European Foundation for the Improvement of Living and Working Conditions

Work-related stress

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Changes in the content and organisation of work in recent decades have resulted in an intensification of work, which is commonly regarded as a cause of stress. This report presents trends in the risks and consequences of work-related stress, and identifies how these can be prevented. The analysis is based on national surveys and research information available in the EU, as well as recent research findings.

Introduction

Stress, particularly work-related stress, has aroused growing interest across Europe in recent years. The workplace has changed dramatically due to globalisation of the economy, use of new information and communications technology, growing diversity in the workplace (e.g. more women, older and higher educated people, as well as increased migration, particularly between the EU Member States), and an increased mental workload (Kompier, 2002; Landsbergis, 2003; National Institute for Occupational Safety and Health, 2002).

At the same time, workers are reporting an increasing level of mental health problems. In the 2000 European Working Conditions Survey (EWCS), work-related stress was found to be the second most common work-related health problem across the EU15 (at 28%; only back pain was more common). Moreover, work-related stress has also been associated with a number of other ill-health outcomes, such as cardiovascular diseases (e.g. Kivimäki et al, 2002), musculoskeletal disorders, particularly back problems (e.g. Hoogendoorn et al, 2000) and neck-shoulder-arm-wrist-hand problems (the so-called RSI-repetitive strain injuries; e.g. Ariëns et al, 2001), as well as absence from work (e.g. Houtman et al, 1999). The potential outcomes of stress at work are thus rather diverse, and do not only pertain to health but also to actual participation in the workforce. That is the reason why this topic report highlights work-related stress.

The report will present information from the national monitoring systems about developments in work-related stress, indicating potentially quite different experiences of (work) stress indicators and the direction in which they appear to be heading. The report will then consider evidence on the causes of work-related stress, as well as examining the effectiveness of stress prevention at work, and identifying examples of good practice. The focus is within the European Working Conditions Observatory (EWCO) network of seven European countries in its initial phase: Denmark, Finland, France, Germany, the Netherlands, Spain and Sweden.

The goals of this report are to:

- identify the prevalence and development of indicators for work-related stress, on the basis of country representative data from the EWCO national correspondents;
- identify the proven or suspected causal processes behind these developments;
- elaborate on the costs involved;
- discuss preventive actions taken or required; a distinction will be made between organisational and individually directed interventions, and the report will examine research information as well as good practice on this subject.

Concepts

Work-related stress is a pattern of reactions that occurs when workers are presented with work demands that are not matched to their knowledge, skills or abilities, and which challenge their ability to cope. These demands may be related to time pressure or the amount of work (quantitative demands), or may refer to the difficulty of the work (cognitive demands) or the empathy required (emotional demands), or even to the inability to show one's emotions at work. Demands may also be physical, i.e. high demands in the area of dynamic and static loads.

When the worker perceives an imbalance between demands and environmental or personal resources, this can cause a number of possible reactions. These may include physiological responses (e.g. increase in heart rate, blood pressure, hyperventilation), emotional responses (e.g. feeling nervous or irritated), cognitive responses (e.g. reduced attention and perception, forgetfulness), and behavioural reactions (e.g. aggressive, impulsive behaviour, making mistakes). When people are in a state of stress, they often feel concerned, less vigilant and less efficient in performing tasks (see the Job Stress Network , European Agency for Safety and Health at Work fact sheet (127 Kb

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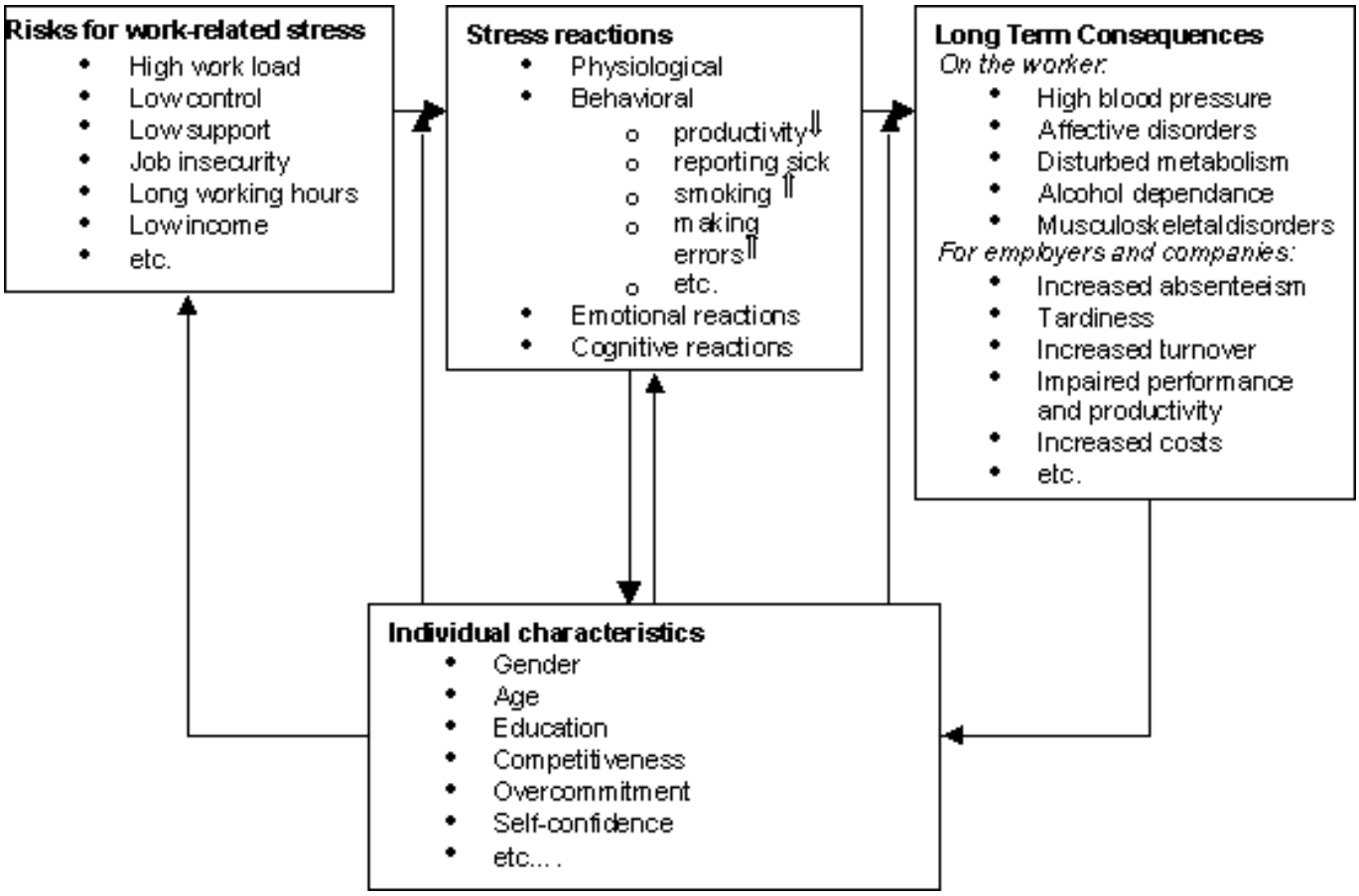
pdf) , UK National Work-Stress Network , the National Institute for Occupational Safety and Health and the Handbook of Work Stress (Barling et al, 2004).

Stress occurs in many different circumstances, but is particularly strong when a person's ability to control the demands of work is threatened. Insecurity about successful performance and fear of negative consequences resulting from performance failure may evoke powerful negative emotions of anxiety, anger and irritation. The stressful experience is intensified if no help is available from colleagues or supervisors at work. Therefore, social isolation and lack of cooperation increase the risk of prolonged stress at work. Conversely, work tasks with a high degree of personal control and skill variety, and a work environment with supportive social relationships, contribute to workers' well-being and health.

When demands exceed one's abilities and knowledge, but one is able to perceive this as an opportunity to work towards achieving a state of balance, a situation of learning and development may arise.

The stress process can be summarised in a model that illustrates the causes of stress, (short-term) stress reactions, long-term consequences of stress, and individual characteristics, as well as their inter-relations.

Figure 1 Model of causes and consequences of work-related stress (adapted from Kompier and Marcelissen, 1990)



Stress reactions may result when people are exposed to risk factors at work. These reactions may be emotional, cognitive, behavioural and/or physiological in nature. When stress reactions persist over a longer period of time, they may develop into more permanent, less reversible health outcomes, such as chronic fatigue, burnout, musculoskeletal problems or cardiovascular disease.

Individual characteristics, such as personality, values, goals, age, gender, level of education, and family situation, influence one's ability to cope. These characteristics may interact with risk factors at work and either exacerbate or alleviate their effects. Physical and psychological characteristics, such as physical fitness or a high level of

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optimism, may not only act as precursors or buffers in the development of stress reactions and mental health problems, but may also change as a result of the effects. For example, if workers are able to deal with risk factors at work, they will be more experienced and self-confident in overcoming similar situations the next time they have to face them. On the other hand, stress reactions, like fatigue and long-term health problems, will often reduce a person's ability to perform well, and thus aggravate the experience of stress, which will ultimately result in exhaustion and breakdown.

Recent stress models like the 'effort-reward imbalance' model strongly point to the importance of individual factors in contributing to the effect that exposure to working conditions may have. The commitment to work is considered to be significant in this respect. The general feeling is that certain people are prone to becoming 'over-committed' to their work, which results in unhealthy consequences for health. Self-confidence, another core individual characteristic that has been related to the vulnerability of the individual, seems to be highly (inversely) related to the issue of over-commitment (see more about self-efficacy , or here).

This report does not include aggression, violence and bullying at work within its focus. A report on this particular topic has already been produced within the EWCO network (FI0406TR01).

Methodology

Stress research in general uses many types of methodologies:

(national) surveys to identify self-reported causes and consequences, sometimes explicitly relating to stress. In general, this is the type of methodology used to identify prevalences and trends, as well as the profile of risk groups. In large-scale, longitudinal, epidemiological research, this is also used to understand causal relationships;

physiological or psycho-physiological research, usually performed in laboratory settings, in order to manipulate stressor settings and to study responses, though physiological responses in natural settings are also used. In the latter type of studies, questionnaires are often used to standardise the collection of experiences of real-life events. Psycho-physiological research is most often used to gain insight into the causal mechanisms, in order to reach a cause-effect explanatory model. One of the most studied cause-effect relationships is the relation between (work-related) stress and cardiovascular illness;

intervention research, used to improve the 'outcome' of the cause-effect chain studied. In organisational interventions, these are often the risks in the work organisation that are linked to absenteeism and productivity. In individual research, this is either managing the (health) problem that is present, by increasing the coping capacity of the worker or lowering the threshold for resuming work.

This report considers the general literature on work-related stress, particularly regarding preventive approaches. However, it is primarily based on the national responses to a questionnaire that was sent to the EWCO correspondents. Their responses, as presented in the tables of this report, provide information on the prevalence of and trends in risk factors for work-related stress, as well as on outcomes from these risks. The Appendix provides further information on the survey sources. Before turning to the responses from the national correspondents, the report will first examine information on work-related stress from the European Working Conditions Surveys (EWCS).

Prevalence and trends

Causes of work-related stress

Causes of work stress have been linked to the work itself, e.g. increasing demands, less freedom to control one's work, and also to the person, e.g. insufficient capacity to cope with time pressures, etc.

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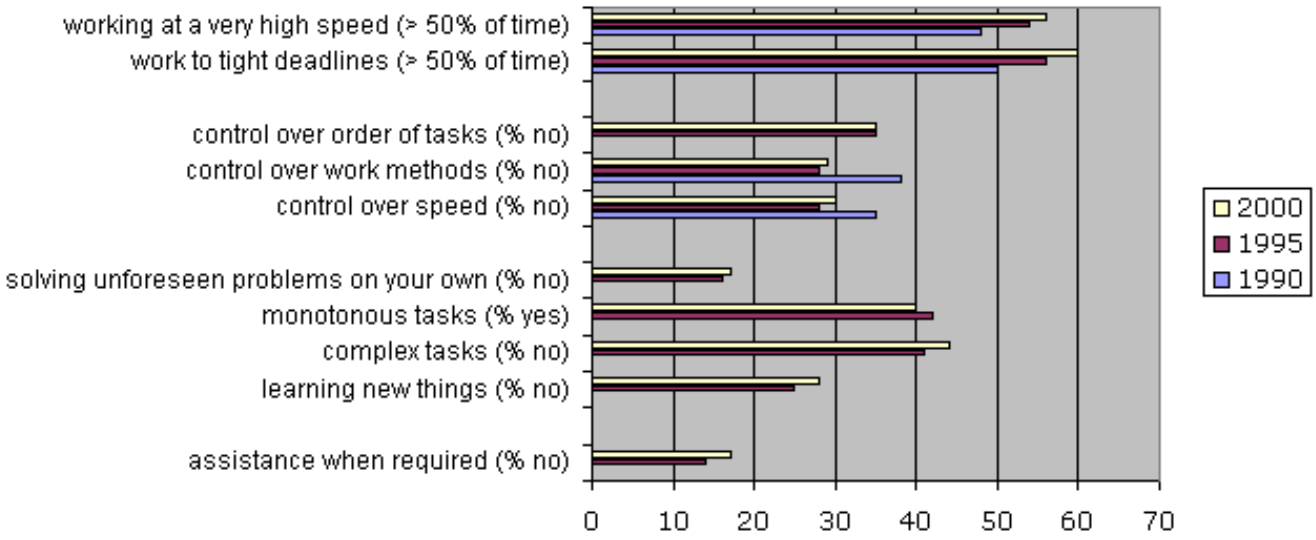
Indicative figures of these risk factors, as identified in the EWCS, are presented in Figure 2. This graph features only those countries that were in the EU for the entire period (1990-2000).

Figure 2 Risks for work-related stress



Source: European working conditions surveys, European Foundation for the Improvement of Living and Working Conditions

This figure indicates that, at European level, work intensity has been increasing. The main increase, however, occurred in the first half of the 1990s. This has been accompanied by a reduction of workers reporting low autonomy, but only at the beginning of the last decade. Since 1995, the level of reported autonomy has remained stable. Although there has been a slight reduction in monotonous work, freedom to use one's skills and learning opportunities in the workplace have also been slightly curtailed. In addition, the percentage of workers reporting that they could not 'receive assistance from colleagues when required' has increased, perhaps because of the increased intensification of their own work.

Figure 2 shows outcomes that may be relevant to risks for work-related stress. In general, a rise in work-related complaints can be seen over the period 1995-2000. This trend is, however, absent in the data referring specifically to 'stress' rather than to other complaints linked to psychosocial risk factors at work, such as fatigue (e.g. Houtman et al, 2000), headaches (e.g. Antonov and Isacson, 1997 ; MFL Occupational Health Centre) and back complaints (e.g. Hoogendoorn et al, 2002).

There seems to be a decline in self-reported absence over this period. However, absence is a multi-causal outcome, and only partly related to psychosocial risks; it also appears to be related to economic fluctuations, as well as to changes in social security legislation. Bearing in mind that the European economy was strong during the period, this may actually disguise a relative increase in stress-related absenteeism. Of course, there are substantial differences between the economic development of EU countries over this period.

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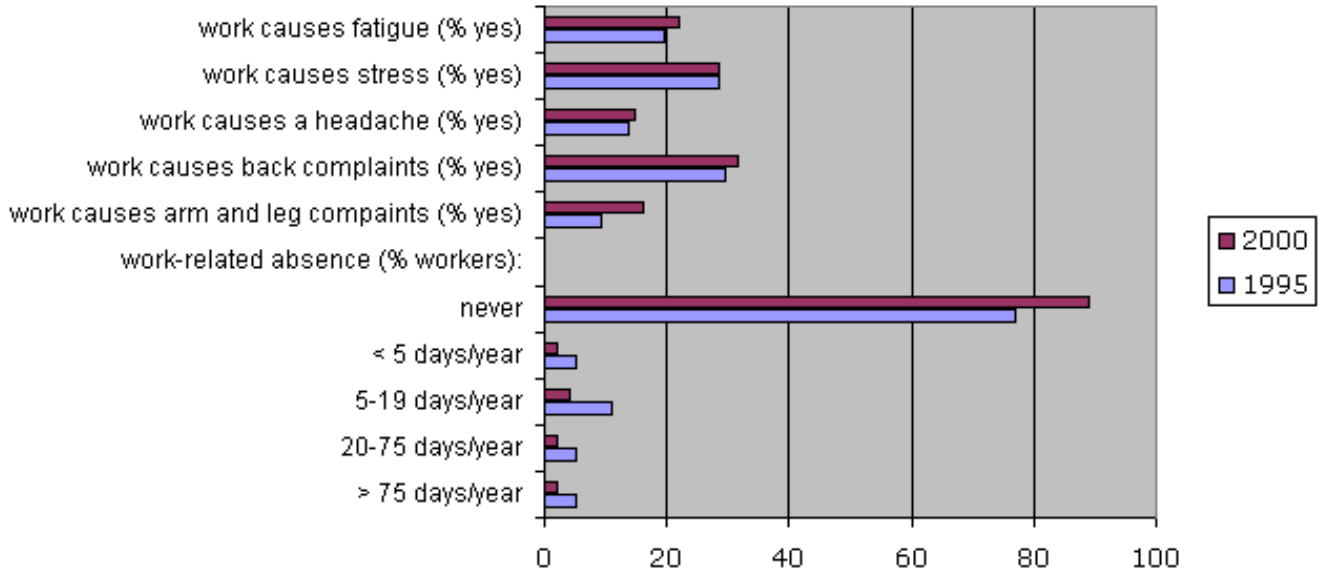
Figure 3 Relevant outcomes regarding work-stress risks



Source: European working conditions surveys, Foundation

High quantitative demands

Moving to the questionnaire responses from the national correspondents, Table 1 summarises the information available on quantitative demands. The prevalence may be quite different, according to national surveys, depending on the exact phrasing of the question. In general, an increase has been observed in quantitative demands, such as high work pace, up to 1997-1999 (depending on the question and the length of time that the demands have been monitored). Since 1997-1999, the prevalence of quantitative demands has stayed the same or reduced somewhat, again depending on the specific question. Only Denmark and France have recently reported a rise in quantitative demands.

It should be noted, however, that few countries provide data for more than a decade. It is mainly the northern European countries and the Netherlands that provide longer-term prevalence data. In some country reports, the exact level of change in quantitative demands was not specified.

Table 1 Prevalence and trends in quantitative demands

Country	Question	Prevalence (%)	Period	Trend

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Denmark	Is your work unevenly spread so that work piles up? (% yes)	61	1990-2000	Decrease from 1990 to 1995 (43% to 36%), followed by a strong rise to 61%
	How often does it happen that you do not have the time to fulfil all your work tasks? (% yes)			
	Is it necessary to work overtime? (% yes)			
	Is it necessary to work very fast? (% yes)			
Finland	Your pace of work has increased (% yes)	58	1977-2003	Increase from 1984 to 1997 (46% to 62%), since then rather stable (58% in 2003)
	Your tasks have increased (% yes)	68	1984-2003	Slight increase from 1984 to 1997, then stable
France	Under pressure to meet production standard (% yes)	23	1998	Increase since 1991 when it was still 5%
	Excessively high work pace (% yes)	38	2002	No trend info
	Not enough time to finish the work (% yes)	49	2004	Most groups indicated that they had experienced a continuous rise in work pace
	Quicker work pace than some years ago (% yes)	79		
	Unrealistic targets fixed by management (% yes)	41		

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Germany	Strong time and performance pressure (% yes, at least frequent)	50	1998/9	Stress and work pressure account for the strongest increase, but no trend data
	Carrying out different tasks at the same time (% yes, frequently or more often)	43		
	Working at limits of performance capability (% yes, frequently or more often)	20		
Netherlands	Do you have to work at a high work pace (% yes, regularly)	41	1977-2003	Rise until 1997 of at least 1% a year (irrespective of a trend brake in 1994), stabilisation since 1997
	Do you have to work under high time pressure (% yes, regularly)	33	1996-2003	Rise until 1999 (38%), decline till 2001, stable since
Spain	Do you have to work at a high work pace (% yes)	35	1999-2001	Since 1999, the trend is a decreasing one (from 37.6% in 1999 to 35.1% in 2001)
Sweden	Do you skip lunch, work late, or take work home (a couple of days a week) (% yes)	17	1984-2003	There has been a strong increase from 1984 (12.7%) to 1999 (21.7%) and a slight decline since (16.5% in 2003)

Source: EWCO national correspondents (see Appendix for national survey sources)

Qualitative demands

Table 2 presents the information on qualitative demands. This information is scarce, particularly for trends. The prevalence of qualitative demands, again, varies a lot, depending on the specific question asked. Only the Swedish statistics show a trend, indicating an increase in complex, attention-demanding work from the early 1980s to the end of the 1990s. Since then, it has stabilised.

Table 2 Prevalence and trends in qualitative demands

Country	Question	Prevalence (%)	Period	Trend
Denmark	No questions concerning this issue	-	-	-

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Finland	Tasks have grown more difficult (% yes)	45	2003	Changes mainly appear to be linked to the increase in tasks (task expansion); people had to perform multiple tasks; work has become more complex. No trend data presented
	Demands for learning new things have increased (% yes)	55		
France	Introduction of new technologies	19	2003	No trend information
Germany	Being disturbed and interrupted (% yes, frequently)	34	1998/ 1999	No trend information
	Demands beyond capabilities as regards qualifications (% yes, frequently)	6		
Netherlands	Does your work demand intensive thinking (% yes)	54	2000-2002	In general, a slight decrease is observed on all these questions: Intensive thinking: 57% in 2000; Remember a lot of info: 50% in 2000; Thoughts need to be focused: 90% in 2000; Work needs lot of attention: 80% in 2000; Have to keep an eye on things: 74% in 2000
	Do you have to remember a lot of information for a long period of time (% yes)	48		
	Does your work demand that you keep your thoughts focused? (% yes)	86		
	Does your work demand a lot of attention? (% yes)	77		
	Do you have to keep an eye on many things at work at the same time? (% yes)	72		
Spain	High attention (% yes)	58	1999-2001	Over this period, the qualitative load decreased somewhat (was 61% in 1999)
Sweden	Does your work require undivided attention and concentration (% half of the time or more)	86	1984-2003	Steady increase from 83% in 1984 to 87% in 1999; in 2003, still stable at 86%

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Source: EWCO national correspondents (see Appendix for national survey sources)

Emotional demands

Information on emotional demands and hiding emotions (Table 3) in Europe appears to be scarce and no trend information is yet available. The prevalence of these indicators varies between 7% ('do you have to keep your opinion to yourself in your work?') to 28% (average on emotional demands scale), depending on the specific question asked.

Table 3 Prevalence and trends on emotional demands and hiding emotions

Country	Question	Prevalence (%)	Period	Trend
Denmark	Emotional demands: Does your work put you in emotionally demanding situations? (% yes)	Average 28	2000	No trend information
	Is your work emotionally demanding? (% yes)			
	Are you emotionally affected by your work? (% yes)			
	Hiding emotions: Does your work require that you don't express your emotions? (% yes)	Average: 22		
	Does your work require that you hide emotions? (% yes)			
Finland	Events/situations at work that raise negative feelings such as anger (% every week)	Men: 5 Women: 9	2003	No trend information
France	No questions concerning this issue	-	-	-
Germany	No questions concerning this issue	-	-	-

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Netherlands	Emotional demands: Does your work put you in emotional situations? (% yes, always)	11	2000	No trend information
	Hiding emotions: Do you have to keep your feelings to yourself in your work? (yes, always)	Average: 12 17		
	Do you have to keep your opinion to yourself in your work?	7		
	Emotional demands: Is your work emotionally demanding? (yes, often or always)	13	2003	
	Are you confronted with things you personally feel 'touched' by in your work? (yes, often or always)	10		
	Do others call on you personally in your work? (% yes, often or always)	26		
Spain	No questions concerning this issue	-	-	-
Sweden	No questions concerning this issue	-	-	-

Source: EWCO national correspondents (see Appendix for national survey sources)

Autonomy, learning opportunities and reward

Table 4 indicates prevalences and trends in issues on control or autonomy, learning opportunities and (intrinsic) reward. Again, prevalences vary a lot, depending on the specific question asked. It appears that, although employees often have a degree of control over their jobs, choice of working partners is seldom one of their privileges. The data also indicate a general decrease in control, although sometimes this is small (e.g. in Denmark). The Finnish data indicate that there has been a stabilisation since 1990, except for 'control over work pace' which showed a decrease. In Sweden, a decrease in control over work pace is also found in response to a similar question during the same period, as well as for the question on control over when to take breaks. Only the Netherlands shows a recent increase in control over deciding how to work, but not in other indicators of control or reward.

Table 4 Prevalence and trends in autonomy, learning opportunities and reward

Country	Question	Prevalence (%)	Period	Trend

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Denmark	Reward: Is your work appreciated by management? Is your work appreciated by society in general? Do you have good future opportunities in your job?	65	1990-2000	Job control (scale) is reduced across this period, from a 22% average in 1990 to 18% in 2000
	Influence: do you have influence over:decisions about your work? the amount of work? what you do in your work? whom you work with?	51		
	Development opportunities:Is there variety in your work? Does your work require initiative from you? Do you have the opportunity to learn new things through your work?	75		
Finland	I can influence a lot or quite a lot: the order in which tasks are done;	67	1984-2003	Some aspects of control have increased from 1984 to 1990, such as influence on task content (25% to 37%), working methods used (58% to 63%), pace of work (59% to 64%), choice of work partners (12% to 18%), and division of tasks between employees (25% to 29%). Since 1990, all have stabilised, while control over work pace has even decreased (64% to 55%).
	working methods;	64		
	content of tasks;	41		
	pace of work;	55		
	division of tasks between employees;	31		
	choice of working partners	18		
	Good opportunities for advancement (promotion) at work	10	1977-2003	Increase from 1977 (7%) to 1990 (10%); stable since then
	Good opportunities to develop at work	40	1977-2003	Increase from 28% in 1977 to 40% in 2003

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France	Lack of autonomy in work (% yes)	22	2002	No trend information
	Low level of autonomy in work (% yes)	18	2004	
	Insufficient resources to do the work (% yes)	30		
Germany	Being disturbed and interrupted (% frequently and always)	34	1998/1999	No trend information
Netherlands	Decide how to work (% yes)	73	1994-2002	The prevalence of control appears to have been rather stable. Only 'decide how to work' showed a steady increase in the last decade (65% in 1994 to 73% in 2002).
	Think of solutions yourself (% yes)	80	1996-2002	
	Lack of fit between work and education/ experience	25	1977-2002	
Spain	Reason for job satisfaction because of: Autonomy/decisions at work	4.5	2003	No trend information
	Personal development	4.9		
	Rating on degree of participation (scale 0-10)	5.2		
Sweden	Is it possible to set one's own pace (nearly all the time)	37	1984-2003	Decreased since 1989 from 45.5% towards 36.5% in 2003
	Can you take short breaks at any time in order to talk?	36	1989-2003	After an initial small increase from 1989 (39.8%) to 1991 (40.4%), decreased to 34.4% in 1999. It has almost stabilised since

Source: EWCO national correspondents (see Appendix for national survey sources)

Social support

The information in the national statistics relating to social support is quite conclusive in that relations between employees and colleagues, in general, are reasonably good. The relations between employees and their supervisors/management are also generally positive, although this relationship is found to be somewhat poorer, compared to that with colleagues.

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Most countries do not have, or only have short-term, trend information on this topic. Recent trends show a stable situation, although it appears to have been improving at an earlier stage in Finland and Sweden.

Table 5 Prevalence and trends in social support

Country	Question	Prevalence (%)	Period	Trend
Denmark	How often: Do you get help and support from your colleagues? Are your colleagues willing to listen to your work-related problems? Do you get help and support from the manager(s)? Are your manager(s) willing to listen to your work-related problems?	Average =75	2000	No trend information
Finland	Support and encouragement from supervisor (always or in most cases)	51	1990-2003	Supervisor support seems to be decreasing somewhat (55% in 1990, 58% in 1997 and 51% in 2003).
	Support and encouragement from co-workers (always or in most cases)	70		An initial increase from 1990 to 1997 (64% to 72%), after which a stabilisation took place (70%).
France	Factors creating stress at work: Relations with superiors	26	2002	No trend information
	Feeling a lack of support on the part of the colleagues (% yes)	26	2004	No trend information
	Suffering criticism in front of colleagues (% yes)	20		
Germany	-	-	-	-

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Netherlands	My supervisor considers the well-being of his employees (yes)	78	2000-2002	Over this (short) period, social support from both supervisors and employees appears to be stable
	My supervisor pays attention to what I am saying (% yes)	81		
	My supervisor helps to get the job done (% yes)	57		
	My supervisor can make people work together very well (% yes)	73		
	My colleagues help to get the work done (% yes)	87		
	My colleagues have a personal interest in me (% yes)	89		
	My colleagues are good at their work (% yes)	91		
Spain	Relation between employees and managers are rated as good, neutral of bad	Good: 59 Bad: 6	2001-2003	Stable over this period
	Relationship among employees	Good: 72 Bad: 2		
Sweden	Do you find your tasks so difficult that you would like to ask someone for advice or help?	22	1989-2003	Increase from 14.8% in 1989 to 26% in 1999, and a decrease to 21.7% in 2003
	% of people who report they can receive support from supervisors	66	1989-2003	Stable: 65.3% (1989) to 65.5% (2003)
	% of people who report they can receive support from co-workers	84		Stable: 82.8% (1989) to 83.9% (2003)

Source: EWCO national correspondents (see Appendix for national survey sources)

Job security

The data below indicate that some recent information is available regarding job security. In Denmark, it appears to

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be stable, but is decreasing in Finland and the Netherlands.

Table 6 Prevalence and trends in job security

Country	Question	Prevalence (%)	Period	Trend
Denmark	High job insecurity	16	1990-2000	A decrease during 1990-1995 (26% to 16%); stable since then
Finland	Insecurity due to unforeseen changes at work	40	1997-2003	Increase from 33% in 1997 to 40% in 2003
France	Uncertainty about restructuring operations, mergers or takeovers concerning the company	24	2002	No trend information present
Germany	-	-	-	-
Netherlands	Is your job security OK? (% yes)	87	2000-2002	Job security is decreasing: job security OK (90% in 2000 to 86.7% in 2002); at risk of losing job (10% in 2000 to 13.3% in 2002)
	Are you at risk of losing your job? (% yes)	13		
Spain	Instability at work was most upsetting	8	2001	No trend information available
Sweden	-	-	-	-

Source: EWCO national correspondents (see Appendix for national survey sources)

Commitment to work

Commitment to work can be measured in several ways. As far as information is available and presented here, 'reward' can be seen as an indicator or driver of commitment. Some prevalences, but hardly any trend information, are available. In the data from the Netherlands, responses show that commitment, in relation to job security, appears to be decreasing. However, other questions regarding the value workers place on the organisation show an increase in commitment. The question in the Swedish data seems to reflect the concept of 'over-commitment', as is measured in the 'effort-reward imbalance' (ERI) model, and indicates an increase from 1984 up to 1999, after which it stabilises.

Table 7 Prevalence and trends on commitment to work

Country	Question	Prevalence (%)	Period	Trend
Denmark	Reward: Is your work appreciated by management? Is your work appreciated by society in general? Do you have good	Average = 65	2000	No trend information

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	future opportunities in your job?			
Finland	No questions on 'over-commitment'	-	-	-
France	No questions concerning this issue	-	-	-
Germany	No questions concerning this issue	-	-	-
Netherlands	Did you consider taking another job with your present employer in the past year? (% yes)	42	2000-2002	Commitment appears to be diminishing when looking at the first two questions: consider another job with same employer (47% to 42%); take action to make such a move (25% to 21%). Percentage yes in answer to the last two questions indicate an increase in commitment: really feel at home: 64% to 68%; working here is very attractive: 51% to 57%)
	Did you take any definite action to make such a move in the last year? (% yes)	21		
	I really feel myself 'at home' in this organisation (% yes)	68		
	Compared to most other organisations, working here is very attractive (% yes)	57		
Spain	Satisfied because they: Enjoyed their job	28	2003	No trend information available on salary. Job satisfaction is stable (very satisfied: 49% in 2001 and 2003; satisfied: 41% in 2001 and 39% in 2003)
	Good salary	8		
Sweden	Cannot get work out of your mind (at least once a week)	20	1984-2003	Increase from 1984 (16.2%) to 1999 (20.4%); stable since

Source: EWCO national correspondents (see Appendix for national survey sources)

Stress-related outcomes

The prevalence of stress-related outcomes is quite different, depending on the particular outcome that is considered. In general, women are found to have a higher score on stress-related outcomes than men. Where trend information is present in the northern European countries, the data indicate an increase in stress-related outcomes, both for men and women. In the Netherlands, there seems to be a stabilisation, though this is often attributed, at national level, to a greater focus on the healthy worker (see below).

Table 8 Prevalence and trends on psychological stress-related outcomes

Country	Question	Prevalence (%)	Period	Trend

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Denmark	No information available	-	-	-
Finland	Burnout	8.6	1997-2003	Increasing: from 7% in 1997 to 8.6% in 2003 (for women more than men)
	Difficulties sleeping	Men / Women 27 / 36	1977-2003	Increasing: from 17% to 27%
	Fatigue	27 / 41		Increasing: from 24% to 27% (particularly women)
	Tension	15 / 19		Decreasing: 20% to 15%
	Over-exhaustion	10 / 14		Stable at 10%
	All just too much	5 / 10		Increase from 3% to 5%
	Depression	4 / 6		Stable at 4%
France	Feeling tense or irritable because of work	67	2004	No trend information available
	Feeling discouraged	47		
	Taking medication such as anti-depressants or tranquilisers	14		
	Recourse to psychiatrist	10		
Germany	No information available	-	-	-
Netherlands	Burnout	9	1997-2002	Burnout scores and consequences of stress-related outcomes are stable
	Had a medical consultation because of work pressure	8		

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Spain	% of workers suffering from a likely short-term effect of stress that expresses itself as: Headache	12	2001	No trend information available
	Sleeping disorder	10		
	Continual tiredness	10		
	Irritability	8		
	Lack of memory	6		
	Lack of concentration	2		
Sweden	Work-related disorder due to stress	Men 8 Women 14	1995-2003	Despite the fact that the prevalence of work-related disorders was higher among women, there has been a steady increase in work-related disorders due to stress in both men (3.6% in 1995 to 8.2% in 2003) and women (6.1% in 1995 to 13.6% in 2003)

Source: EWCO national correspondents (see Appendix for national survey sources)

This report only examines psychological or mental health outcomes as work-stress related outcomes, except when an explicit link to psychosocial risks has been reported.

Neck, shoulder and arm problems

The Finnish data report an increase in recurrent aches and pains in the neck, spine and shoulders. Likewise, the Dutch figures confirm a rise in repetitive strain injuries (Houtman et al, 2004). According to the literature, these aches and pains are causally related to psychosocial risk factors. They are higher for women than men, but the rise is apparent in both sexes. Recurrent aches and pains in the pelvic area and in the legs appear to be stable since 1977.

Cardiovascular diseases

In a Spanish study (García, 2002), it was estimated that around 16% of cardiovascular diseases in men, and 22% of these illnesses among women, correspond to work-related stress. Employees reporting high quantitative job demands, low job control, and a high effort-reward imbalance had a two-fold higher risk of death from cardiovascular disease than colleagues who scored low on these job characteristics (Kivimäki, Leino-Arjas, Luukkonen et al, 2002; see abstract).

Accidents

The results for Spain in Table 8 are significant, since it is found that fatigue is the fifth highest cause of work

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accidents, accounting for 6.4% of all work accidents in the two years prior to the survey (García, 2002). In the Netherlands, a clear link has been established between work pressure and accidents at work (NL0407NU05): among employees who state that they 'always work under pressure', the accident rate is about five times higher than that of employees who are 'never' subject to pressurised work.

Sickness absence and disability

Table 9 presents sickness absence and disability trends, related to stress. There seems to be limited information on the prevalence of absence or disability caused by work-related stress. However, data from Finland, Germany and the Netherlands indicate a clear relationship, and the data from the latter two countries also point to a rise in absence and disability due to work-related stress.

In the case of Finland, the figures do not represent the national level, but do provide some high quality quantitative longitudinal data on working conditions and sickness absence in the public sector. The data show that certain factors lead to an increase in sickness absence rates. These include: a decrease in the number of personnel, tightening of productivity targets, unfair or inequitable leadership, intimidation, as well as a disparity between work demands and job control (Vahtera et al, 1997; Vahtera, Kivimäki, Pentti et al, 2000 ; Elovainio, Kivimäki and Vahtera, 2002; Social Capital and Networks of Trust). The results of this study are summarised in Table 9 below.

Regarding the situation in Germany, a recent news update (DE0403NU03) describes the relation between absenteeism and psychosocial risks at work, which is further influenced by low job security (see below).

In the Netherlands, a social security organisation guarantees that its physicians see all long-term absentees, to assess them on the degree of disability. The trends from its registered figures, together with the national surveys, suggest a self-selecting process, in that people who are healthy are more likely to stay in work. The health of the working population has been stable since 1977, whereas the rate of people leaving work due to long-term absence and disability, particularly as a result of psychological disorders, increased for some decades. This growth rate came to a halt only recently, and is now showing a slight decrease since the economic recession had an impact on employment figures in 2002. The report presenting this diagnostic information (987Kb pdf) is available online, and in Houtman, Andries and Hupkens, 2004.

Table 9 Prevalence and trends in sick leave and disability, related to stress

Country	Question	Prevalence	Period	Trend
Denmark	No information	-	-	-
Finland	No representative data, but high quality data on absenteeism acquired from public sector	28% absence rate in high social economic group (SES) with high demands and low control;45% absence in low (SES) group with high demands and low control	2000	No real trend information present
France	No information	-	-	-
Germany	Cause of sick leave	1994 = 100%	1995-2002	Increase in psychological illnesses
	Psychological (highest)	174		
	Respiratory	110		
	Musculoskeletal	110		

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Netherlands	Sickness absence caused by:Work pressure	21%	1999	No trend information available (yet)
	Conflict with supervisor, boss or colleague	13%		
	Accidents at work	11%		
	Restructuring, etc	5%		
	Disabled because of psychological disorders	35%	1970-2003	A steady rise in the absolute and relative risk of being diagnosed as disabled for work because of psychological disorders; only recently, this reversed into a slight decline. In 1993, 29% were diagnosed as being disabled due to psychological disorders. The (total) disability risk increase has fluctuated at around 1.5 points between 1993 and 2002.
Spain	National Institute of Public Administration estimate*	20%	2004	No trend information available
	Unión General de Trabajadores	50%-60% work-stress related		
Sweden	Work-related sick leave due to stress in the last 12 months	Men 3% Women 6%	1995-2002	Increasing for both men (1% to 3%) and women (2% to 6%)

Source: EWCO national correspondents (see Appendix for national survey sources) *Note: The Spanish data come from the Unión General de Trabajadores.

Summary conclusions on prevalences and trends

One of the leading work-stress models, Karasek's Job Demands-Control model , hypothesises that high stress occurs particularly when job demands are high and job autonomy is low. On the basis of the above data, it can be seen that questions measuring the same type of concepts and/or their answering categories are rather different, and that no simple international comparison on prevalence can be made. However, using the data from the third EWCS, a comparison can be made, combining these central concepts of work-related stress risks: job demands and job autonomy or control.

Figure 4 shows that the risk for work stress is relatively high in countries such as Greece, Ireland and the United Kingdom, whereas, in countries like Finland, the Netherlands and Sweden, high job demands combine with

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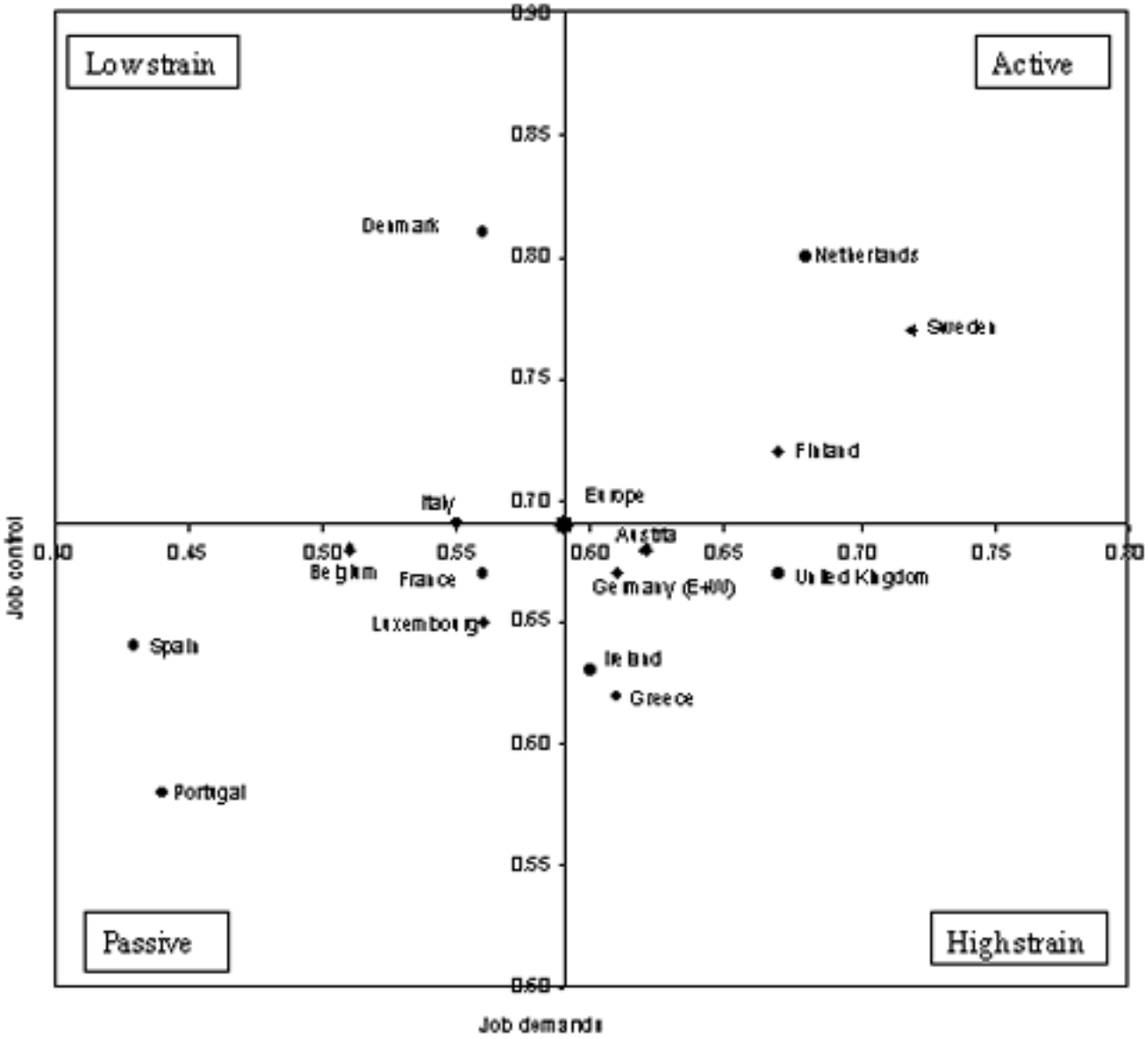
relatively high control, resulting in more active learning opportunities. In Denmark, work autonomy is also high but, on average, the demands are considerably lower than in Finland, the Netherlands and Sweden. Southern European countries, such as Portugal and Spain, and, to a lesser extent, countries like Belgium, France and Luxemburg, find themselves within the 'passive quadrant', indicative of relatively low demands and low control.

Figure 4 Quantitative job demands and autonomy, by country



Source: Third European Working Conditions Survey (Foundation). The range of the scale is set from 0 to 1.

Although the national surveys cannot be used for international comparison, they may be used to indicate trends, since they measure comparable concepts. In general, all national datasets suggest increases in quantitative job demands in the beginning of the 1990s and a levelling off, or even a slight decline, at the end of the decade. Denmark is the only country still showing a strong rise in quantitative job demands in 2000, which is the last year for which data are available there.

The trend for autonomy - which is not often included in the national datasets - appears to be much more diverse, where available. Denmark reports a decline in autonomy up to 2000. In Finland, on the other hand, an increase was noted in many indicators relating to autonomy from 1984 to 1990, followed by a stabilisation, although 'control over work pace' showed a decline after 1990. In Sweden, job autonomy has also decreased since 1989, particularly

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in relation to ‘control over work pace’. Other aspects of job autonomy in Sweden, however, show a stabilisation after 1989. In the Netherlands, the general picture for autonomy is stable since 1994, although the percentage of workers indicating that they ‘can decide how to work’ has seen a steady increase (NL0411NU06).

Several of the European countries acknowledge that, in addition to quantitative demands, information on other types of demands is also important. In Finland, increasing changes in qualitative demands have been observed, which appear to be mainly related to task expansion resulting in more complex tasks. In Sweden, the attention and concentration required at work increased steadily up to 1999, after which it stabilised. Conversely, ‘attention required for work’ in Spain showed a slight decrease. In the Netherlands, data on qualitative demands (using a broad definition, see Tables 2 and 3) are only available since 2000, and indicate a slight decrease. With regard to emotional demands or hiding emotions, some prevalence data exist. No trend information, however, is yet available.

There is increasing demand too for distinguishing between different aspects of autonomy or control. This is strongly suggested in new theoretical frameworks such as the DISC (demand-induced strain compensation) model, which makes hypotheses for implementing different resources, or aspects of autonomy, to compensate for specific work demands (Jonge et al, 2004). The co-occurrence of particular demands and availability of resources may or may not match. Where they do, it will result in a strengthening effect on health, and a positive effect on productivity. When they do not, it may result in possibly unfavourable outcomes. Some empirical research evidence is available at present (Jonge, Dormann and Van Vegchel, 2004).

Other issues concerning risks for work-related stress relate to social support. Such support may alleviate the effects of high demands and low control. Trend information (see Table 5) indicates an initial increase in support in the early 1990s, followed by a stabilisation. No significant differences were found between trends on social support from supervisors or from colleagues.

Recent lines of work-related stress research, such as the ERI (effort-reward imbalance) model of Professor Johannes Siegrist, highlight personal characteristics such as work commitment, as a significant cause of work-related stress. Little of this kind of information is as yet being collected in national surveys. Within recent Dutch datasets, some questions relevant to this issue may be identified. However, they mainly appear to be linked to the issue of job insecurity, and indicate a decrease in commitment comparable to the trend of job security. Nonetheless, answers to other questions reveal that workers were more likely to feel ‘at home’ within their present organisation than previously, and that they found the organisation they worked for most attractive, thus indicating a greater commitment to their work.

As far as work-stress related outcomes are concerned, these are found to be increasing in some countries: Denmark experienced increased complaints of burnout, and workers in Finland reported more difficulties sleeping; while other countries reported that outcomes remained stable (Sweden and the Netherlands). In general, the surveys measuring these data refer to the working population, though this varies between countries, since different legislation governs access to the labour market and to sickness or disability benefit systems. Some absence reports (e.g. Germany), or disability benefits relating to psychological disorders (the Netherlands), indicate an increase in psychological problems among those who are long-term absent from work. Since 2002, the rise in disability inflow due to psychological disorders in the Netherlands has levelled off, although it is still the main reason for leaving work due to health problems.

Risk groups

In most (Denmark, Finland, the Netherlands, Spain and the EU average) of the seven countries included in this study, the sectors most at risk are identified as health and social services, and education. Some of the following sectors were also identified as risk groups:

- Health and social services (DK, ES, FI, NL, EU)
- Education (DK, ES, FI, NL, EU)
- Public administration (FI)
- Banking (ES)
- Freight transport (FI, NL, EU)

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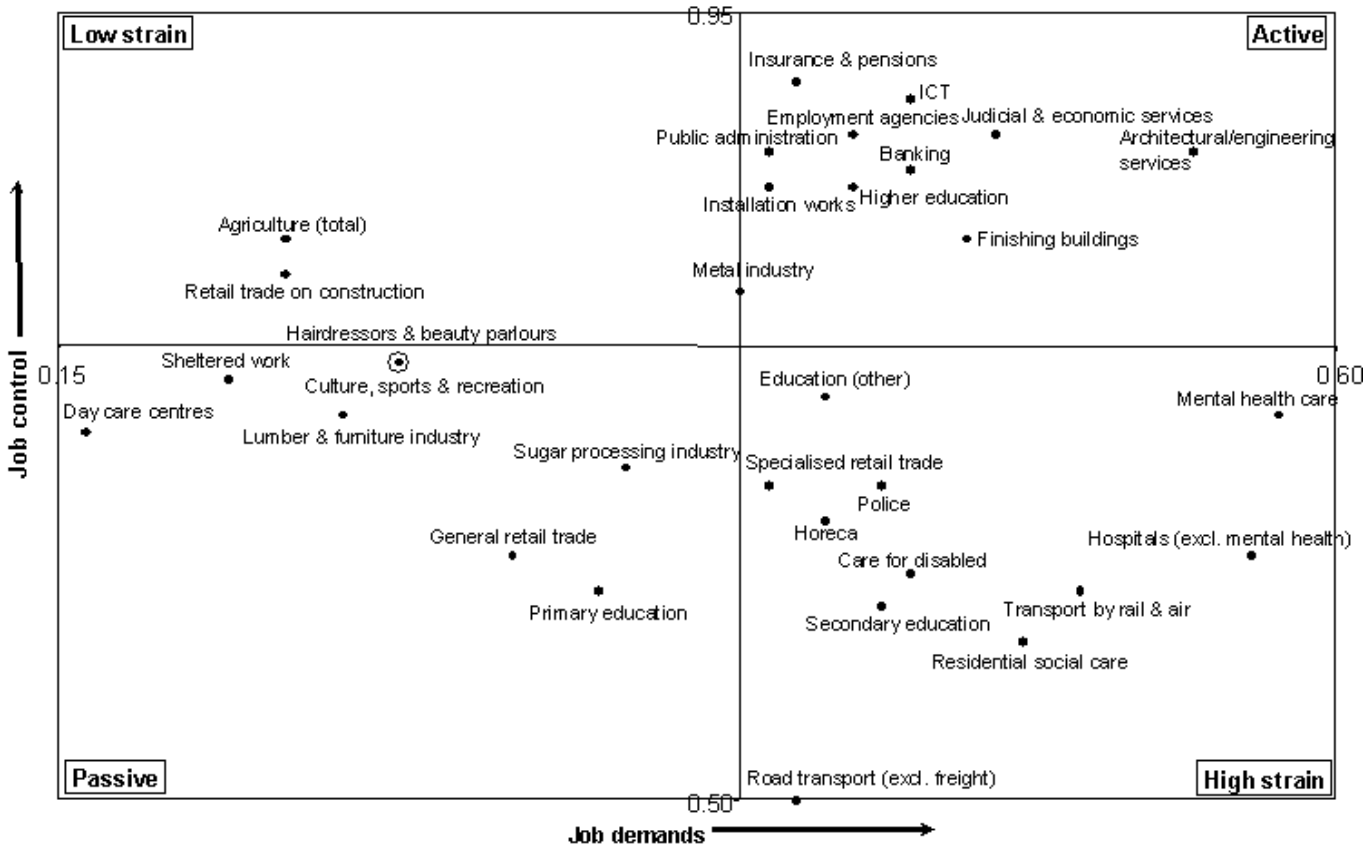
- Hotel and restaurant (FI, NL)
- Policing (NL)

It was emphasised that, although high work pace and high demands may have been levelling off at national level in several countries, this may not be reflected in certain sectors. For example, health care and education, in particular, showed trends that resulted in a further increase in work stress risks in the Netherlands (e.g. NL0311NU01 , NL0411NU06).

Figure 5 shows how sectors in the Netherlands rate in the two main dimensions of risks for work stress: job demands and job autonomy or job control. This figure is likely to illustrate the situation in other countries as well.

Figure 5 Quantitative job demands and autonomy, by sector



Source: POLS 1997-1999; CBS Statline. The scale ranges are set from 0 to 1.

Women are also risk groups in terms of emotional load (in Denmark, the Netherlands and Sweden), as are those who work in the caring professions (Denmark). Gender segregation by occupation may be largely responsible for the heightened risk of women. In Figure 5, the sectors that are more female dominated are reported as high on quantitative job demands, combined with low control.

Relevant macro-level determinants

Several macro-factors at sociological, demographic and national level may also be responsible for increases in work stress risks, such as shortage of staff, an older workforce, more women with double workloads entering the workforce, increased diversity in the workplace, changed organisational work patterns like JIT (just-in-time management), and developments in information technology.

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Time pressure is recognised as a factor in the job demands-job control framework, but such pressure is also related to significant changes in workplaces of a more sociological and economic nature. Shortage of staff, tightened productivity targets and deadlines, customer demands, fragmentation of the workday and of tasks are all factors leading to time pressures.

In general, it is argued that organisational practices have changed dramatically in the new economy. To compete more effectively, many companies have restructured themselves and downsized their workforce, increasing their reliance on non-traditional employment practices that depend on temporary workers and contractor-supplied labour (e.g. DK0408TR01), and adopting more flexible and 'lean' production technologies (National Institute for Occupational Safety and Health). This may well have been supported by technological changes, particularly the widespread introduction of the computer at work and at home. These developments have been observed in many developed countries in Europe as well as in the US.

Apart from changes in the organisation of work and of the workforce itself, work content has also changed, with an increase in working with information and with people (e.g. Krömmelbein, 2004; NL0411NU06). The way in which information can be used or accessed has expanded, with the computer becoming a standard feature of most workplaces and homes. This has resulted in the opportunity to work at home in many sectors (teleworking), thus avoiding time consuming commutes. However, it has also increased the possibility of working outside working hours, a factor that has been associated with increased fatigue and risk of burnout, and disruption of the work-life balance (e.g. DE0404NU04).

Costs related to work-related stress

The societal costs of absenteeism and disability in 2001 were calculated for the Ministry of Social Affairs and Employment in the Netherlands. A model was constructed as a tool to establish the relevant indicators (NL0412NU01). The basis of the model is that an individual's work results in the delivery of products, and adds to the productivity of the organisation as a whole. However, unfavourable working conditions will result in ill-health or accidents, which may result in the employee leaving work, or requiring medical care and costs, which possibly lead to longer-term disability costs. Preventive measures also have a cost but, when they are effective, they can reduce the number of days lost due to sick leave.

For the Netherlands, Koningsveld et al (2004) calculated that costs of absenteeism and disability amounted to €12 billion (NL0412NU01). The largest costs related to work-related sick leave and disability, mainly caused by psychological and musculoskeletal disorders, each accounting for about 22% (€3 billion) of the total costs. Evidently, absenteeism and disability, due to psychological and musculoskeletal disorders, are a major problem in Dutch society.

In Germany, a considerable increase can be observed in absenteeism due to psychological disorders. Since 1994, absenteeism in this regard increased by 74.4%, while the number of days lost rose by 36.7%. Depression was one of the major causes, accounting for 37% of all psychological disorders. The economic costs of psychological disorders was estimated to be €3 billion in 2001 (Fehlzeiten-Report 2003 - in German).

Preventive approaches

Most literature reviews on work stress interventions, even very recent ones (e.g. Semmer, 2003), conclude that the majority of the research on effective work stress interventions looks to individually directed interventions, which mainly aim at adapting individuals to their environment. Reasons behind this orientation are that:

- management often has the opinion that work stress problems are caused by individuals, particularly by their incapacity to cope with the work demands imposed upon them;
- it is in the interests of management not to change the organisation too much in dealing with the problem;
- it is much easier to study the effect of individual interventions in an experimentally proper way, than when an organisation, or even a part of it, is the subject of the study. Issues, such as randomisation, follow-up of a control group, restricting the intervention to the experimental group only, and avoiding other changes than

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the experimental ones, are much easier at an individual rather than organisational level. Some prominent researchers even consider a randomised clinical trial to be an invalid testing when it concerns a complex organisational level (e.g. Griffiths, 1999; Kristensen, 2000).

Interventions at organisational level

Looking at the outcomes of the studies, presented in the literature review by Van den Bossche and Houtman (2004), the individually directed studies not only showed more consistent and positive results, compared with the organisational ones, they were also largely of better quality. Generally, setting up a well controlled randomised intervention study at organisational level has been too problematic. This is well illustrated, for example, by the Landsbergis et al (1999) review, which mentions the large number of 'grey' documentation in the studies aimed at studying the effectiveness of organisational interventions. It has also become an accepted trend to present and publish well documented case studies (e.g. Karasek, 1992; Kompier and Cooper, 1999; Kompier et al, 2000a and 2000b). Several researchers even consider this to be a better way of evaluating the implementation of organisational measures, since only by combining a quantitative and a qualitative (process) perspective can one check if it was effective (e.g. Griffiths, 1999; Kompier and Kristensen, 2001). Major arguments for not considering a 'randomised controlled trial' (RCT) as the standard for these type of interventions, have to do with the fact that, at organisational level, it is often not possible to choose any organisation as a control for comparative purposes. It is logical that organisations that do not want such an intervention differ a great deal from the experimental one regarding motivations (and probably several other relevant issues).

Nonetheless, many of the reviews promote the merits of organisational interventions, using the following arguments:

- to prevent is better than to cure;
- when considering primary prevention, the causes can best be tackled at organisational level. At an individual level, problems can arise related to stigmatisation or marginalisation, and neither the worker nor the manager may be able to deal with the issue successfully. On the other hand, if the work is really stressful, even the stronger workers will fail to perform and will eventually also develop stress-related health problems. This would make proper handling of the problem, at organisational level, even more time-consuming and difficult.

However, at present, little research exists on the effectiveness of organisational interventions, and research results are inconclusive.

Notwithstanding this obstacle, managing work-related stress is a topic that has received attention at EU level for some time. As far back as 1994, the Foundation published a booklet on how to identify and prevent stress, particularly in small- and medium-sized enterprises (Kompier and Levi, 1994). In 2001, an EIRO report (tn0111109s) examined the extent to which work-related stress was an issue in industrial relations in the EU Member States and Norway. At that time, stress was rarely covered in health and safety legislation, and was an issue in collective bargaining in only a few countries. In 2002, a campaign was initiated to combat work-related stress (eu0208202n) and to raise awareness of the issue throughout Europe. By October 2004, the EU social partners signed a framework agreement (78Kb pdf) , which aimed to establish a framework within which employers and employee representatives could work together to prevent, identify and combat stress at work (eu0410206f).

Within the context of this report, the national correspondents were asked to provide some examples of good practice in the management of work-related stress at organisational level. Some examples are presented at: Developing a workplace stress prevention programme, ILO ; the New Quality of Work Initiative in Germany, and Reducing stress at work and at home (in German) ; Préventica , the French National Research and Safety Institute (INRS) and ANACT in France; and Arbejdsmiljoeportalen in Denmark.

In Spain, training appears to be a way of stress management that is used, for example, by the National Institute of Public Administration. However, training in psychosocial issues is regarded as limited, since it does not necessarily tackle the problem at its source. Participant experts have pinpointed a series of priority training areas in psychosocial risks at work for the relevant actors involved (see Table 10 below).

Table 10 Priority training areas in psychological risk prevention, according to employers and workers, Spain

Employers	Workers	Risk prevention strategy

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Improve working conditions for the prevention of stress	What is stress?	Improve working conditions for the prevention of stress
What is stress?	How to fight against stress	Jobs that trigger stress
Risks of stress in the workplace	Risks of stress in the workplace	Identification of stress symptoms
Jobs that trigger stress	Improve working conditions for the prevention of stress	How to fight against stress

Source: ISTAS, 2000 (500Kb pdf)

In the Netherlands, an initiative was launched in the mid 1990s to manage - among other risks at work - work-related stress risks at sectoral level, with funding provided by the relevant ministry. The sectors targeted for this project were high risk. A general evaluative study showed the initiative to be effective, but no scientific standards were defined.

From the many examples of good practice and several review documents on this topic (e.g. Kompier and Cooper, 1999; Kompier et al, 2000a, 2000b; Kompier and Kristensen, 2001; Kristensen, 2001; Well-being at work is not just luck , 2002), it is possible to identify the top 10 factors for success:

- involve employees in the intervention;
- acknowledge them as experts;
- management must commit to the process;
- include everybody in matters of organisational change, and ensure compliance;
- approach the issue step by step;
- establish a clear structure of tasks and responsibilities;
- keep to a tight schedule;
- use different types of measures;
- treat work-related stress as a normal issue;
- after-care.

Interventions at individual level

Regarding the effectiveness of individual interventions, much new information is available. This may be partly due to the Dutch Research Programme on Fatigue at Work (NWO-PVA). A meta-analysis, within the framework of this programme, aimed to identify the most effective interventions. The cognitive behavioral therapy approach appears to be most effective, on the basis of the studies performed so far (Van der Klink et al, 2001). All the intervention studies performed within this research programme were set out at a very practical level, taking on board the importance of an early return to work.

Another study tested the effectiveness of two interventions, on self-employed people with a stress-related disorder: cognitive behavioural therapy (CBT) only, and a ‘combined approach’ (CA) using some minor clinical interventions like CBT, but also stressing the importance of work and return to work. These two interventions were tested against the ‘usual care’ situation (UC). The latter reference means that, in the case of this subgroup (self-employed people), almost no action was taken at all. Results showed that a highly significant reduction in days absent was obtained in the combined approach, whereas CBT alone did not yield better results than the ‘usual care’ condition over a 10-month period. The average number of days absent in the CA group was 177, whereas it was 256 in the CBT group, and 252 in the UC group. There were no differences in mental health between the groups. Thus, the combined approach appears to be a highly cost-effective intervention for self-employed people (Blonk and Lagerveld, 2003 - 185Kb pdf).

Commentary

Work stress risks have been on the increase for many years, although the high pace of work appears to be levelling off, since the end of the last decade. However, these overall national figures may be misleading, since trends at sectoral level can be somewhat different. The conclusions from these trends can be summarised as follows:

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- In many countries, there has been a combination of increasing and (by the end of the 1990s) stabilising job demands, together with decreasing job autonomy. This would have resulted in an increasingly stressful situation within countries. High and increasing quantitative demands, combined with low or decreasing control over work pace, increase stress-related outcomes.
- Demands other than 'just' quantitative demands appear to be significant, but questions regarding cognitive or emotional demands are not yet present in many national surveys.
- As a result, relevant indicators reflecting work demands or control relating to social support, or to other aspects considered important, such as hiding emotions or (over) commitment, are not yet usually included in national statistics.
- Few trends could be provided for so-called stress-related outcomes. Some countries showed an increase in stress-related health problems at work, but it was also observed that workers who developed (psychological) health problems had left the labour market on long-term absence, or were receiving disability pensions.

Risk groups for work-related stress were mainly identified at sectoral level. Sectors in which relatively many women are occupied appeared to be risk groups, i.e. health care, education, public service sector, hotels and restaurants, and banking. Sectors that were also considered to be risk groups, but were more male dominated, included freight transport and policing. However, these are relatively small sectors compared with those outlined above.

Although information on the costs of work-related stress is scarce, where available, costs appear to be high. The main portion of the costs is determined by the absence and by disability resulting from psychological (health) problems.

Although not much real scientific evidence is available on the effectiveness of stress management at organisational level, a significant amount of good practice has been described. The commitment of the organisation itself, and the involvement of both workers and management, appear to be crucial for the success of stress management activities, although other factors are also identified as important. Within the area of individual strategies for stress management, more scientific evidence is available. Here, early attention is essential for work and returning to work, after reporting absent due to psychological problems.

Within Europe, the issue of work-related stress, its identification and management, has received increasing attention. The work-related stress agreement is indicative. Recently signed off by the EU level social partners, it aims at establishing a framework within which employers and employee representatives can work together to prevent, identify and combat stress at work (eu0410206f).

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Appendix: Surveys and methodology

EU level

European Working Conditions Surveys

The European Foundation for the Improvement of Living and Working Conditions has conducted three surveys in

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the EU15: 1990/1, 1995/6 and 2000, with the next survey due in 2005.

Survey 1990/1: A total of 12,819 workers were interviewed face-to-face in their homes. At that time, there were 12 Member States. Around 500 workers were interviewed in each Member State (except Luxembourg: n= 250). In both former East and former West Germany, 500 workers were interviewed.

Survey 1995/6: A total of 15,986 workers were interviewed face-to-face in their homes. Around 1,000 workers were interviewed per Member State (except in Luxembourg n = 500, and Germany n=2,000: 1,000 in former East Germany and 1,000 in former West Germany). There were 15 Member States at the time.

Survey 2000: A total of 21,793 workers were interviewed face-to-face in their homes. Around 1,500 workers were interviewed per EU Member State (Luxembourg n = 572).

Denmark

Danish Work Environment Cohort Study (DWECS)

The Danish Work Environment Cohort Study (DWECS), 2000 (n=12,322) was used, conducted by the National Institute of Occupational Health (NIOH; Arbeijdsmiljøinstitutet, AMI). The DWECS is a national study that describes working conditions, health and lifestyle among Danish workers. The DWECS is an extension of the Danish Employee Study (WEC), which was conducted in 1990 (n=9,700) and in 1995 (n=11,347). The change in name is due to the fact that the 2000 study covers the full labour market, including self-employed workers. For more information on the survey, see DK0312SR01 .

Finland

Finnish Quality of Work Life Survey

The Finnish Quality of Work Life Surveys were used. These have been conducted in 1977, 1984, 1990, 1997, and 2003, and are representative surveys of the employee population (excluding self-employed people and farmers). The surveys involve between 3,000 and 6,000 persons, and response rates have varied between 78% and 91% over the years. For more information on the surveys, see FI0410SR01 .

France

DARES

The DARES ‘Enquêtes conditions de travail’ were used; these were carried out by the French Ministry of Labour in 1984, 1991 and 1998. In this study, a questionnaire is submitted to around 22,000 employees. For more information on the survey, see FR0410SR01 .

Surveys conducted by the ‘Liaisons Sociales’ in 1998 and 2000 were also used.

An online quantitative study was conducted by the CFE-CGC confederation, among a representative sample of 1,079 French workers.

Germany

BIBB/IAB Survey

The BIBB/IAB Survey from 1998/1999 was used. This was a representative survey of 34,000 employed people.

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The Netherlands

Living Conditions Survey (POLS in Dutch)

From 1977 to 1997, working conditions, including stress risks and (some) stress outcomes, have been surveyed in the 'Living Conditions Survey' by the Central Bureau of Statistics (CBS). Since 1997, this survey has been integrated into the Permanent Quality of Life Survey (POLS). Since 1989, the survey has been carried out on an annual basis; before that, it was conducted every three years. The number of workers (employees and self-employed) in each sample ranges from about 3,000 in its early years, to about 6,000 in most recent years. Response rates are around 50%.

Over the period of more than 25 years, questions have been added. In 1994, the sequence of many risk exposure questions was changed, as well as the answering categories for several questions. This makes it almost impossible to draw a linear line before and after that year, without referring to other statistical information on the topic covering the same period. For the data on work pace, such information was available, which meant that it was possible to identify the increase in work pace. For more information on this survey, see NL0403SR01 .

TNO Working Situation Survey (TAS)

The TNO Working Situation Survey (TAS) survey was initiated in 2000. It is intended to be carried out every second year, and has now delivered information from two representative samples of the Dutch workforce, one in 2000 and one in 2002. The number of workers (employees and self-employed) in the sample is, on average, about 4,000, with a response rate of 53% (2000) and 45% (2002): http://www.arbeid.tno.nl/en/publications/20020625.html .

This survey touches on more work topics and measures most concepts with scales, instead of using only one or two items. However, since there is not much trend information as yet, the TAS is only used to add to the CBS information.

Netherlands Survey on Working Conditions (NEA)

Since 2003, a third survey is in place, which is also intended to be conducted every second year. In its first year, the sample size was 10,075 employees (excluding self-employed workers). The focus of this survey is more restricted to working conditions, compared with the POLS and TAS. TNO Work and Employment is carrying out this survey also: http://www.arbeid.tno.nl/kennisgebieden/projecten/nea.html

Spain

Survey on Life Quality in the Workplace ('Encuesta de Calidad de Vida en el Trabajo' in Spanish)

The Survey on Life Quality in the Workplace, 'Encuesta de Calidad de Vida en el Trabajo', was carried out by the Spanish Ministry of Labour and Social Affairs. Information on stress is compared for the years 2001, 2002 and 2003. The information from 2003 is available at: http://www.mtas.es/estadisticas/ECVT/Ecvt2003/ . For more information on this survey, see ES0405SR01 and ES0411SR01 .

The information on absenteeism is from the Unión General de Trabajadores (www.ugt.es/mobbing/estres.htm).

Sweden

Work Environment Surveys (AMU in Swedish)

The 'Work Environment Surveys' (AMU) were used. These surveys have been carried out by the central statistics

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office, Statistics Sweden (SCB), on a two-yearly basis since 1989 (since 1984 for some indicators). Each survey interviewed almost 10,000 people. For more information on this survey, see SE0401SR01 .

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