



Government
Office for
Science

 **Foresight**

**Mental Capital and Wellbeing:
Making the most of ourselves in the 21st century**

**State-of-Science Review: SR-C6
Stress Management and Wellbeing Interventions in the Workplace**

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*This review has been commissioned as part of the UK Government's Foresight Project,
Mental Capital and Wellbeing. The views expressed do not represent the policy of
any Government or organisation.*

Summary

Preventing stress at work and its consequences may involve person-focused interventions, organisation-focused interventions, or both. Person-focused approaches (Stress Management Training) have documented successes, especially if they combine cognitive-behavioural approaches and relaxation. Effects refer mostly to individual wellbeing. Decay over time may be counteracted by follow-up sessions. Issues requiring more attention include reaching people with low occupational status, and targeting work-related changes through increased personal resources. Organisation-focused interventions may change: a) the nature of tasks (e.g. more interesting); b) working conditions (e.g. working time); and c) social relations (e.g. social support). They have demonstrated their potential but face many difficulties, such as maintaining the commitment and involvement of many people, with often diverging interests. Changes are most likely in variables that are immediately targeted (e.g. increasing autonomy); these do not always translate into better wellbeing. Effects can be expected on the organisational level (absenteeism). Quality of implementation is crucial. There are indications that those who need it most profit most. Those who actively participate profit more; transmission to their peers is rather unlikely. Management support is crucial. Projects are most promising if they involve: (1) a thorough risk analysis; (2) a participatory approach; (3) a combination of person-focused and organisation-focused interventions. For all kinds of interventions, better evaluation is needed, including a more thorough documentation of processes. Well-trained specialists from the health and the work side should be involved.

1. Wellbeing and the workplace

Although it certainly is not the only influencing factor, the workplace clearly is one of the factors that influence the development of human health and wellbeing (Sonnentag and Frese, 2003). It therefore is important to consider the potential of interventions at the worksite to increase wellbeing, and the conditions necessary for their success.

Basically, there are two approaches. The first and dominant one, Stress Management Training (SMT), focuses on the person. It teaches ways of diagnosing stress and its causes, and of dealing with it (Murphy, 2003). The second approach focuses on the work environment, trying to identify working conditions that influence wellbeing, and to change them where necessary (Semmer, 2003; 2006). The two approaches are often combined.

This contribution covers approaches that specifically focus on occupational stress. It does not cover programmes that only use the workplace as a means to reach people but without focusing on workplace stress, such as health promotion approaches that concentrate on behaviour, like smoking, or physical activity (O'Donnell, 2002). It also does not cover interventions focusing on safety. There will also be no specific coverage of Employee Assistance Programmes (EAP), which offer counselling to 'troubled' employees (Cooper et al., 2003), often referring to drug (especially alcohol) problems. There is, however, some overlap, since EAPs may include measures to reduce stress, or to manage stress better.

2. Person-focused interventions (Stress Management Training)

Although the influence of the environment (stressors, resources) sometimes is underestimated, there can be no doubt that individual wellbeing depends to a considerable degree on the person. People appraise the same situation differently and react to it in a different way. Not surprisingly, therefore, individual skills of dealing with (occupational) stress are often the main focus. Two basic approaches can be identified (Murphy, 2003).

2.1. Relaxation

Relaxation-focused interventions aim at reducing the arousal and tension associated with stress. 'Progressive Muscle Relaxation' teaches people to first induce tension in groups of muscles and then deliberately relieve it. Meditation and 'mindfulness' (which concentrates on perceiving, and accepting, everything that comes to mind; Shapiro et al., 2005) also are popular. In biofeedback people learn to control their inner state (e.g. muscle tension) through feedback (e.g. a tone that rises as muscle tension increases).

2.2. Cognitive-behavioural skills training

Relaxation-training is non-specific with regard to the situations involved. Cognitive-behavioural skills training (CBST) does focus on the specifics of the situation, trying to alter its interpretation, and offering support in dealing with it. This may include attempts at eliminating the source of stress. CBST typically includes:

- Identifying typical triggers.
- Analysing stress responses, especially maladaptive patterns of interpretation (e.g. assuming intention in offensive behaviour that just might be clumsy; 'irrational beliefs' such as "everyone must like me") and of coping (e.g. ruminating, provoking angry exchanges, etc.).
- Modifying these responses, using, for instance, self-instruction, problem-solving, or role play. The best-known programme is Meichenbaum's (e.g. 2007) 'Stress Inoculation Training'. In general, however, these programmes are quite heterogeneous, and often not well documented, with regard to what actually is done and how.

2.3. More specific approaches

More specific approaches refer to specific competences, such as training in assertiveness, conflict resolution, problem-solving, time management (Quick et al., 1997), or anger management (Gerzina and Drummond, 2000). We consider anger management to be especially important, because anger is a frequent emotion at work (Rafaeli, Semmer, and Tschan, in press), and is related to a higher risk of cardiovascular disease (Smith et al., 2005).

Some approaches are based on specific theoretical concepts such as conservation of resources theory (Freedy and Hobfoll, 1994), equity theory (van Dierendonck et al., 1998), or effort-reward imbalance (Aust et al., 1997).

CBST can also aid coping by changing the work environment, e.g. by encouraging innovation (Bond and Bunce, 2000). This potential of using person-focused CBST to change the work environment is not focused on very often (Giga, Noblet et al., 2003) and should be encouraged.

2.4. Common elements of stress management training

In SMT, CBST often is combined with relaxation (Giardini Murta et al., 2007). SMT is typically run in groups of 10 to 15 people, involving several short sessions (e.g. one to two hours) per week for about 10 to 12 weeks, or workshops lasting one or several days. Sometimes a delay between sessions allows participants to test and practice insights and skills in daily life (Bond and Bunce, 2000).

SMT is typically offered to everybody working in a given company or department. Therefore, most participants will not have severe but rather 'subclinical levels of stress symptoms' (Murphy, 2003, p.538) at most. This 'floor effect' makes it difficult to demonstrate an improvement.

Trainers often come from clinical or work psychology, or from the medical or paramedical field. Some do not have much formal training, however. We consider that pertinent training is advisable.

2.5. Effects of stress management training

The effects of SMT have been reviewed by Giga, Noblet et al. (2003), Lamontagne et al. (2007), and Murphy (1996). Furthermore, meta-analyses are available by Bamberg and Busch (2006) and van der Klink et al. (2001).

2.5.1. Overall effects

On average, SMT produces moderate effects. The typical statistical effect size ('d') of .40 implies that the average person of the treated group is better-off than two-thirds of the non-treated group.

These effects are, however, not uniform. Results are very diverse, both with regard to time and to specific changes. In general, one can expect 'some kind of effect', but it is difficult to predict which specific variable will actually change (van der Hek and Plomp, 1997).

2.5.2. Specific effects

Effects are to some degree specific to the type of intervention. Cognitive-behavioural interventions show very consistent effects, as do multimodal interventions which typically combine cognitive-behavioural methods with relaxation training. Meditation also holds promise, although there are only few studies that refer to the workplace (Murphy, 1996; Shapiro, et al., 2005; see also Grossman et al., 2004 for a general meta-analysis). Relaxation techniques fare somewhat less well in general but are especially effective in terms of physiological outcomes (Murphy, 1996; 2003). Thus, the combination of cognitive-behavioural methods with relaxation methods is most effective (cf. Bunce, 1997).

Regarding outcomes, the most consistent effects are found for psychological and (psycho-)somatic complaints. Effects on physiological reactions are smaller in general, but higher when relaxation is included. Outcomes on the organisational level (e.g. absenteeism) are not reported often, but where they are assessed, they tend to be negligible (Giga, Noblet et al., 2003; Lamontagne et al., 2007). Changes in work behaviour – e.g. in terms of interacting with clients (Rose et al., 1998) – are assessed only rarely.

Of note, van der Klink et al. (2001) report changes in the perception of work (time pressure, job control, social support etc.). It remains unclear to what extent this reflects altered appraisals of the situation, or changes in work conditions due to improved coping abilities.

2.5.3. Further issues

Regarding *time*, there is considerable controversy. Most post-training measures refer to a period of about three months (Bamberg and Busch, 1996), and many authors express concern about effects not being upheld over time (e.g. Giga, Noblet et al., 2003). More research on this issue is needed. The few reports

regarding longer periods are encouraging, however (Bamberg and Busch, 2006; Kaluza, 1997). Using methods that help to maintain intervention gains, such as booster sessions, is advisable.

With regard to *who profits most*, there are concerns that programmes may attract the so-called 'worried well' (Conrad, 1987). Studies on SMT indicate, however, that those who need it most are *more* likely to intend to participate (Munz and Kohler, 1997) and actually profit more (Bunce, 1997; Freedy and Hobfoll, 1994; van der Klink et al., 2001). However, SMT tends to be offered to rather highly qualified people, such as health professionals, teachers, and white-collar workers (Bamberg and Busch, 2006; Giardini Murta et al., 2007), and they tend to be most effective for them (van der Klink et al., 2001). Thus, the concern about reaching the 'worried well' may not be valid within occupational groups, yet apply *across* groups. More efforts to reach participants with lower occupational status – who are known to have poorer health and wellbeing – are warranted.

Process variables also deserve more attention. Terms like 'cognitive-behavioural skills training' are very general. They do not tell us much about the specifics of a programme, the quality of its delivery, the way it is embedded in the organisation and supported by management, etc. (Giardini Murta et al., 2007). Such data, including assessments of the quality of single sessions, should be reported regularly (Bunce, 1997) in order to determine which effects are due to the programme *per se* and which to type and quality of implementation (Kristensen, 2005; Randall et al., 2005).

3. SMT: conclusions and recommendations

SMT does show effects. Although not very strong in terms of effect sizes, these are considerable given the rather short time of the interventions and the rather large number of participants. However, there is great diversity in the results.

It is concluded that:

- Cognitive-behavioural programmes combined with relaxation are most promising.
- SMT may well be used for inducing changes in the work environment.
- SMT should be embedded into the organisational culture, which otherwise may undermine good coping (Murphy, 2002).
- Reaching people with low occupational status should receive more attention.
- Since anger is a frequent emotion at work (Rafaeli, Semmer, and Tschan, *in press*), which is related to CVD (Smith et al., 2005), special efforts should aim at anger reduction and management.
- Decay over time is an unresolved problem. More follow-up assessments, but also follow-up sessions are advisable.
- Studies should document in more detail the exact nature of the intervention and its implementation, including more measurement of process variables.

4. Organisation-focused interventions

Organisation-focused interventions can be grouped into three, not mutually exclusive, approaches, focusing on: (1) the nature of tasks; (2) the work environment; and (3) social relationships at work. Summary reports can be found in Giga, Noblet et al. (2003), Kompier and Cooper (1999);

Kompier et al., (2000); Lamontagne et al. (2007); Murphy and Sauter (2004); Parker et al., (1998); Parkes and Sparkes (1998); Semmer (2003; 2006).

4.1. *Task characteristics*

Tasks should be interesting, reasonably complex, and imply some variability and autonomy (Warr, 2007). Attempts to improve health and wellbeing, therefore, often focus on improving simple and repetitive jobs, adding elements that increase responsibility, such as planning, quality control, maintenance, etc. through job enrichment, job rotation, or (semi-)autonomous teams.

4.2. *Working conditions*

Changes in working conditions refer to ergonomic aspects, environmental issues such as noise, temperature, etc., and to issues of workload and working time.

4.3. *Social relationships*

Efforts to improve social relationships focus on improving social support, conflict management, or communication in general. Often, supervisors are trained in improving role clarity, giving feedback, carrying out performance appraisal, resolving conflicts, etc. Such interventions can also be thought of as targeting the interface between individuals and the organisation (Giga, Cooper et al., 2003; Giga, Noblet et al., 2003; Lamontagne et al., 2007).

4.4. *Combined approaches*

Many interventions combine all three approaches. Furthermore, person-focused interventions often are added.

Such combinations are most likely when interventions are based on a 'risk assessment' (Cox et al., 2000) which identifies problems irrespective of whether they originate in task characteristics, working conditions, or social relations. This approach minimises the danger of problems not being detected because they lie outside the focus of a specific project approach. Moreover, any interventions are more likely to be specifically targeted to these problems.

Risk assessment typically involves both outside consultants and some kind of steering group within the organisation (Cox et al., 2000). In continental Europe, so called 'health circles' are popular (Aust and Ducki, 2004); cf. also the 'Participatory Action Research (PAR)' concept (Israel et al., 1996). In such concepts, organisational members, typically of all hierarchical levels, participate in analysing problems and developing proposals for interventions. Many authors consider participation as a central element of successful intervention (e.g., Giga, Cooper et al., 2003; Kompier et al., 1998).

4.5. *Overall effectiveness*

The effects of work-oriented interventions are difficult to judge, because there is a paucity of studies with methodologically-sound designs (pre- and post-intervention measures, proper control groups, adequate data analysis). Nevertheless, a number of conclusions are possible.

First, results tend to be positive overall, but inconsistent. Typically, there will be positive changes in one or several variables (Giga, Noblet et al., 2003; Lamontagne et al., 2007), but it is difficult to predict which variables will change. Variables that are immediately targeted (e.g. job autonomy, role clarity) are most likely to change. However, these effects do not necessarily translate into improved health and wellbeing (Semmer, 2006).

Short-term effects are more likely than long-term effects. However, some work-related changes may take considerable time to show and, therefore, are not likely to be uncovered by the typical time frames of evaluation studies (Giga, Noblet et al., 2003).

Fortunately, *negative* effects are rare. Unsuccessful projects at least do not imply harm. Some negative side effects do occur, however, such as an increase in time pressure and workload following the introduction of teamwork (Antoni, 1997). Also, those who lose privileges may resent the introduction of changes (Smith and Zehel, 1992; see also Semmer, 2003).

Positive effects often are restricted to subgroups. These may be those people who need them most (e.g. Heaney et al., 1995). Sometimes, boundary conditions apply, as when success in introducing teamwork requires high interdependence (Sprigg et al., 2000). Social interventions are not likely to be passed on to their peers by those who have been trained (Heaney et al., 1995).

Active involvement yields stronger effects (Parker et al., 1998; Randall et al., 2005), which supports participative approaches, such as health circles, whose suggestions are accepted quite often (Aust and Ducki, 2004).

A careful analysis of a given organisation profits from participation and ensures a focus on specific problems of that organisation. These may sometimes seem small but are important to those concerned.

Quality of implementation is crucial, as indicated by reports of 'obstructing' and 'stimulating' factors (Kompier et al., 1998; 2000), but also by findings indicating a dose-response relationship between, for example, the amount of role clarification achieved and psychological health (Schaubroeck et al., 1993).

In contrast to SMT, which tends to yield effects only at the individual level, organisation-focused interventions tend to yield effects on the organisational level, such as sickness absence. Comprehensive approaches tend to yield outcomes on both levels (Giga, Noblet et al., 2003; Lamontagne et al., 2007; Semmer, 2003, 2006).

Altogether, work-oriented interventions have shown their potential to improve health and wellbeing, but their success depends on many factors and cannot be taken for granted.

5. General issues

5.1. *Person-oriented versus work-oriented intervention*

Person-oriented approaches are often regarded as 'secondary' and work-oriented approaches as 'primary' intervention. If one considers primary prevention to aim at people without symptoms, however, then each approach (plus, as emphasised by Murphy and Sauter, 2004, interventions at the level of legislation) may represent primary, secondary, or tertiary interventions, depending on the target group (cf. Giga, Cooper et al., 2003).

Person-oriented approaches can tackle the specific problems of a given individual, irrespective of their origin. *Work-oriented* approaches can reduce environmental sources of stress. Their smaller, and more variable,

success rate is not surprising if one considers that these interventions involve complex social systems (Semmer, 2006). Changes require the collaboration of many who may have diverse interests. Some changes may imply positive effects in general but negative side effects for some, as when experts or supervisors are afraid of losing power and status through increased autonomy for less qualified employees. Such groups are likely to resist changes. Finally, continued management support is not always guaranteed; even losing one 'project champion' may imply risks (Cox et al., 2000). All these factors may pose obstacles to successful intervention at the organisational level.

Change itself is often stressful. Dealing with change requires good coping abilities, as well as self-confidence. People who do not possess these resources may feel overwhelmed by the change and may not be able to profit from new options (e.g. job redesign with more autonomy). These people may need personal support (e.g. by SMT) in order to strengthen the resources needed to deal with change, and to take advantage of new possibilities. Note that these may be the people who need the changes most. Without the person-focused intervention that accompanies organisation-focused changes, those who need it most may profit least from intervention (Semmer, 2006).

This problem is even more pronounced if people have had a long-term, cumulative exposure to stressful situations and developed symptoms that have persisted over a long time. Such symptoms are not likely to disappear when the situation changes, as shown by the persistence of symptoms in former shift workers (Frese and Semmer, 1986). For those, even therapeutic ('tertiary') intervention may be necessary to accompany work-related changes.

These considerations argue for a comprehensive approach that combines work-related and person-related initiatives (Giga, Cooper et al., 2003; Kompier et al., 1998; Munz et al., 2001).

5.2. *Issues of implementation*

Lack of sustained management support is one of the most cited obstacles to successful intervention on the organisational level. It is often claimed that it may be improved by the availability of data on economic benefits (e.g. Giga, Cooper et al., 2003). In addition, however, the importance of trustful professional relationships must be emphasised as well (Sinangil and Avallone, 2002; cf. Semmer, 2006). To build, and maintain, such relationships requires considerable skill.

Participative approaches ensure intimate knowledge of the problems, as well as motivation (Giga, Noblet et al., 2003; Kompier et al., 1998). At the same time, they involve many pitfalls for facilitators, or change agents, such as: 'taking over' rather than facilitating; not maintaining neutrality vis-à-vis conflicts among organisational stakeholders; not being able to deal adequately with setbacks and (temporary) loss of motivation, etc. (see Semmer, 2003; 2006).

All this implies that skills of facilitators or change agents are crucial (Sinangil and Avallone, 2002). Unfortunately, they are hardly ever assessed systematically.

5.3. *Better evaluation*

Methodologically-sound evaluations are rare. Academics should acknowledge the limits set in organisational contexts; practitioners should try to expand these limits. Even suboptimal designs may yield valuable information if the process is carefully (rather than anecdotally) documented, using simple but repeated measures such as attendance at meetings, satisfaction with progress, documentation of external events, behaviour of change agents, etc. (Semmer, 2006).

5.4. What can be expected from stress-related interventions?

One can reasonably expect results if interventions are well-founded and well-implemented, more clearly from person-oriented than for work-related interventions – at least in the short run.

‘Success’ may have to be defined in terms of an improvement in some, rather than all, indicators (see Giga, Noblet et al., 2003; Lamontagne et al., 2007). Also, success may be confined to specific groups such as those who participated most actively (cf. Randall et al., 2005), or those with the least favourable conditions (cf. Heaney et al., 1995; Randall et al., 2005).

6. Work-oriented interventions: conclusions and recommendations

Work-oriented interventions have potential to improve health and wellbeing. Their success is, however, far from certain but rather depends on a host of factors.

- There are indications that those who need it most also profit most – an issue that should be analysed routinely.
- Interventions should be based on a thorough risk analysis and focus on the issues identified. These may sometimes seem small, but they are highly annoying for those concerned.
- Comprehensive approaches combining person- and work-oriented interventions seem most promising.
- Participation is important (through, for example, health circles or similar practices).
- Changes are most likely in variables that are immediately targeted. Transmission into indicators of health and wellbeing is less likely. However, findings of a ‘dose-response’ relationship indicate that the quality of implementation is crucial.
- In contrast to SMT, organisation-level variables, such as absenteeism, are the outcomes most likely to be affected.
- Effects are stronger for those who actively participate. Transmission to their peers is not very likely.
- Well-trained specialists in both health and organisational development should be involved.
- Strong, and sustained, management support on all levels is crucial.
- Interventions should be evaluated by the best design possible. However, a careful documentation of the process is also important, and may yield important information even when the study design is not optimal.

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First published September 2008.

The Government Office for Science.

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