explains its position in Figure 3), there are a number of sub instruments like those also incorporated in the general Combat Workstress Approach, such as a quick scan, a diagnosis by an expert, a diagnosis from individual workstress drop outs, and a management workshop. Tripod Sigma questionnaire consists of 8 internally validated scales (166 items):

Basis risk factors (for stress):
Procedures, Hardware, Organisation, Communication, Training and skills, Incompatible goals, Social

support and individual defences

The survey results of all three methods should give an overview of risk factors and risk groups. Although all questionnaires ask individuals to evaluate their work, NOVA WEBA and Tripod Sigma are more focused on organisational causes for stress risks, while VBBA accentuates health effects on the individual and individual stress reactions. Compared to NOVA WEBA an VBBA, Tripod Sigma is, moreover, oriented towards managerial issues, and used in a multinational, English spreaking, context.

Organisation

A second step is a diagnosis at organisational level. Once the risk factors are determined, it is important to analyse the source from which they arise: what are the roots of these risks that may cause stress reactions by individuals? 'Organisational level' can be understood in different ways: the organisation as a whole, the separate departments, and the separate teams. It simply means that users can choose the entity they wish to investigate. The sub instrument for this level is the TNO Combat Workstress Approach (TCWA) (Lourijsen, Kleijn, & Dhondt, 1999; Oeij, Frielink, & Jongkind, 2003). TCWA first deals with the process 'how' stress risks should be combated. Its approach is participatory which means that its start is to jointly assess how to tackle the issues, e.g. deciding whether to use a questionnaire first or to start with analysing the primary process, or deciding to start with a diagnosis or skip that when enough information is at hand and proceed by looking for solutions, etcetera. At a later stage TCWA puts a focus on 'what' should be done. In most occasions, that is how it has been used, a two-step approach is used, consisting of diagnosing causes for work stress and generating solutions for these causes.

The main activities in diagnosing the causes are to make an inventory of tasks performed and to make an inventory of control problems and process disturbances which prevent the execution of tasks successfully. Attention is given to the balance of norms or standards (job demands) and control options. The central activities in generating solutions is to identify causes of control problems and process disturbances, to formulate solutions for these causes and to select measures to solve control problems and process disturbances. This all leads to an action plan, followed by implementation of measures and, later, by evaluating the effects of these measures on a sustainable way of solving the control problems and process disturbances.

TCWA is very much a tool for consultative problem solving and as such well suited for process consultancy. The method consists of an agreed number of sessions ('workshops'), for example with employees from a department, and their manager. In this sense TCWA is not an expert tool, telling the client what problem he or she may have. The participatory approach guarantees a maximum client input. This is also why it is a 'quick task & process analysis' instead of a 'profound' one. But 'quick' here does not mean 'dirty'.

The main sub tool to diagnose the presence of control problems and process disturbances is the fish-bone technique. This technique offers the client possible causes for control problems and process disturbances, by more or less asking, "hey, is this control problem or process disturbance caused by this source [source mentioned]?". Figure 4 presents the fish-bone and the possible sources or causes for control problems and disturbances (Oeij, Frielink et al., 2003: 7).

The redesign step is also positioned at the 'organisation' level in Figure 3, but will be discussed in Section 4, along with its theoretical background in management science. For now it suffices to state that redesign preferably is undertaken as participatory

change, and that it focuses either on the primary process, departments and jobs, or a combination of these.

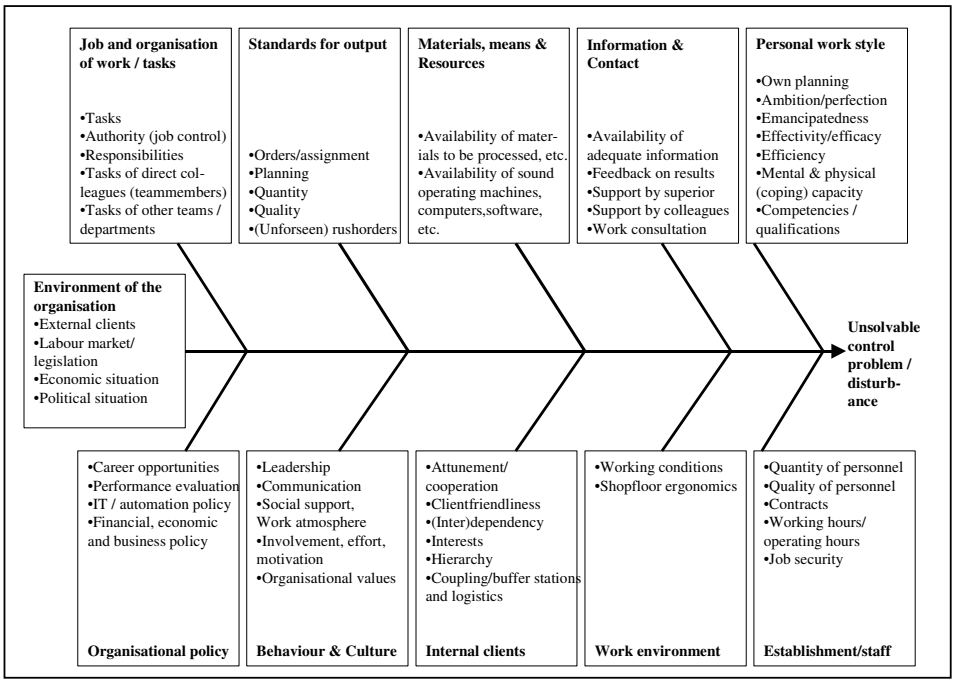

Figure 4. Fish-bone technique to assess control problems and process disturbances

Workstation

The workstation is the location where the employee performs his or her tasks. Since locations are often not fixed (e.g. bus drivers, sales people) jobs are synonymous for workstations in this perspective. There is a variety of instruments to study task and process analysis in a profound manner, but there is one that integrates both, namely the WEBA-method. WEBA stands for 'Well-being at work' (WElzijn Bij de Arbeid) and assesses the quality of work in terms of risks well-being, namely the risks for stress and the lack of opportunities for learning (Dhondt & Vaas, 2000; Pot et al., April 1990; Pot et al., 1989; Vaas, Dhondt, Peeters, & Middendorp, 1995).

A WEBA analysis consists of six steps. The first step is a task analysis of a job resulting in an inventory of executing, preparatory, organizing and supportive tasks. In the following step the tasks are evaluated against well-being conditions, namely work cycle time, cognitive complexity, autonomy, opportunities for contact and provision of information. In the next steps 3 and 4 an analysis is made of control problems and process disturbances by investigating the balance between control capacity (job control) and control requirements (job demands). Unsolvable control problems are stress risks, while solvable problems provide opportunities for learning. Sources for unsolvable control problems are norms (output standards), material (resources to be processed), means (tools, machines, information to process with), operations (actions to be executed), feedback on results, and environment and interactions (social and functional contacts). In step 5 the job is evaluated according to seven criteria: completeness of tasks, sufficient organising tasks, sufficient non short cycled tasks, balance of easy and difficult tasks, sufficient opportunities for contacts and sufficient information. Step 6 consists of reporting the results followed by a discussion about priorities and measures considered (Pot et al., April 1990). In the mid nineties the WEBA method was ex-

panded by a redesign method and a process approach for organisational renewal (Vaas et al., 1995).

Although we positioned WEBA at the 'workstation level', like wise analyses can be done for all functions in a department. In that case WEBA is applied at departmental or team level. It is even possible to apply this instrument for all functions in an organisation. But since its application is labour intensive it is advised to have a WEBA analysis preceded by a questionnaire in order to determine risk groups and risk departments first.

Take notice that the WEBA method was originally very much an expert tool. It was not meant to be that way, but using the tool demanded expert knowledge. The new version is easier in use but still time consuming. The TNO Combat Workstress Approach and the NOVA WEBA questionnaire are both derived from the WEBA method. An abbreviated version that combines the WEBA method and TCWA is the Job Stress Self Diagnostic Method (Oeij, 2002).

Job-person fit

The Prevention Guideline is an instrument for the (primary) prevention of absenteeism due to psychological problems (Franck & Klein Hesselink, October 2003; Franck & Wiezer, July 2004). The guideline is a retrospective method to study 'critical incidents'. It offers supervisors and their employees a conversation model to look back why the employee became long term sick due to psychological reasons. The conversation model helps users to determine the causes of stress risks that were the causes for experiencing stress and for the person's stress reactions, eventually resulting in the dropping out of work of the employee. Subsequently supervisor and employee discuss possible interventions that could have prevented the employee from getting sick. In a next step the discussion is continued at the level of the department and team, focussing on what can be learned from the past to benefit the future. At departmental level the best interventions and their critical success factors are assessed and anchored. Finally, the critical success factors are monitored at organisational level and coupled to a cycle of continuous improvement.

The Prevention Guideline is also based on the line of reasoning developed for the Working Environment Act as in WEBA and other instruments. In the first step about assessing the major stress risks five areas of attention are tackled: high job demands and disturbances in the work process, conflict relations, limited career opportunities, work-life unbalance, and exposure to violence, aggression and suffering. Step two is an assessment of control options offered by the job design and by functional contacts with colleagues and the supervisor(s). This is done by a confrontation of the problem(s) of the employee with respect to the observed stress risks with possibilities to solve the problem(s). Job redesign is required if there are no possibilities to resolve the problem with the existing control options. In step three solutions are discussed and assessed at departmental or team level during a team meeting. Colleagues of the psychologically incapacitated employee analyse their own work to look for more and alternative solutions that may be helpful as well. The result is a set of measures which carry the commitment of a team as a whole. Step four is to translate solutions into critical success factors by making them specific and measurable. Critical success factors should help employees and managers to reach the organisation's goals. Critical success factors can give an adequate response to the question "what is needed to prevent the now missing solution from being absent in the future?" The fifth step is to anchor the critical success factors by having them incorporated in and monitored through management information systems. Critical success factors, i.e. specific activities, are monitored and evaluated this way and related to performance criteria of individuals and organisational targets. Criteria are, for example, absenteeism rates, job satisfaction and productivity

rates. Although this method starts with an individual case, it is actually not restricted to an individualised 'job-person fit' but goes beyond that in assessing solutions which benefit all. Control options, the main solutions, are of course related to job design and not to individuals.

3.2 Evaluation

To evaluate the organisational interventions by the Combat Workstress Approach we will focus on a selection of criteria that were formulated by the PEROSH group to select and judge relevant approaches (see Appendix C).

Criteria to evaluate approaches:
Effectiveness
Approach characteristics
Approach development
Feasibility for replication

A point to be mentioned beforehand is that it has never occurred that all sub instruments were used simultaneously in one project. We do not intend to evaluate each sub instrument separately, because that would demand too much space. The evaluation's main purpose is to give the international reader the possibility to assess whether the Combat Workstress Approach is applicable in his or her country.

Effectiveness

Clear cut evidence-based effects whether the approach has resulted in reducing psychosocial risks are not available. Evaluation research in this *specific* field of organisational interventions related to the Combat Workstress Approach is almost completely lacking. Only recently, a first evaluation research project was commissioned by the Ministry for Social Affairs and Employment. From a *general* perspective, the Dutch labour inspection carries out research on organisational interventions against the exposure of risks (Ministry for Social Affairs and Employment, 2004).

The research findings on the prevalence of risks and stress reactions, however, are rich. All questionnaires determine risk groups and risk factors and their effects quite satisfactorily with respect to scientific standards. The questionnaires give abundant statistical information for diverse populations, especially the VBBA and, to a lesser extent the NOVA WEBA. Organisations using NOVA WEBA (Kraan et al., 2000) or VBBA can compare their results to findings from a 'reference data set'. Most of these research findings are not public. A point to mention is that the VBBA reference data are not based on a representative sample of the working population, but on findings of sectors that already used the VBBA questionnaire. Secondary analysis are performed, however, with aggregated VBBA data (Veldhoven & Broersen, 1999). Tripod Sigma has thus far been exclusively applied by one multinational company (Nelemans et al., 2003).

The TNO Combat Workstress Approach (TCWA) has been applied to dozens of organisations in private and public sectors (Frielink, 2001). It gathers qualitative information. Whereas TCWA has been successful in diagnosing psychosocial stress factors and formulating solutions, it was less effective in getting measures implemented. Organisational interventions that were implemented were in most cases restricted to

HRM oriented measures. Organisational redesign and even job redesign were scarce. A central reason that explains this partly failure are that the focal points within organisations (i.e., commissioners and interlocutors) are HRM functionaries without much influence on strategy and operations management. Top management and operations management were not involved fully in the projects and could not be committed to the research outcomes to take action (Oeij, Frielink et al., 2003). A promising new offshoot therefore is Tripod Sigma, which stresses the particular role of representatives from operations management in combating stress. Besides the questionnaire, a TCWA like approach is available within Tripod Sigma. Results on organisational interventions with this sub instrument are not available yet.

In short, TCWA is very helpful with respect to its content (i.e. diagnosis). When applied one needs to assure top managements' involvement. This is becoming difficult because, due to today's economic stagnation, management is more focussed on productivity results than on stress reactions of workers. The labour market situation does not stimulate employers very much to investigate in combating stress, since the supply of unemployed candidates is growing. Should management have a longer term view on these matters they would probably recognize that combating stress at its roots is beneficial for the productivity of the organisation in the end.

The application of WEBA has been limited due to its labour intensive use and complexity. An evaluation of the method based on 20 cases draws the following conclusions (Rozemond, Peeters, & Vrooland, 1996). The purpose of applying WEBA was to improve the quality of work in most cases, and not to improve the quality of the organisation. The latter was often too radical. Results indicate that WEBA works very well to enhance the quality of jobs, particularly in increasing control capacity and in decreasing control problems. Effects measured are diminishing employee complaints and personnel recruitment problems and more employee involvement with the working process. Users applying WEBA comment that the positive effects were larger than they expected. Examples are saving costs, higher quality, more flexibility, better logistics, enhanced innovative capacity, lower sickness absenteeism, less division of labour, more team based production. A version of WEBA produced for the education sector was relatively widely used (WEBO, WErkdruk Bij Onderwijstaken, Workload of educational tasks). Despite the need to be trained in the methods' background before being able to apply WEBA, its vision on and definitions of well-being were widely disseminated in the country (Goudswaard & Mossink, 1995). In addition to critical remarks concerning WEBA's complexity and time consumption is its interpersonal variation in the use of the method ('low inter-evaluator reliability'). Based on its application on one occupation, research shows that evaluation criteria to assess the job's stress risks and learning opportunities were applied inconsistently between evaluators (assessors) (Dhondt, 1993). Nonetheless, in those occasions the WEBA was applied it resulted in a thorough analysis of jobs, functions and departmental work processes and a thorough insight of the relation between the primary process and stress among users. WEBA results in profound qualitative analysis. This helped to no longer see stress as a problem of individuals caused by personal and behavioural characteristics exclusively.

The Prevention Guideline is developed only recently. It has been tested in two companies (Franck, Wiezer, & Vaas, July 2004). The conversation model facilitated the users –employee and supervisor- in making a diagnosis. To stick to this conversation protocol proved to be more difficult when applied at the level of the team when a further diagnosing of work related stress was intended. Another point to mention is that users face difficulties in developing solutions to combat work related stress, particularly when solutions are related to sources beyond the level of the department or the

span of control from the supervisor. The Prevention Guideline leads to qualitative information.

Finally, we can say that the majority of readers of the Handbook workstress judge this work, that includes the step-by step plan (Figure 3), in a positive manner (Kamphuis, Huurne, & Poppel, June 1992).

Approach characteristics

The Combat Workstress Approach has, despite its multi-component character, clearly defined goals. This clarity depends, however, on the way how it is used within organisations, namely if users themselves have defined clear short-term or long-term goals. It is therefore important to define the goals to be achieved preceding the application of the instrument or its sub instruments. Once the goals are set out clearly, one can choose among the different sub instruments.

In order to establish if targeted changes in psychosocial factors are realised, it will be necessary to make agreements on the content and duration of a project. In almost all Dutch cases the project consists of analysing the psychosocial risk factors and making recommendations for interventions at individual or organisational level, without including the evaluation of these interventions in the project. A project duration varies between approximately three months to two years. Shortness of time and budget prevents a 'complete' approach from a to z. Evaluation if changes have resulted in reducing risks is therefore scarce, leave alone whether it is established if psychosocial target factors were realised. The best to happen is investigating if workstress or workload complaints, absenteeism, etcetera, have diminished among personnel afterwards. Another reason why individual companies do not often use a 'pre-test – post-test' approach is possibly that such is already done more or less in the cycle of monitoring health and safety risks to which they are legally bound by the Working Environment Act.

Approach development

The approach is built upon sound scientific applied knowledge from disciplines such as psychology, sociology and management science. The Combat Workstress Approach has been designed by a multi-disciplinary team. Strikingly, no end-users were involved in designing the instruments (with the exception of elements of the Prevention Guideline). Although the assumptions are rather clear, especially its management science background is not very easy to understand (see Section 4). The questionnaires and the TNO Workstress Approach are the mostly used sub instruments.

Feasibility for replication

The Combat Workstress Approach is potentially transferable to other countries. It remains to be seen of course if the specific concepts and questionnaire items fit in other than Dutch (language) cultures (Tripod Sigma is in English). The sociotechnical theory background, however, is widely used in Scandinavian countries and in Great Britain. Besides, sociotechnical theory is based on systems theory and as such may be relatively easily transferable to other countries. The Combat Workstress Approach is a very flexible method and adaptable to local situations because of its modular character. It would nevertheless not be correct to say that it is low in complexity. Only when users are trained in its applicability it will become practical, manageable within local resources, and reasonable as regards manpower and financial investments.

The most advantageous characteristic of the Combat Workstress Approach is its unique combination of psychological stress theory and organisational design theory which enables users to ban psychosocial stress risks with an organisational source in a

sustainable manner. It not only takes diagnosing and solving psychosocial risk factors into account, but it also incorporates a method for organisational redesign from a management science perspective. We will discuss this method in Section 4.

Concluding remark

Stress complaints are still major problems. Although working under time pressure is decreasing among the Dutch working population (33% in 1999 to 28% in 2003), this is not the case for working in a high tempo (remained stable at ca. 40%) (CBS, 2004: http://www.cbs.nl/nl/publicaties/ persberichten/2004/pb04n102.pdf). Should we conclude that the Combat Workstress Approach has not been very helpful in combating stress risks? We do not think this would the correct inference. First because stress complaints are affected by many variables. Second because the economic stagnation has resulted in the loss of a substantial number of jobs but not to a decreased intensification of work. The environmental demands for firms and companies to be competitive did not diminish, on the contrary. Besides, employers usually hesitate in such circumstances to invest in personnel, restricting the work force to a minimum. We feel this rather enhances than reduces stress (cf. Dhondt & Kraan, 2001). Moreover, when comparing measures against the exposure of a large variety of work environment risks, workers have the strongest wish for interventions against workload and workstress (52%), followed by interventions against RSI (40%) (Ministry for Social Affairs and Employment, 2004).

4 Design oriented approach to combat stress risks

4.1 Introduction

The first designed sub instrument of the Combat Workstress Approach is the WEBA. The WEBA method was developed by three Dutch research institutes to make the Working Environment Act operational with respect to the issue of well-being. It was learnt from Karasek that there is a notion of balance between job demands and job control (Karasek, 1979). The answer to demands too high or control too low was to increase the capacity to control in jobs. From Hacker it was learnt how jobs could be designed in order to be occupationally complete (Hacker, Iwanowa, & Richter, 1983). Occupationally complete jobs require possibilities for learning, and learning becomes possible if jobs consist of tasks that combine the application of occupational, organising and communicative skills. Therefore, learning jobs should be a 'logical coherent entity' of preparatory, executive, supportive and organising tasks that vary in cognitive complexity (simple and difficult), provide autonomy of choice from solutions one can learn from (control capacity), and facilitate contacts to exchange information. From De Sitter it was learnt how stressors in the working environment are related to the primary process in production and services and how control capacity can be enhanced (Sitter, 1981; Sitter et al., 1986). The answer to eliminate stressors was to redesign the primary process. The implication was that Karasek's psychological control-demand balance at individual level had a management science equivalent in Modern Sociotechnology at the level of the design of the primary process.

The Combat Workstress Approach combines all three insights. Whereas the contribution of Karasek and Hacker is quite clear and well-known to most users (see Christis, 1998; Pot et al., April 1990), this is not always the case with De Sitter's Modern Sociotechnology. Modern sociotechnology is briefly outlined first, and the usefulness of its design theory is argued subsequently (Eijnatten & Zwaan, 1998; Sitter, Hertog, & Dankbaar, 1997; Sitter, Naber, & Verschuur, 1994, 1998 [2e]; Sitter et al., 1986; Sitter, 1993, 1995).

4.2 Modern Sociotechnology (MST)

A central starting point for sociotechnical design of organisations is the 'law of requisite variety'. This law states that variety can only be controlled by variety. With respect to organisations this means that in order to meet the complex demands of the environment of organisations – markets, customers, competition, regulations, etc. – the organisation must have the flexibility to respond in such a way that it is staying in control. Control capacity must balance control requirements at al levels: from strategic positions to performing functions. To arrive at such situations the requirements to control can be reduced or the capacity to control can be enhanced. Reduction of requirements to control can be realised by the (re)design of primary processes to make them low in complexity. The classic example is a flow-based primary process with a minimum of requirements to gear activities to one another, called a streamlined production structure. The way to minimize gearing requirements is to do the opposite of Adam Smith's division of labour as in Tayloristic organisations. Instead of dividing tasks into specialised executing (doing) and organizing (thinking) tasks, tasks are grouped together to create meaningful work. To arrive at a streamlined structure one starts with

the 'streamlining of orders', then streamlines the process of industrial or service production, followed by streamlining managing and regulating tasks, and finalizing by clarifying the employees' tasks which are formed around the execution of the assignments, that are the translation from streamlined orders to work place tasks. We shall try to explain this core idea of organisational (re)design in MST when an organisation has to change.

When organisations face increasing uncertainty and complexity they can be redesigned in order to survive. Some organisations restore the fit with this external complexity by increasing internal complexity. Sociotechnical solutions deal with external complexity by reducing the need for internal control and coordination. Such organisations streamline their primary process and decentralise control options to teams with broad tasks. This strategy is called 'from complex organisations with simple jobs, to simple organisations and complex jobs' (Sitter et al., 1997).

MST aims at 'integral design' because its purpose is to meet all 'functional requirements' at the same time: flexibility, delivery time, throughput time, product / services quality, innovative capacity, quality of work, good industrial relations, pollution control, etcetera. In other words it should benefit organisational goals as well as the health of employees. It does so by designing an 'architecture' that integrates 'social' (human) and 'technical aspects'. It uses the system's theory perspective input, throughput and output. The designed structure of the organisation is able to handle a 'multitude of input-output functions' and creates the capacity to flexibly process a 'multitude of interactions between partners within the system and in its environment'. The structure of the organisation must have the capacity to be as flexible as demanded by its environment. This 'controllability' is maximized as soon as possible disturbances are reduced to a minimum (the 'probabilities of interference' are balanced by the 'capacity to reduce interference'). In other words complexity is reduced and control capacity enhanced.

MST states that the complexity of an organisation is caused by the number of internal and external relations and their variability in time. Bureaucracies are examples of complex organisations. Impending disturbances and variety can be reduced by increasing control capacity. Control capacity can be increased when opportunities for *internal* process variation are available. Organisational design realises this by streamlining the order flows. Streamlining makes the organisation 'simpler' and limits impending variety (Figure 5). External variation stems from rapid changes in the demand for product mix and volumes. The impact of this variety is reduced by introducing 'parallel flows' through 'parallelization'. Parallelization results in an exponential reduction of input complexity. An example of parallelization is creating a primary process in which the flows correspond to product market combinations: 'dedicated' production flows.

Internal variation is caused by the number of relations or interfaces between performance functions in the chain between input and output. In others words, variation is a consequence of necessary contacts between employees and departments within the primary process. These couplings makes the process inflexible and vulnerable for disturbances. Line structures with highly specialized departments and employees are a good example. Internal variation is reduced by reduction of interfaces with the help of 'segmentation'. Segmentation of individual flows aims to reduce internal variety by selective clustering of performance functions into segments with a minimum of interfaces (Figure 5). Performance operations with a maximum of mutual interdependence in direct production or the making of services are clustered: one example is to cluster performance functions with support and preparatory functions.

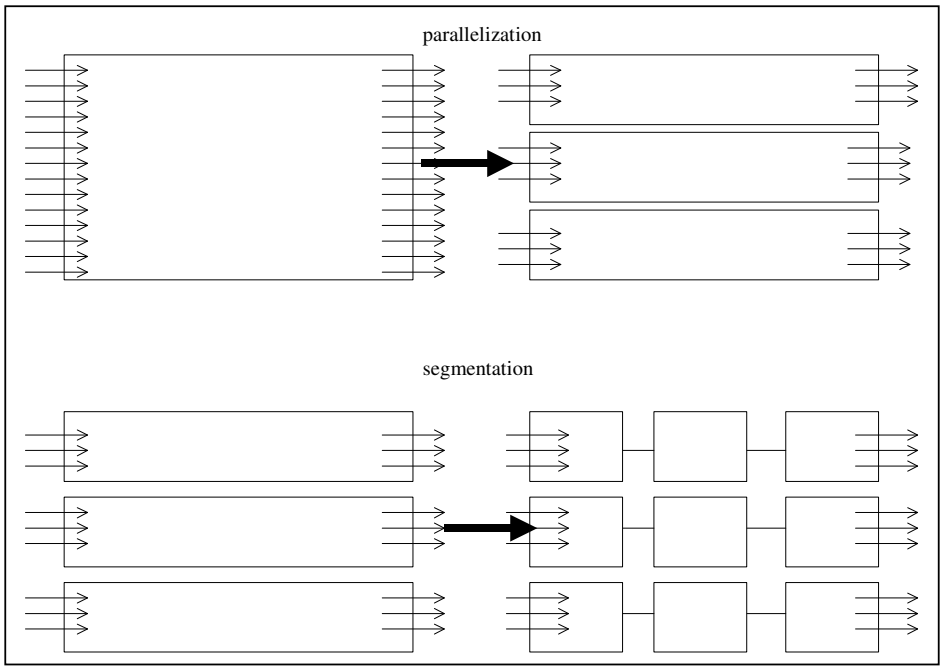

Figure 5. Parallelization and segmentation of order flows within the primary process (Sitter et al., 1997: 511)

MST does not favour a detailed division of labour by splitting functions into (specialised) tasks and tasks into executing and controlling ('managing') tasks as is used in Tayloristic modes of production. On the contrary. The 'internal structuring of segments' above leads to 'complete' jobs in which a person can solve problems as they occur, and can learn from doing so. Such jobs are characterised by a high quality of work. Grouping such functions can lead to 'whole-task groups' (semi-autonomous teams). Decentralisation of control to the lowest organisational levels as possible - i.e. tasks - corresponds with self organisation principles that we can see in teams, such as 'redundancy of functions' (functional flexibility and broad employability), 'requisite variety' (a broad view and insight in the primary process), 'minimal critical specification' (subtle cooperation of employees) and 'double loop learning' (creative learning and innovative performing)(Kuipers & Amelsvoort, 1990: 58).

MST is referred to as Integral Organisation(al) Renewal (IOR) (Eijnatten & Zwaan, 1998; Sitter et al., 1997) because it is a design (oriented) theory for four reasons. It uses redesign to combat structural and process problems of firms; it designs alternatives and has methods to compare alternatives; it has a participatory approach and pays attention to the process of design (strategies, methods, power relations); and it is concerned with implementation and its impacts. Compared to Business Process Reengineering IOR lays a stronger accent on the democratic participation of the involved organisation members and compared to Lean Production IOR has a more elaborated set of design rules. On the other hand, IOR is also quite complex and labour intensive, because integral design is not easy. WEBA nevertheless also embraced integral design, that is, improving both the quality of work and the quality of the organisation, and includes a redesign manual based on MST (Peeters & Mossink, 1995).

Although statistical data are scarce IOR is broadly used in Dutch industry and service-delivery organisations. At the end of the nineties more than 200 sociotechnical

projects were systematically documented in the literature. As results the following maximum measures are reported: 70% throughput time reduction, 60% cost reduction through smaller stocks, 50% defects reduction, 40% customer complaints reduction, 24% reduction of indirect work, 15% increase in productivity. Besides these quantitative results, workers reported improved commitment, involvement and a more stimulating organisational climate (Eijnatten & Zwaan, 1998: 305-306).

4.3 Relation between psychosocial risks factors and MST

The WEBA method regards stress risks as a function of the design of the work organisation, which, following the hierarchy, eventually results in the design of jobs and tasks. Sociologically speaking stress risks in this sense are a matter of division of labour. WEBA bridges between quality of work and redesign of jobs by relating the psychological insights of Karasek and Hacker to management science of integral design theory (Christis, 1998; Pot et al., April 1990). Stress risks are control problems during the work performance that are caused by the work organization and that cannot be solved by the employee, nor by him- or herself, nor with the help of others. Stress risks may result in stress effects, which partly depends on the individual's coping style. Put shortly, not the control problem is the issue, but the lack of control capacity, implying the need for a model that conceptualises stress risks as a dynamic balance between control capacity and control demands. Dynamic, in the context of continuously adjusting the balance between changing work situations and the selection of problem solving control opportunities. Internal control capacity refers to possibilities to vary one's work in speed, working method, order of actions, and so on, while external control capacity is the possibility to consult others or get the help form colleagues. Job control is mainly about autonomy, functional contacts, and having influence on organizing tasks like planning and division of assignments.

WEBA uses a transformation model of input, throughput and output to analyse jobs and control problems in jobs (Figure 6). Control problems related to job content can have different sources. The source is the location in the primary process (at the level of jobs related to the complete work organisation) where stress risks originate. The seven sources are:

- 1. material that needs to be processed contains flaws (resources, information, humans, animals). Take notice that a cook processes resources, a policy maker processes information and a doctor processes people;
- 2. norms that need to be achieved are unfeasible, like the quantity and quality of what is to be produced;
- 3. information about the goal of the job and about the assignments are inadequate, too late, or incomplete;
- 4. means that are used in processing the material like machines, tools, computers, time and (human and animal) capacities and power, contain defects and flaws;
- 5. interactions with the network of persons that can have an influence on executing the tasks, like colleagues, clients, and the public, hinder instead of facilitate the processing of operations;
- 6. feedback on the results from supervisor, colleagues, clients and customers is inadequate, too late, or incomplete;
- 7. operations, which is the activity of processing itself, contain unexpected and unsolvable disturbances.

If an employee is confronted by a disturbance of any kind, this transformational model helps to locate the source of the disturbance not only in employees' job (lower part of Figure 6), but also in the primary process through search conferences.

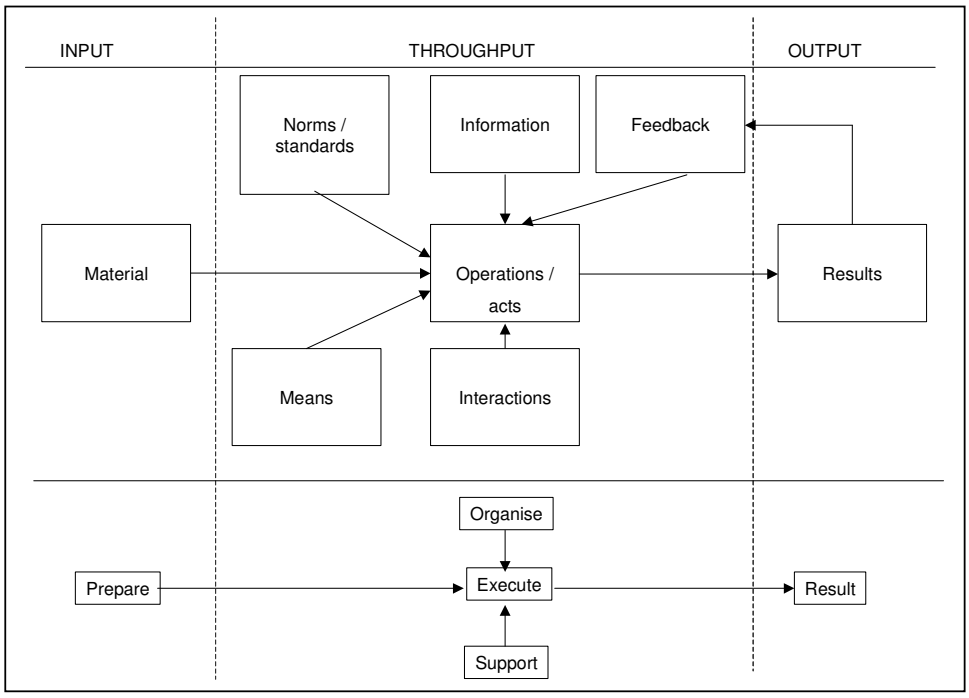

Figure 6. Transformation model: sources for control problems and system functions of the job (Derived from Pot et al., 1989; Vaas et al., 1995).

It should be clear by now that control capacity determines whether control problems can be solved, and if not, that these control problems are psychosocial risks to everyone, resulting in stress reactions dependent on the individual's degree of coping capacity.

5 Conclusion and discussion

5.1 Conclusion

We started with three questions:
1. What kind of approaches are used in the Netherlands to combat psychosocial factors of stress?
2. What specific organisational interventions and measures are undertaken and what were their main incentives?
3. What are the results of interventions and measures?

Many different approaches to combat psychosocial factors can be found in the Netherlands. In each category of Figure 1 there are approaches, which are described in Appendix B. We discussed the Combat Workstress Approach as the main example of approaches to combat psychosocial factors by organisational interventions in this contribution. This approach consists of various sub instruments. Its central goal is to assess and eliminate the sources of problems in the work environment (question 1).

Specific organisational interventions undertaken with respect to influence stress risks at the source in the organisation where they originate, are organisational redesign and job redesign. These are the most far going and structural interventions. Other interventions include reformulating HRM policies, working time schedules, flexibility and labour force, ICT policies, organisational behaviour, enhancing competencies, personal efficacy. The incentives for these interventions are twofold. Unions favoured combating stress risk in the interest of workers. Management agreed on these issues in exchange for more flexibility, improved productivity and lower costs for absenteeism. But this does not guarantee profound organisational change. Sometimes the only feasible solutions do not go further than combating effects instead of causes (question 2).

The results of the approach are difficult to measure, which is a weak point (see also Bossche & Houtman, November 2003). This varies, however, for the different sub instruments. Most sub instruments gather qualitative information; the questionnaires gather statistical data. Evaluating the effects of the intervention following the phase of research and diagnosis is in most cases not incorporated, as are collecting statistical details of effects. Finally, the objects of change differ between cases (i.e. organisations applying the approach). Interventions can be directed at a variety of goals, sometimes at the same time. Examples are the improvement of job contents, ergonomic conditions, communicational behaviour, leadership, the primary process, etcetera. This hampers to determine which effect is caused by what intervening factor, let alone to predict desired effects. In addition we are saying that not all of these projects were concerned with reducing stress, but, for example, also with enhancing the quality of work, team based cooperation, or reducing absenteeism, to mention a few.

The Combat Workstress Approach is helpful in enlarging the insight of causes for stress risks among employers and employees. Other, probably even more, factors influencing this enhanced insight, were the obligations resulting from the Working Environment Act and the Dutch social policy in general (Appendix A). More and more, actors and stakeholders regard psychosocial risk factors as work related nowadays. Although still many others -especially employers- insist that psychosocial problems are exclusively related to individual characteristics and behaviour (Schaufeli & Kompier, September 2002: 33). While Europe consequently spends ever more effort in the study of organisational causes for stress -but still not enough-, the Americans seem only just to have begun doing so (Landsbergis, 2003). The Americans use a multifac-

eted approach to stressor prevention and addresses organisational topics since more than a decade, including job content, work load and work pace, work schedules, career policy, social environment (Sauter, Murphy, & Hurrell, 1990), but they less recognize the importance of structural redesign. Europeans go a step further with workplace interventions (e.g. the Nordic countries and United Kindom research groups in Nottingham [Cox et al], Sheffield [Warr, Wall et al] and Manchester [Cooper et al]) but none of them so far seems to be involved in structurally redesigning the primary process, as does modern sociotechnology (including the risk management approach in Britain, cf. Cox, Randall, & Griffiths, 2002). Maybe this is because the design of primary processes is the field of engineers and operational management, and not so much of practitioners and professionals from the safety and health disciplines (see on the role of psychologists e.g. Kompier & Cooper, 1999: 3). Besides, sociotechnology's goals go beyond stress issues alone.

The sociotechnical background and its source approach were highly influential in the Netherlands among (even) medical and consultancy professionals working in safety and health agencies and among HRM staff in companies. Today the definitions of workstress and the balance model of job demands and control capacity inspired by Karasek en sociotechnology are well known and widely used. Nonetheless, it is not possible to make proper statements about the effects of the Combat Workstress Approach on the reduction and prevalence of workstress related behaviour. One can discuss if this is a serious problem, because the approach is not so much meant to establish a lower prevalence of psychosocial effects and stress reaction among individuals, but with the elimination of stress risks -and enhancing learning possibilities- in organisational and job design (question 3).

Our conclusion is that the Dutch Combat Workstress Approach is a challenging one. Although the line of reasoning of the approach is yet widely accepted, it has not been applied on a wide scale, however. In our view, this has to do with the complex relation of its stress approach and its design theory. Users have to invest time in mastering the method. Another reason is that individually oriented measures are much easier to implement with less far going consequences for the organisational structure. But we feel that this method has elements that are of interest to other countries, which are quite well transferable. The challenge of the method is that it combines possibilities to reduce stress risks and enhance an organisation's performance at the same time. This should attract both employees and employers.

5.2 Discussion

Workstress problems are widely spread and not easily solved. There seems to be a need for sound interventions at individual and organisational levels. Relatively recent management models that were a response to rigid Tayloristic and bureaucratic models, such as Lean Production and Business Process Reengineering, help to make organisations more competitive, flexible and market oriented, but do not seem to reduce stress related risks (Jackson & Mullarkey, 2000; Landsbergis, Schnall, & Cahill, 1999; Lewchuk, Stewart, & Yates, 2001; Oeij, Dhondt, & Wiezer, 2003; Oeij & Wiezer, 2002). The search for new management models and new work organisations with healthy jobs is promoted at European level. The European Commission wants organisations to embrace the 'high road' to organisational renewal leading to workplace innovation and competitiveness by continual reinvention of products and services using the European potential of knowledge, skills and experience in a 'more imaginative and effective way'. Special policies are being set up to not just create more jobs (Committee Kok,

November 2003), but also better jobs, notably jobs with a high quality of work (Totterdill, Dhondt, & Milsome, October 2002). But before we are able to evaluate what kind of management models benefit the health of work best, we must face the gaps in research on organisational interventions (NIOSH, April 2002). As our own work shows, the extent to which organisational interventions improved worker safety and health is questionable. We cannot present a convincing picture of the value of organisational interventions with the Combat Workstress Approach in the reduction of work stress. This remark is not confined to our own approach, as Parkes and Sparkes (1998) stated that many studies -particularly participatory action research interventions- tend to be difficult to interpret, causally ambiguous, inconsistent, based on small samples and / or statistically nonsignificant (cited in NIOSH, April 2002) (see also Bossche & Houtman, November 2003; Cox et al., 2000; Kompier, 2003).

To close the research gaps we need more European research on organisational interventions that may serve to protect worker safety and health. Attention should also be given to methodological problems concerning intervention research and to factors that influence the implementation of organisational interventions (cf. NIOSH, April 2002). We could seek for a closer cooperation with consultancy firms that are involved in participatory action research interventions at the forefront of what happens today in many firms, companies and agencies and exchange knowledge and experience. We could evaluate organisational interventions implemented by consultancy firms and try to establish what kind of management models are used. Maybe we should not exclusively focus on stress (employee concern) but, given the present economic climate, also take the other side of the medal of stress into account, namely productivity, efficiency and effectiveness (management concern) (Jongkind, Oeij, & Vaas, 2003, 2004 [2e]). This bridges the following objectives: the contents of organisational interventions, the process of implementation and management theories and models. Combining insights from psychology and management science, for example, could be a countervailing step in comments such as: “It is deplorable that the link between this area *(job stress interventions and organisation of work)* and other attempts to alter organizations is so weak. Thus, the literature on OD *(organisational development)* (…), on Productivity Measurement and Enhancement System (ProMES) (…), or on quality circles (…) conveys many messages similar to those found in accounts of organizational stress interventions” (Semmer, 2003: 343) (italics ours).

These points of discussion may contribute to the strategy and research agenda of our own participating institutes within PEROSH.

A Policy framework in the Netherlands

The Working Environment Act in the Netherlands (1989) obliges employers to carry out a policy on working conditions (or health and safety at work) in order to prevent sickness absenteeism, disability to work, and occupational diseases. Employers and employees carry both responsibility to systematically improve the organisation's workings conditions. One of the activities at the organisational level was to make an inventory and evaluation of health and safety risks ('Risico-inventarisatie en risico-evaluatie'). To get professional support, organisations were obliged to cooperate with a service organisation specialised in working conditions and a variety of sociomedical services (specialised workplace health and safety agencies, 'arbodienst').

The development of stress-related complaints in the Netherlands were, however, still augmenting in the 1990s, as were, for example, the prevalence employee absenteeism, employee disability and employees with repetitive strain injuries (RSI) complaints. The approach at individual level was insufficiently effective. That was one of the reasons to install covenants on working conditions at the sector level between the government (Ministry for Social Affairs and Employment) and the social partners. Initially covenants were agreed in sectors that are 'high risk' with respect to the exposure of workers to lifting workloads, workstress, RSI, poisonous substances, and harmful noise. The covenants are an important funding pillar of the governmental policy to improve working conditions and will be discussed hereafter.

To additionally support employers and employees at the organisational level the Ministry for Social Affairs and Employment commissioned the production of catalogues with interventions and measures within the framework of the covenants. Besides catalogues on 'RSI and computer work' and on 'guiding absenteeism and work reintegration' a catalogue on measures against 'workload and workstress' was realised. The catalogue comprises all kind of interventions at the national and sector level as well as at organisational level and individual level. At the organisational level design oriented measures were formulated related to the production process, work organisation, task structure, and patterns of communication. At the individual level interventions that were proposed are, for example, cognitive restructuring, enhancing competences, training and stress management (Klein Hesselink et al., 2001). A study on effects of measures by TNO Work and Employment just started.

Covenants on Working Conditions

Covenants on working conditions are agreements between the Ministry for Employment and Social Affairs and social partners in each sector: tripartite agreements. A covenant can be defined as an undersigned written agreement, or a system of agreements, between one or more other parties or partners, at least meant to also effectuate governmental policy (Tweede Kamer der Staten-Generaal, 1995: 8). The central aim of covenants is to reduce risks for workers and costs for employers and society as a whole. Risks to be reduced are mainly related to absence due to illness, work pressure physical work load and repetitive strain injuries. Covenants contain agreements on how to combat these risks. The execution of activities agreed in covenants are supervised by a tripartite commission.

Since 1999 until the beginning of 2004 51 covenants[1] have been taken out of the possible about 70 sectors (Ministerie van Sociale Zaken en Werkgelegenheid, April

[1] A general brochure in English about *Covenants on health and safety at work for improved working conditions in the Netherlands* (Ministry for Social Affairs, 2000) can be downloaded from http://www.arbo.nl/content/network/ szw/docs/covenants_on_health.pdf.

2004; Tweede Kamer der Staten-Generaal, 1999). All covenants feature agreements on early reintegration to the company after sick leave, reduction of work pressure, physical work load and repetitive strain injuries (RSI, musculoskeletal disorders), among a number of other subjects concerning poisonous substances, climate, quartz, allergens, and so on. The undersigned covenants apply to 46% of the Dutch working population (3.3 million workers).

Recently, the covenants have been evaluated from the viewpoint whether the desired effects were becoming visible or not (Veerman, Molenaar, Burg, & Hoffius, March 2004). Employers in sectors with a covenant were more active, because they had more often set up absence prevention policies, made risk evaluations, acknowledged work pressure and RSI risks once they were identified, and undertook measures once risks concerning work pressure, physical wok load and RSI were identified. Comparing sectors with and without a covenant, the first group showed a stronger drop in absence due to illness (with 8.4%), a stronger decrease of the number of workers becoming disabled - who become recipients of disablement insurance benefits according to the Disablement Insurance Act -, a lower increase of burn out complaints, a stabilization of physical work load and to this physical load related health complaints, while in the second group there was a deterioration of workers experienced health. A general observation was that work pressure showed a reduction and RSI complaints an increase in all sectors. Although it cannot be concluded that covenants have a causal relation with these working condition improvements, we may state that it is plausible they do have positive effect on these matters. Since recently, a new survey is in use to monitor working conditions with the Netherlands Survey on working conditions 'NEA' (see Appendix B).

The estimated yearly financial savings for employers are substantial (Ministerie van Sociale Zaken en Werkgelegenheid, April 2004: 28). The Ministry for Social Affairs and the social partners have made a once-only investment of € 275 million, not taking into account the costs companies make for implementing measures. The estimated *yearly* savings (on costs for sickness leave and disablement insurance benefits) will be more than € 650 million. Total yield cannot be assessed yet, because a number of covenants is still in the making.

Within the framework of these covenants sectors and organisations differentiate remarkably with respect to the use and application of approaches to combat health and safety risks. An overview of all these activities is not available.

Committee Working Perspective

The policy on working conditions legislation and covenants still did not satisfactorily relief the issue of individual disablement to work. Another initiative focussed on reducing the number of people with disability and incapacity to work. A major part of the disabled individuals were suffering from psychological problems.

About 5 years ago the Committee Donner 1 (subcommittee for psychiatric work incapacity) was installed to prevent disability due to psychological reasons. The subcommittee differs from the Committee Donner 2 who was assigned with the task to reduce the volume of people with a disability scheme. Today Committee Donner 2 is named Committee Working Perspective ('Het Werkend Perspectief'). The topics, however, are closely related since about one third of the new applicants for a disability scheme were diagnosed with psychological problems.

One of the latest insights to enhance recovery to work is the evidence based statement that 'work is often the best medicine' (see further Appendix B). "The idea that 'it will get better on its own' for people suffering with psychological problems is a false hope. Rest can be a good thing, but the sense that you have regained control of your life is essential. The regularity of working again (even part time) and having contact

with colleagues often contributes to the recovery", according to the guideline 'Approach to absence for psychological reasons' that was drawn up in 2001 by the subcommittee committee for psychiatric work incapacity (see www.werkendperspectief.nl behind the English banner). The same notion is the basis of the 'Prevention Guideline against psychological work incapacity' (Preventie Leidraad psychische arbeidsongeschiktheid) that we discuss in Section 3 as an element of organisational interventions. In a recent speech at the International Forum on Disability Management on 14 September 2004 in Maastricht, Mr. A.J. de Geus, Minister for Social Affairs and Employment stated that "There has also been a substantial fall in the number of people becoming incapacitated for work. The chance of becoming incapacitated for work has fallen to below the national average in both primary and secondary education. Clearly, therefore, working to improve health and safety at work pays dividends."

Today's policy context

The policy on working conditions had a strong focus on changing the work organisation from a design approach at the end of the 1980s. Policy makers and experts agreed that a 'source approach' would be the best option. This source approach or conditional approach aims at the prevention of risks and the reduction of existing risks (Pot et al., April 1990: 4-5). In the 1990s the policy attention shifted slowly from the conditional, source approach to the side of the effects, like absenteeism, disability reduction and work reintegration. Or from 'busy!, busy!, busy!' (workstress) to 'jobs!, jobs!, jobs!' (employment) (Committee Kok, November 2003). First, this implied a shift from the organisation to the individual worker concerning the question of guilt about stress causes. Second, it was related to a shift from workstress issues to labour productivity issues, illustrating the tipping of the scale in favour of the interest of management. Of course this cannot be seen loose from economic circumstances of that time. Third, there seemed to be more pressure on people to get (back) to work when we take into account the huge effort on reducing applicants for work disability schemes and on reintegrating sick workers into the work process.

Two phenomena appear in the 2000s. On the one hand primary prevention is maybe no longer dominant, but seems to get evened by secondary and tertiary prevention. Financial incentives for employers and employees for quick recovery play a role here, encouraged by specialised workplace health and safety agencies, insurance companies and employment reintegration businesses who all have financial interests in these matters – i.e. minimising or maximising the high financial risks of sickness and disability dependent on the service they provide. On the other hand, workstress related problems are not restricted to the working environment. Work is invading the home sphere as a consequence of ICT use and flexible working schedules that permit transitory life spheres. And so is stress. And so is stress from the home sphere invading the work context vice versa. This has lead to new policy roads with regard to 'life course' issues (see further Appendix B).

B Approaches to combat psychosocial risk factors

Introduction

This Appendix presents the most relevant approaches to study and combat psychosocial stress risk factors in the Netherlands from quadrants 1, 2 and 4 in Figure 2, as well as approaches that overlap more than one quadrant. It must be said that this presentation is incomplete and selective. A complete overview covering all Dutch activities in this field does not exist (for an overview on quality of work research until the mid nineties see Oeij, Fruytier, & Broek, 1998; for additional stress approaches see e.g. Schaufeli & Kompier, September 2002). We have tried to gather approaches from the perspective of their relevance for readers from other countries. Some of these approaches have been very influential in the Netherlands, whereas others are important new developments.

We begin with approaches that do not fit in any quadrant but overlap one of more quadrants and then proceed with approaches in quadrants 1, 2 and 4.

Not related to a particular quadrant

Monitoring research

A rising trend in recent years is the use of monitoring systems on the prevalence of occupational safety and health related risks among the working population. These monitoring systems are in most cases repeating surveys and panel studies. Among the risks monitored we are mentioning inconvenient physical working conditions, accidents, and (other) characteristics of the work environment (such as time constraints, work intensification, demand-control balance, employment relations, organisational behaviour). Effects reported are, for example, the prevalence of work stress, emotional exhaustion, burnout, fatigue, musculoskeletal disorders, repetitive strain injuries and absenteeism.

The most relevant monitoring systems in the Netherlands are 'Permanent Onderzoek naar de Leef Situatie' (POLS) (Ongoing research on the daily life situation) by the Central Bureau of Statistics, 'Nationale Enquête Arbeidsomstandigheden' (NEA) (Netherlands survey on working conditions) by the Ministry for Social Affairs and Employment and the 'TNO Arbeidssituatie Survey' (TAS) (TNO Working environment survey) by TNO Work & Employment. Much of this research is built on the 'Monitor Stress en Lichamelijke Belasting' (MSLB) (Monitor Stress and Physical load) which was developed to study psychosocial risk factors and its combat at different organisational levels, namely among employers, employees and works councils (Houtman, 1999).

The same trendy developments seem to be taking place at the European level. We mention in this respect the European Survey on Working Conditions by the European Foundation for the Improvement of Living and Working Conditions (Dublin) and the development of a methodology for OSH monitoring by the European Agency for Safety and Health at Work.

Life course developments

A relatively new phenomenon is attention for psychosocial complaints related to the non work domain. The Netherlands welcomed a huge raise of the labour participation of women in the last decades and a growth in teleworking due to ICT technology. Both developments have repercussions on the work life balance of individuals. The barrier

between working life and the private life erodes. Especially the cohort between 25 and 45 years, with multiple task loads with respect to their jobs, their children and the care of their parents, are confronted with what is now being called the 'rush hour of life'. Enhancing everyday stress the ongoing trends in individualisation and the 'retreating' government are leaving more issues to decide upon at individual levels, such as arrangements and insurances in the realm of social security, education, health, and employment relations, creating 'overchoiced generations' to postpone making compromising choices (Littwin, 1986). A start has been made in recent years to formulate new policies about 'life course arrangements', from the perspective that the lives of today's citizens have completely different life courses when compared to the lives of earlier generations. Similar life events, like raising a family or going to university, no longer take place at the same moments within generations, and imply a differentiation of life phases. While individuals must cope with a lager range of choices - as possible stressors - and policy makers seek to fit new realities with new policies, social observers, commentators and scientists are expressing the need to gather information to monitor these new issues. One of the new research initiatives in this field is the 'OSA Toekomst van de Arbeid Survey' (OSA TAS) ('OSA Future of Work Survey') (Ester, Vinken, & Dun, forthcoming). Another relevant project is the 'Tijdbestedingsonderzoek' ('SCP Time Use Survey') in which several thousand respondents fill in a diary during one week providing insight in the way how the Dutch plan and spend their time on issues as work, education, care, travel, sleep and meals (Breedveld & Broek, 2003, 2004).

Mental fatigue at work

One national project that has activities to fit in all four quadrants is the research programme 'Psychological fatigue at work' (Psychische Vermoeidheid in de Arbeidssituatie) (Meijman & Schaufeli, 1996). Although this programme does not fit in Figure 1, it is large and important enough to spend some words on separately.

Occupational fatigue, job stress and related psychological problems and disorders like burnout were regarded as major social problems in the Netherlands in the 1990s. About one-third of all work related mental disability claims were stress related in the Netherlands, when the programme set off in 1995. A large-scale 6-year concerted research action on occupational fatigue was initiated under the heading of the Dutch Organisation for Scientific Research (NWO) which integrates psychological and medical perspectives and included four lines of research: (1) experimental research in work psychology; (2) clinical and organizational field research; (3) epidemiological research; and (4) occupational health research. Subjects covered were acute psychological occupational fatigue, long term psychological occupational fatigue, health related aspects of long term psychological occupational fatigue, and psychological fatigue related to chronic diseases and work. In total about forty (doctoral and post-doctoral) research projects were carried out. Many universities, research institutes, occupational health services, companies and unions contributed to the programme in a combined effort to increase scientific knowledge with respect to the prevalence, antecedents and consequences of occupational fatigue. Additionally, knowledge was created in the fields of assessment, prevention and treatment in order to develop evidence-based diagnostic, preventive and therapeutic tools for practice. The project was expanded with a few years but ended in 2004 (for an overview see Evenblij, 2004).

Related to quadrant 1: 'organisational interventions'

Developments in theory and models

Ever since the growing popularity of Karasek's Demand-Control-Support model (Karasek, 1979, 1997; Karasek & Theorell, 1990, January-March 2000) in the 1980s an overwhelming abundance of research has been carried out to test its hypotheses, to expand the model and to develop new models and theories in the Netherlands. Other models frequently used in Dutch research are Warr's Vitamin-model (Warr, 1987) and Siegrist's Effort-Reward Imbalance model (Siegrist, 1996; Siegrist & Peter, January-March 2000). Models less frequently used are originating from the rich variety of (other) approaches in the realm of task characteristics, action theory based task analysis and cognitive task analysis (Ouwerkerk, Meijman, & Mulder, 1994). Two recently developed models gaining importance in the Netherlands are the Job Demands-Resources Model (Bakker, Schaufeli, & Demerouti, 1999) and the Demand-Induced Strain Compensation (DISC) Model (Jonge & Dormann, 2003), which are building on the work of Karasek and Siegrist. These theories and models study psychosocial work characteristics as determinants for the health and well-being of workers (Jonge, Blanc, & Schaufeli, 2003; Schnall, Belkic, Landsbergis, & Baker, January-March 2000).

Related to quadrant 2: 'individual explanations'

Individual and behavioural characteristics

Whereas research in Quadrant 1 contains theories and models to study psychosocial *work* characteristics as determinants for the health and well-being of workers, studies in this quadrant deal with *individual* characteristics, although this distinction is not always very strict. Examples of objects under study are coping style, personality traits, behavioural characteristics (such as motivation, attitudes, intentions), and psycho physiological characteristics (cognitive processing, mental effort, biophysiological effort e.g. with respect to heart rate, blood pressure, hormonal excretion). While quadrant 1 has a focus on characteristics of the work environment, and this quadrant looks at the subjectively experienced stress and the psychological and physiological reactions to stress situations, there is also research that combines work environment models with measuring individual reactions as effects. Examples of these, sometimes overlapping with quadrant 1, are research related to Lazarus' transactional approach (inter individual and intra individual transactions between person and work), to the Michigan P-E fit approach (interaction approach), to the Stimulus approach (taxonomy of work stressors) and to the Response approach (individual reactions to stress situations). This field is too broad to describe in detail and is covered by many different biomedical and social scientific disciplines.

Related to quadrant 4: 'individual interventions'

Stress management and therapies

Disability to work as a consequence of mental incapacity has been a major problem over the last 15 years in the Netherlands. Since many years the Netherlands are ranking among the top countries in Europe having the largest share of workers with complaints on mental workload. The government installed the Committee Working Perspective with the assignment to stimulate the social reintegration and the reintegration to work of persons with a handicap, a chronic disease and / or a mental or psychiatric illness and to contribute to reducing sick leave and the use of the disability scheme. The sub Committee Mental Disability to Work has the task to implement the Guideline Absenteeism due to Mental Illness or Psychological Disorders, which is a step-by-step plan aiming at reintegration to work and recovery of workers in case of absenteeism. This plan should be used through the cooperation of employer and employee under the guidance of institutions responsible for the execution of related social security acts

(like the disability scheme). The guideline is an approach oriented at the individual level (for a first evaluation see Heuvel, Amstel, Jettinghoff, Ybema, & Bossche, April 2004). This guideline is not the same as the Prevention Guideline discussed in Section 3.

One of its central recommendations of these committees is that return to work should not be postponed too long, for that makes it more difficult for individuals to return to the workplace. This insight is confirmed by empirical research on individual stress interventions, to which we shall now turn.

Stress interventions at the individual level are widely spread, not necessarily relating to work stress. Sound evaluation research is rare (Bossche & Houtman, November 2003), but at least two studies are worth mentioning. One is a meta-analysis on the effectiveness of occupational stress-reducing interventions by Van der Klink et al. (2001). Effectiveness was determined of four intervention types: cognitive behavioural approaches, relaxation techniques, multi-modal interventions and organization-focused interventions. In this meta-analysis cognitive behavioural interventions proved to be more effective than relaxation techniques, multi-modal programs and organization focused programs. Cognitive behavioural interventions especially helped to improve perceived quality of work life and psychological responses and resources. They also significantly reduced anxiety symptoms. It is suggested that employees with high job control profit more from being provided with individual coping skills than employees working in more constrained environments, because this high job control allows them to exercise these coping skills. The meta-analysis suggests that cognitive behavioural therapy is one of the most effective intervention types (Bossche & Houtman, November 2003; Klink, Blonk, Schene, & Dijk, 2001).

That a quick work rehabilitation is crucial for recovery is suggested by a recent study among self-employed workers (Blonk & Lagerveld, 2003). In a randomly controlled trial among 163 self-employed persons with minor psychiatric disorder - namely incapacity for work due to psychological complaints related to depression, anxiety, stress, and burnout - one group received psychological counselling focused on both work and the individual (combined approach) by a job-analyst/labour-expert, while another group received cognitive behavioural treatment by a psychologist (cognitive restructuring, time management). A third group functioned as the control group. A significant reduction in the level of incapacity and psychological complaints for all conditions was observed after four months. However, the combined approach was significantly more effective in reducing incapacity for work, while there were no significant changes between all conditions on psychological complaints. After 10 months a further reduction of level of incapacity was observed in the first group receiving the combined approach. The established differences between the conditions remained the same and there was no further reduction of psychological complaints. Interestingly, the research suggests that even individuals with an intervention of cognitive therapy are not better off than those without an intervention, if we consider the effects on those who were provided with real work related options to temporarily reduce the work load. Work itself is beneficial to someone's health (Blonk & Lagerveld, 2003; Bossche & Houtman, November 2003).

C Evaluation criteria

Effectiveness

- the approach has positive, preferably evidence-based effects at the level of indicators for psychosocial factors and/or its social outcomes;
- it is clear which are the questions to be answered;
- the evidence comes basically from showing that the approach has successfully achieved its aims or, in other words, shown to be capable of producing the targeted outcomes. The interventions should have measurable aims with clearly defined targets and target groups. This may also be in terms of qualitative information;
- sometimes the positive experience (subjective satisfaction) of the participants and / or stakeholders (employers, workers, employer organisations, unions, politicians, policymakers, scientists, consultants) with the approach may be an essential additional criterion of effectiveness;
- the impact may differ with respect to the participants (for example if activities are directed by governmental bodies, social partners or (health) insurance companies the activities, goals and effects may be different);
- another indication of effectiveness is that the approach has the potential to reach a large proportion of the target population with low or moderate costs (cost-effectiveness);
- a related indicator of effectiveness which represents the reverse side of reducing psychosocial risks and effects, is the positive effect on economic indicators for organisations, like more productivity, lower social security costs, improved economic performance.

Approach characteristics

- the approach has clearly defined short-term as well as long-term goals;
- it is of sufficient duration and intensity to realise the targeted changes in psychosocial factors and the organisational conditions to improve the present situation;
- it has a multi-component character (multi-factor, multi-method, multi-moment, multi-system oriented and multidisciplinary).

Approach development

- the approach is based upon sound scientific knowledge;
- the assumptions of the approach are clear;
- it is built on explicit and easy to understand theoretical models;
- it has been designed by a multi-professional team, ideally including end-users.

Feasibility for replication

- the approach is potentially transferable to other countries and communities while it remains flexible and adaptable to local conditions (facilitating the feeling of ownership and/or commitment);
- the approach has obvious lessons learnt for other countries;
- it is practical, of low complexity, manageable within local resources and reasonable as regards manpower and financial costs.

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AMI, Arbejdsmiljøinstituttet, National Institute of Occupational Health, Denmark

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CIOP, Centralny Instytut Ochrony Pracy, Panstwowy Instytut Badawczy, Central Institute for Labour Protection, National Research Institute, Poland

HSL, Health & Safety Laboratory, United Kingdom

INRS, Institut National de Recherche et de Sécurité, National research and safety institute for the prevention of occupational accidents and diseases, France

INSHT, Instituto Nacional de Seguridad e Higiene en el Trabajo, National Institute of Safety and Hygiene at Work, Spain

ISPESL, Istituto Superiore per la Prevenzione e la Sicurezza del Lavaro, National Institute for Occupational Safety and Prevention, Italy

Munkavédelmi Kutatási Közalapítvány, Public Foundation for Research on Occupational Safety, Hungary

Prevent, Belgium

STAMI, Statens arbeidsmiljøinstitutt, National Institute of Occupational Health, Norway

FIOH, Työterveyslaitos, Finnish Institute of Occupational Health, Finland

TNO Arbeid, TNO Work and Employment, The Netherlands

Výzkumný ústav bezpecnosti práce, Occupational Safety Research Institute, Czech Republic

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