

Research Note: Stress Management Practice: Is it Effective?

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Abstract

We present a review of the recent literature focussing on the effectiveness of stress management interventions (SMIs) in organisational settings. Empirical studies carried out between 2006 and 2010 inclusive are reviewed. Though there is some improvement in methodology, experimental protocols and long-term follow up studies are still rare. We suggest that SMIs in future should include both primary and secondary approaches, and that success should be measured against both individual and organisational outcomes.

Introduction

There have been several reviews of the literature on stress management interventions (SMIs) since de Frank and Cooper's 1987 paper. In the intervening years there has been an increase in the proportion of studies employing empirical research methods. There is a suspicion, however, that there are scant rigorous experimental designs and repeat and longitudinal studies. Therefore, in order to discern the effectiveness of current SMI practice and to ascertain the robustness of the methodologies applied in the studies, we present a recent review of the extant literature. We restrict our analysis to empirical studies which focus on occupational stress and its reduction in organisational settings. We have chosen a meta-synthetic rather than a meta-analytical approach. Given the wide range of outcome measures and intervention designs employed it is doubtful that combining the data in a single analysis would yield reliable estimates.

Stress Management Interventions

Many organisations have implemented Stress Management Interventions (SMIs) in an attempt to reduce levels of stress and to help mitigate the detrimental effects of occupational stress (Richardson & Rothstein, 2008; Barry & Kuemmel, 2006; Le Fevre, 2001). The European Commission (2002) stated that:

“...work related stress may be prevented or counteracted by job redesign (e.g. by empowering the employees, and avoiding both over- and under-load), by improving social support, and by promoting reasonable reward for effort invested. And of course, by adjusting occupational physical settings to the workers abilities, needs and reasonable expectations” (cited in Coffey, Dugdill & Tattersal 2009:.99).

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This statement illustrates how SMIs can be implemented at many levels starting at an individual level and moving through to initiatives aimed at the culture and fundamentals of the organisation (Coffey et al., 2009; Le Fevre, 2001). SMIs can be classified into three groups: primary interventions that deal with the source of the stress at a group or workplace level (Richardson & Rothstein, 2008; Le Fevre et al., 2006; Le Fevre, 2001; Randall et al., 2007); secondary interventions that focus on the individual (Richardson & Rothstein, 2008; Le Fevre et al., 2006; Le Fevre, 2001); and tertiary interventions that focus on assisting individuals with existing issues (Le Fevre et al., 2006; Richardson & Rothstein, 2008). The subsequent sections will focus on primary and secondary level SMIs.

Organisational-level SMIs (Primary SMIs) are designed to deal with the source of the stress – that is, creating a balance between demands placed on the individual and providing the resources available for dealing with the demands (Cox, 1993; Randall, Cox & Griffiths, 2007). Although the focus for primary interventions is essentially based around the organisation, it can be either employee or organisation focused (Le Fevre, 2001; De Frank & Cooper, 1987; van der Hek & Plomp, 1997; van der Klink et al., 2001). Medical benefits, staff counselling, employee assistance programmes (EAP's), stress management training workshops, are examples of employee focused interventions (Le Fevre, 2001). Job structure and rotation, organisational development, and organisational restructuring are examples of organisation focused interventions (Le Fevre, 2001; Richardson & Rothstein, 2008). Le Fevre et al., (2006) state that the objective of these interventions is to create an environment or culture that aims to remove sources of stress in the workplace, rather than treating present stress in employees. By attempting to remove stressors (Le Fevre et al., 2006), primary interventions can be an effective means of protecting and enhancing employee well-being in the medium to long-term (Randall et al., 2007). Typically, primary SMIs are run for over 12 months, this in contrast to secondary interventions that are more short-term.

Secondary interventions focus on the individuals within an organisation and can be broken down into three groups; somatic, cognitive, and multi-modal (Le Fevre et al., 2006). Somatic techniques include relaxation methods (e.g. Richardson & Rothstein, 2008; Kohler & Munz, 2006), cognitive techniques may involve affirmations and thought stopping (Le Fevre, 2001; Bunn, et al., 2007; Hampel, et al., 2007), and the third, multi-modal, is a combination of the prior two groups including techniques such as transcendental meditation and programmes that mix cognitive and somatic methods (Le Fevre, 2001). These techniques are often short in duration and, depending on the type of technique implemented, can vary in length (e.g. one meditation session, monthly workshops). Each one has the intention of teaching employees coping strategies to deal with stress by equipping them with skills they may require in the future (Barry & Kuemmel, 2006). Such skills as assertiveness and positive thinking (Barry & Kuemmel, 2006) are taught in attempts to reduce the severity of stress symptoms before situations become uncontrollable (Richardson & Rothstein, 2008). Altering the way individuals appraise stressful situations is intended to change reactions to stress in the future (Richardson & Rothstein, 2008; Soriano, 2009).

Primary interventions have been criticised in the past for placing the responsibility of dealing with stressful situations on the individual and thereby removing the obligation from management to address such problems (Le Fevre et al., 2006; Kenny & Cooper, 2003). Le Fevre et al. (2006) suggest that this has been used as an argument against the implementation of secondary interventions, and to support primary interventions as first choice. Le Fevre, Kolt and Matheny (2006: 562) conclude with:

“...there may be advantage in employing individual focused, secondary approaches as a first step in interventions designed to reduce organisational job stress at the individual level, rather than as complements to an initial organisational-based approach”

It is the relationship between people and their environment that is the core focus when addressing the issue of stress. The person-environment fit (P-E fit) theory refers to the alignment or congruence of a person to their environment (Edwards, 2008). Under the heading of ‘environment’ comes the social environment, other individuals, groups, organisations, or vocations. In this theory stress is not related specifically to the individual or the environment, the focus is the fit between “attributes of the person and characteristics of different vocations” (Edwards, 2008:168). P-E fit offers an explanation for stress in the workplace; “when there is a mismatch between the person and their environment” (Le Fevre, 2001, p.3) stress is likely to be the result. As De Frank and Cooper (1987:8) rightly note:

“There is great need to consider variation within persons *and* their environment as determinants of both levels of perceived stress and the effectiveness of stress management...”

Thus, understanding individual’s interactions with the environment is important in the evaluation of the stressors, that same evaluation may predict whether individuals will accept and continue practicing secondary interventions offered (i.e. relaxation techniques, coping strategies). The adoption of the intervention by employees is essential if a long-term change is to be achieved (Appelbaum & Lefrancois, 2007; van der Hek & Plomp, 1997). Knowing the situational and individual factors that ensure the adoption of change may also predict the likelihood of a successful primary intervention adoption (De Frank & Cooper, 1987; Vakola & Nikolaou, 2005). It is hard to know the extent to which employees continue with the techniques taught post-intervention due to the limited number of follow ups conducted. According to De Frank and Cooper (1987) many organisations have not created a culture nor have implemented structures to maintain such practices, highlighting the need to see secondary and primary interventions implemented in concurrence with each other.

In essence, “occupational stress has been of increasing concern to both employers and governments for over 20 years” (Le Fevre, 2001:1). A rise in compensation claims, high turnover rates, and employees dealing with stress-related illnesses are all issues that are encouraging employers to address and find a solution for the damaging effects of stress (van der Klink *et al.*, 2001; Tisza & Mottl, 2003).

Search Strategy

In this review of empirical studies the authors conducted a search of studies between 2006 and 2010. A library and internet based search (Dedovic, D’Aguiar, Pruessner, 2009) was used to obtain information about Stress Management Interventions (SMIs), the history behind the terms strain, stress, and stressors, and empirical research from 2006 to 2010 on the application of SMIs. ProQuest, Emerald Full Text, ABI inform, EBSCO, and OVID were search engines used to conduct the searches. The search strategy included using the peer reviewed option and nine search terms producing a large number of articles that did not satisfy the requirement for this review (Sparrenberger, et al., 2008). To refine the results, searches were conducted within the results with a further six terms adopted for this purpose.

The search strategy also included using alternative terms for key words (i.e. stress management intervention/programme). Additionally the authors searched the references from significant articles using key words and title names. Original articles were sourced if they offered significant contribution to the theory or study being analysed. The restrictions applied to the search were date limits, peer reviewed, full text, search within the citation, search within the title, search for the author.

Among the thousands of results found in an original search, the refining process brought the number of more relevant examples down to 115. From these studies selected 55 satisfied the requirements of having a relationship to Stress Management Interventions (SMIs), and stress in the workplace. Ten studies satisfied the requirement of being empirical trials of SMIs. Of the ten, eight were individual focused interventions (secondary). The majority of the participants for the interventions were volunteers, the main tool for measurement was self-reported questionnaires, and there were limited follow up time-frames for the interventions and the people involved.

Criteria for the Inclusion of Studies

The review was restricted to articles written between 2006 and 2010. The reasons why some papers were not included are: they did not report on the findings from an empirical study; the results relied too heavily on personal accounts of what happened; or the focus for the intervention was rehabilitation after a traumatic event or severe illness. In the reviewed papers the majority of participants were female, from large organisations or alternatively university students, and took part on a voluntary basis. Studies that reported on SMIs at management level, employee level, and organisational level were included. The majority of the studies used groups that were not actively seeking assistance in the area of stress. In order for the studies to be included there had to be an intention to reduce an identified stress or stressor. Two studies that had no control group were included, though this was not ideal, the authors gave insight in to alternative control group options. All studies were published peer-reviewed journal articles (van der Klink, 2001).

Extraction of Data

At first, the titles and the abstracts of the articles were used to determine the relevance of the article and whether they would sufficiently meet the criteria (Sparrenberger, et al., 2008). Most articles were discarded due to the mainly medical focus or they did not feature empirical studies; although it must be noted that not all medical articles were overlooked as some offered an interesting insight into the often stressful nursing industry. The article's full text was used as a final level of evaluation and source of data (Sparrenberger, et al., 2008).

The ten studies featuring empirical research used a variety of measuring instruments but the majority used rating scales, self reports, and questionnaires. Stress was defined differently by the authors of each paper, however, when there was uncertainty between the terms strain, stress, and stressor we used a definition put forward by Le Fevre, Matheny, and Kolt (2003). "Stressor will denote the external force or situation acting on the individual, and stress will denote the deformation or changes produced in the individual as a result of those forces" (Le Fevre et al., 2003:728).

The review has highlighted an issue in attempting to measure the effectiveness of SMIs and comparing one type of intervention from another. The immense variation in resources available, the many stakeholders involved, and the type of intervention adopted which in turn makes measurement and comparison a difficult task. The difficulty in measurement and equally, the difficulty in implementation of primary or organisational level interventions may deter researchers and managers respectively from producing the required information for analysis (van der Hek & Plomp, 1997) resulting in a low ratio of organisational to individual level interventions in the literature.

Many of the studies had a short follow up time frame, again making it difficult to assess the sustainability of the interventions implemented. Two out of the ten did not have control groups and cannot, therefore, be considered as experimental. That is, experimental interventions enable treatment groups to be compared against control groups to enable the one to take account of organisation wide change that is common to both groups (Cook & Campbell, 2002, cited in Holeman, Axtell, Sprigg, Totterdell, & Wall, 2009).

Stress Management Interventions: Empirical Research

De Frank and Cooper (1987) and van der Hek and Plomp's (1997) past reviews evaluated the effectiveness of SMIs and this review uses their information as a starting point. The review offers an evaluation of current practice from organisations and whether the concerns from the past reviews (i.e. no long term follow ups, credibility of the interventions, cost effectiveness, effectiveness of intervention) have been addressed (van der Hek & Plomp, 1997).

The Effectiveness of Current Stress Management Interventions 2006 - 2010

Ten studies conducted from 2006 to 2010 met the criteria outlined above and are summarised in detail in appendix 1: table 1. Eight of the ten studies focused solely on primary interventions, one a combination of organisational and individual (though more the former), and one study was located at an organisational level only. Of the eight primary interventions, four studies involved a strong focus on relaxation techniques (i.e. meditation, muscle relaxation) as a way of dealing with present perceived stress and future stress. A majority of the studies involved education of some sort, in particular teaching the theory of stress, occupational stress, and coping strategies.

The two interventions implemented at an organisational level (Elo, Ervasti, Kuosma, & Mattila, 2008; Holman, Axtell, Sprigg, Totterdell, & Wall, 2009), focused on improving communication and communication training. However, there were differences. The aim of the first organisational intervention (Elo, et al., 2008) was slightly ambiguous and directed each member of the staff to attend specific workshops and seminars. The aim of the second intervention on the other hand (Holman, et al, 2009) specified exactly that the interventions were proposed to change the level of stress among the employees and took a less directive approach, gathering suggestions from all levels of the organisation regarding the different ways to approach SMIs. The duration of interventions in both studies ranged from one-off short, twenty minute workshops to full day retreats. The average length of time of the interventions was three months. Although, there was no obvious relationship between length of sessions and results, it has been postulated by Rausch, et al., (2006), van der Hek and Plomp, (1997) and van der Klink, et al., (2001) that the shorter, secondary level interventions

are most effective. In this sample of empirical reviews, the primary level interventions ran for a longer period of time, consistent with the findings of van der Klink, et al., (2001).

There was great variation in the techniques used in the secondary interventions. The sessions included; meditation, Indian head massage, mindfulness-based stress reduction techniques, progressive muscle relaxation, and cognitive behavioural theory.

Measurements for the outcomes also varied from questionnaires, focus groups, self-report stress scales, to self-reported symptoms. The limited number of organisational level interventions is consistent with the findings of van der Klink, et al. (2001). "Although there is general recognition that work and organisational problems are the major causes of occupational work stress there is still a lack of research into interventions on this level" (van der Hek & Plomp, 1997:135) but, as pointed out earlier, this may be due to methodological problems.

Discussion

The reviews by De Frank and Cooper in 1987, van der Hek and Plomp in 1997, and van der Klink in 2001 communicate a shared concern for the way that SMIs are measured and reported. In particular, while there has been a considerable improvement in the standard of research since the first review was written twenty two years ago, more progress is still needed in developing a framework that allows robust comparisons of the different SMIs. It is acknowledged, however, that comparisons are difficult to make given the unique nature of each organisation and more importantly because of the variances of each person within the organisation. Moreover, each organisation has many variables that affect the outcomes of the SMI's therefore making them difficult to compare.

Nonetheless, the literature sets out a number of criteria necessary for an effective implementation of SMIs. First, prior to the implementation, the aim of the intervention should be clear and agreed upon and motivating goals need to be carefully designed in order to guide the SMI process (van der Hek & Plomp, 1997; Elo, et al., 2008). Second, the link between the intervention and lowering the person's stress levels should also be established at the beginning of the intervention. Moreover, identifying those individuals most at risk and what constitutes a stressful situation, is a more effective way of addressing the particular occupational stress issues (Elo, Ervasti, Kuosma, & Mattila, 2008). Third, it is argued that determining the success of the SMI outcomes can only be done when measured against the organisation's specific objectives. Thus, tailoring the SMI to the organisation's environment and not the other way around may be a way of avoiding unsuccessful outcomes. Finally, cultural factors need to be considered carefully when planning future interventions and a clear motivating goal may need to be designed to guide the SMI process (Elo, et al., 2008).

However, if the environment and the conditions are a determining factor behind successful implementation of SMIs, then why do the primary level interventions have limited or no affect on reducing stress in the workplace (van der Klink, et al., 2001). The review of the literature offers some suggestions why this may be the case. For example, managers may often be reluctant to enter into such an undertaking due to the amount of resource required and the level of disruption to employees. Successful implementation requires full management support and has significant impact on the whole organisation (van der Hek & Plomp, 1997; Bunn, et al., 2007; Hampel, et al., 2007). In addition, implementing such a

change, (bearing in mind change causes uncertainty and often stress), requires full support from employees and other stakeholders involved. (Vakola & Nikolaou, 2005; Kohler & Munz, 2006; Coffey, et al., 2009; Appelbaum, et al., 2007). Individual perception and coping skills may also be necessary to ensure that the change process (in this case, the SMI) is successful (van der Klink, et al., 2001). Educating and equipping employees with the skills to deal with stress are very much similar to the skills required to deal with change; skills that are often taught in secondary level interventions. Once those skills have been taught and adopted it requires a supportive culture with job control and job design to ensure sustainable use of the acquired skills (Le Fevre, et al., 2006). What Le Fevre et al. (2006) suggest is that there is great benefit in implementing individual focused, secondary, approaches prior to the implementing an intervention at the organisational level. Holeman, et al., (2007) produced the only paper that demonstrated the combined effects of job redesign interventions and employee well-being interventions. The interventions produced multiple improvements in job characteristics (i.e. job control, skill utilisation, participation, and feedback). Participative job redesigns allowed the organisation to achieve multiple changes in job characteristics and off-site educational sessions produced improvements in employee well-being - a successful combination of the two interventions.

Consistent with prior research and the analysis of the studies above, it appears as though secondary interventions are the most effective (van der Hek & Plomp, 1997; van der Klink, et al., 2001; Le Fevre, 2001) and in general employees do receive greater benefit from such interventions as cognitive-behavioural theory and coping strategies (Bunn, et al., 2007; Hampel, et al., 2007; van der Hek & Plomp, 1997; van der Klink, et al., 2001). Some studies however, have not had such success with the implementation of interventions that have been successful in others. This was mentioned by van der Klink, et al. (2001) in their observation of evaluative studies and appeared again in a more current review (Bilfilco et al., 2007). It is consistent with the idea that it is not the SMI that is deemed to be effective or ineffective but more importantly the way it is implemented and whether or not the environment has been evaluated properly to highlight the need for this type of intervention. A combination of both secondary and primary interventions may help to evaluate the organisation's current environment as well as address the needs of the individuals (Elo, et al., 2008; Le Fevre et al., 2006).

Elo, et al. (2008) conducted a primary stress management intervention with the intention of positively increasing employee wellbeing through changes in the organisational environment. The results showed statistically significant results in all the measures that were organisation wide (clarity of work goals, information flow, work climate, and supervisor support). Interestingly there were no significant benefits at the individual level. An organisational SMI may improve the work climate and encourage effective communication, but the effects on individual well-being may be limited. In fact, in this case, work-ability decreased in the participants of the experimental group, (Elo, et al., 2008). This again suggests that combining both primary and secondary interventions may be more effective in decreasing stress. Le Fevre (et al., 2006:547) suggest that "secondary approaches be employed prior to the introduction of primary methodologies within a client organisation".

Difficulty of measurement of SMI effectiveness has haunted this area of research and each review, including this one, still finds only small improvements in clarity and accuracy of outcome measures (van der Hek & Plomp, 1997; van der Klink, et al., 2001). Extensive variation on outcome measures, a relatively low and unreliable presence of control groups and sound follow ups, and significant differences between organisations and studies makes it

very difficult to determine which type of intervention may be most effective. Although there has been a significant increase in methodologically sound studies, the results from the above review still produce inconsistent results that are difficult to compare (i.e. expensive trials with low success rates, cognitive behavioural theories producing great results in some and not others, long duration of SMI with some good results). Insight into the conditions surrounding the SMI may ensure a greater ability to make accurate comparisons (van der Klink, et al., 2001).

Conclusion

As a result of this review, and the reviews conducted in the past (De Frank and Cooper, 1987; van der Hek & Plomp in 1997; van der Klink 2001) it appears that secondary interventions have the greatest record of successfully reducing the levels of stress in the workplace. According to Le Fevre et al., (2006) the correct structures must be in place to support any secondary level interventions if the desire is to ensure stress reduction in the long-term. This was supported in one paper that implemented both secondary and primary level interventions (Holeman, 2009); they reached their desired objectives and were able to maintain the desired results for a significant amount of time. According to Elo et al., (2008) organisation wide interventions may improve communication and work climate but do little to improve the well-being of individuals. Cognitive training (individual specific) would enable employees to better deal with the changes caused by organisation wide interventions. Organisation wide interventions may help to ensure the longevity of the secondary SMIs so long as they are in combination with well-fitted secondary organisation (Elo et al., 2008).

Once the interventions had been implemented, however, it was often difficult to ensure continued practice of the education and exercises. The majority of studies did not have significant follow-up periods. According to Hampel et al., (2008) time was the most significant factor to ensure a successful outcome ($p=0.01$ in Experimental group \times time). Thus, here lies a gap for future research. If the source of stress is identified as the relationship between the individual and the environment then surely both need to be addressed in order to see long-term, effective change? Time as a factor for success implies the need for a culture change to the organisation to ensure a sustainable and supportive environment for any current and future SMIs (Elo et al., 2008). Further research into combining both secondary and primary level interventions is recommended and also how this can be done cost effectively and with the support of the employees. Holeman et al., (2009) in particular had success with a bottom-up intervention incorporating the staff and their ideas into the change process. It is recommended, therefore, that future studies looking at the effectiveness of SMIs use organisation-specific goals to assess whether a SMI is to be deemed successful or not. Each organisation has specific risks and issues that will not respond to a “blanket-approach” solution for reducing stress levels. In short, any movement towards reducing stress for employees and encouraging active and support workplace cultures is a “worthwhile goal for employers, employees, and researchers alike” (De Frank & Cooper, 1987).

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Appendix 1: Table 1.

Authors	Intervention Type/s	Size of sample	Duration or no. of sessions	Measurement type	Outcomes – evidence of effectiveness	Main Findings	Critiques
Bunn, Bifulco, Lorenc, & Robinson, 2007	Initial talks to the participants helped them to define what they thought stress was. Relaxation techniques and coping strategies (correction of negative thinking) was used. The idea was to provide many solutions to prevent stress. The participants were asked to document their stress. They were taught how to gain and provide social support to, and from, family/friends.	Not available.	6 weeks with one hour sessions once a week. A final focus group.	A stress bull's eye used to measure what type of stress symptoms the participants were experiencing using an adaptation of MYMOP –a participant generated outcome questionnaire that is problem specific but includes general well-being. It aims to measure the outcomes that the patient considers most important. Symptoms were monitored with stress diaries	Anecdotal – how the participants rated the sessions. Figures improved, taken from pre and post tests.	Pre and post tests (using the bullseye) showed significant reduction in psychological and physical stress. From the accounts written by the participants, physical symptoms were the prominent issue. The participants were eager for follow ups and continued discussions as a way of dealing with future stress. Emotional well-being improved	No control group, no follow up. Good plan to take it further with development from feedback. Although this paper has shown positive results there are no statistics to back up the statements made. A simple t-test may have given statistical significance to the results. Control groups are hard to set up but would have allowed the author to compare control groups to

<p>Hampel, Meier, & Kummel, 2007</p>	<p>Secondary Intervention – using psychoeducation, stress theory, coping, recovering activities, positive self-instruction, promotion of internal resources, repetition and consolidation, closing and feedback. Muscle relaxation was used; cognitive restructuring, self-control techniques, problem-solving, and role playing were also used and the participants were shown how the skills could be transferred into</p>	<p>Experimental group n=138, no treatment control group n=182</p>	<p>6 weeks delivered by trained teachers with each session ranging from 15min to 90min.</p>	<p>They were guided to reflect on their experiences. The German coping questionnaire (Hampel, Petermann, & Dickow, 2001) was used to measure coping strategies. Perceived stress was assessed by personal reports and questionnaires were used to measure other items taught. Treatment effects were measured prior to, immediately after, and three</p>	<p>Eighty percent of the participants reported high training acceptance. Improved self-efficacy was noted by close relations. Perceived stress increased in the control group but decreased in the experiment group</p>	<p>rating the intensity of the stress levels from (0-6). Focus groups were held in the last session.</p>	<p>slightly (11.73-13.10), perceived stress went down (11.64-10.40) and positive self-esteem increased slightly (17-18.9)</p>	<p>experimental group.</p>
<p>The social-support idea was supported by this paper. No changes were seen in the control group and in one instance their levels of perceived stress heightened, consistent with the concept of measurement causing heightened awareness and concern. Situation specific coping was seen to be most beneficial. Participants in the experiment</p>	<p>The ones observing the results were the teachers of the intervention – potential for bias. Non-randomised protocol. Limited to short to mid-term follow ups. The experimental group x time (EC x T) showed statistically highly significant results for each subscale measured (p=0.01). Time had a positive effect on the</p>							

	<p>real life. The participants received an information booklet for continuous referral.</p> <p>Experimental trial. Seventy percent of the participants reported high strain levels before the sessions started, it is considered to be a stress reduction study. Education about stress and discussions were the main foundation for the sessions. Problem-solving skills were taught as well as a personal change plan aiming to increase the proactiveness in the participants and as a result reduce strain.</p>	<p>N=95. Participants were called in response to a promotion which called for people who wanted to learn stress management skills. Two treatment groups were compared against one waitlist control group.</p>	<p>13 weeks</p>	<p>months after the intervention. Relations to the participants were asked if they saw noted improvement.</p> <p>Self-report scale was used as an indicator consisting of seven choices that best describe the way participants react to situations. A stress diary was used during the week between sessions and the participants were provided with a questionnaire and asked to use that information to fill it in. A short version of the General Health Questionnaire (GHQ-12) was used to measure strain. This method can be</p>	<p>Participants in the experiment group showed an increase in proactive behaviour, people who received treatment also reported more goal-directed behaviour than those on the wait-list. Strain scores were higher among wait-list participants when compared with those who received treatment. Analysis of the data indicated that treatment led to a change in strain levels.</p>	<p>group reported increases in emotion-focused strategies.</p> <p>The intervention implemented was effective at reducing strain in comparison to the wait-list control group. The use of stress diaries may have encouraged all treated participants to take more action toward dealing with stressors; this could explain why goal-orientated behaviour was higher in comparison to the control group.</p>	<p>copng strategies. There were no differences in the groups prior to SMI.</p> <p>No long-term follow ups. Goal setting was not measured prior to the intervention, only after the treatment. The results for self-reported improvement were not statistically significant (p=0.55) however, judges found improvement in goal-directed behaviour (p=0.05).</p>
<p>Searle, 2008</p>							

<p>Rausch, Gramling, & Auerbach, 2006</p>	<p>Meditation and progressive muscle relaxation (PMR), or control condition.</p>	<p>N=387 were recruited via advertising on a computerised internet programme. Further analysis was conducted on high-anxiety people (selected because they were above the mean by 1 SD)</p>	<p>Twenty minute session of intervention or a control condition (Meditation or reading magazines; Control or non-control). Then each participant was faced with one</p>	<p>used to determine whether a treatment leads to crossing a meaningful threshold. A follow-up questionnaire was sent out after seven weeks after the start of training. An identical questionnaire was sent out thirteen weeks after the start date.</p>	<p>The State Anxiety Scale or the STAI was used to evaluate state or transitory anxiety levels. It assesses current feelings and is rated on a four point scale. The Cognitive Anxiety Scale (CAS) which is used to measure cognitive anxiety</p>	<p>Those in the meditation and PMR groups decreased more in cognitive, somatic, and general state of anxiety than those in the control group. The PMR group had the greatest decline in somatic anxiety. After</p>	<p>Brief group training in meditation or PMR was demonstrated to be effective in reducing the state of anxiety. It was suggested the meditation prepares individuals for stress by heightening the response and</p>	<p>Unable to know whether this has long-term effects on participants. There were no significant differences among the groups on any demographic variables to start with. There was an overall decline in</p>
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<p>Walach, Nord, Zier, Dietz-Waschkoski, Kersig, & Schupbach, 2007</p>	<p>Mindfulness-Based Stress Reduction (MBSR). Workers participated in MBSR training for stress related problems. The authors followed the generic MBSR manual adapted for the workplace situation. The classes comprised of sharing experiences, teaching, and formal meditation.</p>	<p>N=12 in the treatment group, n=11 in the control group</p>	<p>minute of stress (e.g. Traumatic scenes, impossible tasks), followed by ten minutes of the intervention that was administered at the start.</p>	<p>at the present moment using a five point scale. The Smith Somatic Stress Symptoms Scale (SSSS-S) measuring which statement fits their present state. Finally, a demographic questionnaire assessed the participant characteristics.</p>	<p>exposure to a visual stressor, those in the treatment group had higher levels of anxiety but recovered faster than those in the control group. Pre and post tests were used.</p>	<p>awareness. Mediators tend to react more significantly and recover faster from stress. PMR is more likely to produce effects immediately because overt physical activity is involved.</p>	<p>anxiety following initial SMI (p=0.001). A significant decrease over time was observed on each measure (p<0.001).</p>
			<p>Eight weeks once every week in the evening and one six hour retreat on a Saturday.</p>	<p>The authors conducted semi-structured interviews and measured coping and well-being. They were conducted before the intervention started, after eight weeks of the course and again two months later. In addition to the interviews the authors used questionnaires</p>	<p>In the treatment group positive strategies of coping with stress increased and negative strategies of coping decreased. Eighty-two percent of participants reported reaching their personal goal. The training sensitized participants for</p>	<p>Participants in the control group had attained more awareness of work-related problems contributing to the stress and had grown more critical toward their work environment. Most participants felt they were able to respond to stress in a more mindful way</p>	<p>Need to comply with the intervention regularly to see the results. Small group limited the range in results. This making the sample size unsatisfactory. The intervention was time consuming. Results from the Stress Questionnaire</p>

Matthews, Emo, Funke, Roberts, Zeidner, Costa, & Schulz, 2006	One group was the control group (read magazines), the second, third, and fourth groups experienced more stressful situations (e.g. unsolvable mathematic problems, viewed traumatic events). The aim was to see whether EI could predict stress responses and coping strategies in varied settings. This paper compares EI and the Five Factor	N=200. There were 50 participants in each of the four groups.	The test session lasted for ninety minutes; each task duration was fifteen minutes.	The authors used six scales from the MSCEIT (representing Emotional Intelligence (EI)). Emotional perception was measured by two tests: Faces and designs – a five point scale was used to rate the degree to which the images related to emotion. Personality was measured of sixty items on a	the reactions specific to their workplace; the situations that produced the stress in the first place. Participants increased their self-efficacy because of an increase of internal controls.	such as not experiencing immediate panic. Three respondents felt they saw no changes. Ninety-one percent opted for a continuation of the programme.	(SVF120) measured change in positive and negative coping strategies. Positive strategies increased (p=0.05) with statistical significance.
				The authors used six scales from the MSCEIT (representing Emotional Intelligence (EI)). Emotional perception was measured by two tests: Faces and designs – a five point scale was used to rate the degree to which the images related to emotion. Personality was measured of sixty items on a	High emotional intelligence was related to lower distress, lower worry, and avoidance coping.	Emotional intelligence failed to predict task-induced stress. Measuring emotional intelligence is not going to help predict stress responses. Results confirmed that low EI was related to worry states and avoidance coping. EI was not related to task-induced	There are other issues that are more predictive of stress criteria.

	Model (FFM) as predictors of task induced stress responses.			five point scale. Coping was measured by a questionnaire. Stress state was measured by a ninety-six item DSSQ.		changes in stress states.	
Anonymous, 2006 (Managed Care Law Weekly)	Lectures on the perception of stress, measures to cope with it, stress management recording sheets, and email counselling. The intervention was based on the cognitive behavioural approach.	N=28 in the treatment group and n=30 in the control group.	Three months in duration. Twenty-one out of the twenty-eight in the stress management group were successfully followed up.	Perceived work-related stress and psychological symptoms were evaluated using a General Health Questionnaire (GHQ-30), Centre for Epidemiologic Study for Depression, the questionnaire for work-related stress, and the Effort-Reward Imbalance questionnaire.	The treated group showed a significant improvement compared with the control group after being educated with the skills to cope with stress in the workplace. The effect of the stress management interventions on depressive symptoms in the workplace at follow up was significant (p=0.041)	The alleviation of perceived occupational stress was limited; this may be better suited for the prevention of depression as opposed to work-related stress.	A significant improvement in the depressive symptoms was observed (p=0.003) by a two-tailed t-test.
Willert, Thulstrup, Hertz, & Peter, 2009	Group based stress management intervention based on cognitive	N=51 in the experiment group, n=51 in the wait-list	Three months in duration. Eight times three hour	Outcomes were measured with the Perceived Stress Scale	On the PSS (baseline to three months) the intervention	The intervention was able to reduce perceived stress and	Results not presented for the future follow ups.

	behaviour theory.	control group	sessions.	(PSS) and five dimensions from the Brief COPE questionnaire before, three, six, and nine months follow up.	group were affected positively in reducing perceived stress and the ability to positively reframe (coping strategy) compared to that of the control group, similar results were found in all the other areas tested. After three months the gains achieved were maintained.	strengthen coping ability through positive reframing. The SMI might have been more effective in changing attitude-orientated rather than behaviour-orientated coping. Having the intervention take place in the organisation allowed the programme to be tailored to the specific situation and the strategies could be implemented and practiced. Cognitive behaviour theory was used to reduce perceived stress levels in people that already have high stress levels and are actively seeking help.	Short-term follow up period
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<p>Elo, Ervasti, Kuosma, & Mattila, 2008</p>	<p>Organisation-wide stress management program aiming to improve psychological work environment and well-being. The intervention sessions were made clear as being a work duty. Communication and work climate were targeted by the intervention because of their significance to the organisational environment and their potential to affect workplace stress from a different angle to individual focus. The aim was to endorse balance of work demands and job control, endorsing leadership justice, and improving communication. Participation was considered</p>	<p>N=625. The intervention was implemented by a steering committee made up of line management, personnel management, blue collar and white collar workers, as well as human resource managers. The conference consisted of two sessions with the first taking two working days and a half-day follow up.</p>	<p>The intervention sessions were arranged during working hours to ensure each individual had the opportunity to participate. Five hour training sessions for supervisors,</p>	<p>Pre and post-intervention questionnaires were used to measure the outcomes with a two year interval. The authors also looked at participation in the intervention. A survey feedback process was available, the attendants filled in questionnaires on a voluntary basis, and the response rate was between 86-90 percent. The German Coping Questionnaire for children and adolescents (Hampel <i>et al.</i>, 2001) was used to measure the following nine coping strategies: minimization,</p>	<p>Conferences for; setting goals, planning, future action, and evaluating the improvements so far, were held to help create an awareness with employees about the organisations goals. Participating in the two year program improved flow of information and feedback from supervisors to employees and increased the clarity of work goals compared to the non-participating and moderately participating groups. The program did not improve the</p>	<p>It has been suggested that the intervention took longer than anticipated and in the future the intervention should first work to improve communication and work climate first as opposed to a multi-modal approach. Changes in psychological work environment, in particular staff interaction, occur because of the organisational culture, in addition to the effects of individual contributions. An organisational stress management intervention can improve</p>	<p>Expensive and time consuming, hard to measure accurately. Pre and post tests were statistically highly significant (p=0.003) showing a decrease in workplace stress.</p>
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necessary for the program to work.			distraction/ recreation, situation control, positive self- instructions, social support, passive avoidance, rumination, resignation, and aggression.	psychological work environment, although reorganisation of work can be considered a prerequisite for improving this. This needs to be integrated into a individual- focused intervention to see significant changes in the work environment.	communication and the work climate but the effect on individuals is limited. However, the changes in psychosocial work environment and in well being were aided by supervisor support, feedback, and justice. The supervisor's behaviour also correlated with work climate. Emotional exhaustion and stress symptoms were associated with work ability.	No control group. No change management employed to guide staff through the	
	Job redesign intervention consisting of two important features: the participation of multiple stakeholders to	The first questionnaire was completed by n=188 out of the 215 possible employees. At	Assessment and redesign were conducted in a one-day workshop off- site facilitated	A questionnaire was handed out one month before the six month long intervention. One month after the	In four out of five instances the intervention increased job resources and reduced job demand in the	The paper demonstrates the effect of job redesign interventions on employee well- being, the	
	Holeman, Axtell, Sprigg, Totterdell, & Wall, 2009						

	<p>improve the redesign solutions, and the introduction of job design theory so that all involved can make better, well-informed decisions. The intervention was broken into two phases: assessment and redesign, and implementation. At the conference teams were asked to suggest changes after evaluation of the current state, and then the suggestions were rated.</p>	<p>the second stage n= 173 of 203 possible participants completed the questionnaire.</p>	<p>by the research team and repeated to ensure all could attend. The intervention was then implemented in five stages over three months.</p>	<p>implementation of the intervention another questionnaire was handed out. The results were measured by Warr's (1990) job-related, twelve item well-being scale. All job design measures were based on employee perceptions.</p>	<p>experimental group but not the control group. Job characteristics increased over time in the treatment group, not the control group. These changes in job resources and job demands were found to be strongly associated with employee well-being.</p>	<p>intervention was mediated by multiple improvements in job characteristics, i.e. job control, skill utilisation, participation, and feedback. Participative job redesigns have the capability to achieve multiple changes in job characteristics and as a result improving employee well-being.</p>	<p>changes made, it may signal to employees that it is an unacceptable alteration of what is already working well. Changes in job resources and job demands were confirmed to be associated with changes in employee well-being ($p < 0.1$). The results were marginally significant.</p>
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