

Comparing Two Burnout Interventions:
Perceived Job Control Mediates Decrease in Burnout

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Abstract

This quasi-experimental study compared the effects of two rehabilitation interventions on burnout, and perceived job conditions during a one-year intervention among female white-collar workers. The participatory intervention ($n = 20$), involving rehabilitation activities focusing on the individual as well as individual-organizational levels, reduced exhaustion and cynicism and increased perceived job control during a one-year period. Increased job control served as a mechanism through which exhaustion and cynicism decreased in this intervention. The traditional intervention ($n = 32$), involving rehabilitation activities focusing mainly on the individual level, resulted in a reduction in time pressures during one year. Furthermore, both interventions improved perceived workplace climate. Compared to the traditional approach, the participatory intervention was a more effective strategy for treating burnout.

Key words: burnout, intervention, quasi-experimental study, rehabilitation, perceived job conditions

INTRODUCTION

According to the most widely used definition, burnout is characterized by exhaustion, cynicism and reduced professional efficacy (Maslach, Jackson, & Leiter, 1996). The research on burnout has been highly productive in terms of identifying burnout symptoms, antecedents, consequences, developmental processes, as well as the effects of different interventions. There are multiple ways to combat the progression of burnout and one way is employee rehabilitation. Employee rehabilitation can be defined as a tertiary preventive intervention (Cooper & Cartwright, 1997), although it also has elements of secondary prevention. This means that the strategies used in rehabilitation are meant to alleviate as well as prevent burnout symptoms. Rehabilitation of the working population includes multidisciplinary activities aimed at maintaining and improving employees' working ability and ensuring a supply of skilled and capable labour in society (see Häätinen, Kinnunen, Pekkonen, & Aro, 2004, for more details). This treatment strategy is costly for individuals and workplaces as well as society, and therefore it is important to study whether it is actually beneficial to those it is targeted at.

It is difficult to say what kind of intervention works best on burnout due to the variety of burnout interventions (i.e., different strategies used), different outcome measures, variation in the time-span of evaluation, and differences in research designs. This study aimed at shedding light on these issues by comparing two rehabilitation programs, a traditional and a participatory intervention, both targeted at employees' suffering from job-related psychological health problems, and using the same outcome measures, time-span, and research design. The traditional intervention is the program burned-out employees are normally referred for when seeking treatment within the rehabilitation system. The participatory intervention represents a new approach to reducing burnout symptoms. Both interventions were carried out by multidisciplinary rehabilitation professionals.

The main difference between the two programs is that the traditional intervention is mainly individual focused, whereas the participatory approach functions more on the individual-organizational level. The core of individual-based intervention activities is to find ways of enabling individuals to cope better with occupational stress. Alongside the individual activities, the participatory intervention aimed at reducing job-person mismatches, a problem raised by the participants themselves. In brief, this means that during the intervention process the participants collaborated with representatives from their workplaces and with the rehabilitation staff in order to reduce these mismatches and improve their work environment. The participatory type of intervention is used to increase employees' control through enhancing their participation in the decision-making process (Mikkelsen & Grundersen, 2003).

Besides the fact that we do not know what kind of interventions work in cases of burnout, we do not know how they work. To our knowledge, there is no research on the mediators of change in burnout interventions. There are, however, studies which have investigated mediators of change in stress management interventions (Bond & Bunce, 2001). Bond and Bunce (2001) found that perceived job control served as one such mechanism by which improvements in the outcome variables occurred. Specifically, a work reorganization intervention improved participants' well-being and job performance through increasing their perceived job control.

The objectives of this longitudinal quasi-experimental study were two-fold. First, we compare the effects of two rehabilitation interventions on burnout and perceived job conditions. The comparison was made between an individually focused rehabilitation intervention (traditional intervention) and an individually focused intervention combined with an individual-organizational strategy (participatory intervention). Second, we explore whether it would be possible to identify the mechanisms through which these two interventions might decrease burnout symptoms.

Burnout interventions and perceived job conditions

The three burnout symptoms seem to react differently to the same preventive or treatment activities (e.g., Häätinen et al., 2004; van Dierendonck, Schaufeli, & Buunk, 1998; van Dierendonck, Garssen, & Visser, 2005). While these activities have resulted in a lower level of exhaustion (e.g., Cooley & Yovanoff, 1996; Häätinen et al., 2004; van Dierendonck et al., 2005), cynicism and professional efficacy have turned out to be more resistant (e.g. van Dierendonck et al., 1998). There are, however, a few studies which have found a lower level of cynicism (e.g., Cooley & Yovanoff, 1996; Häätinen et al., 2004) as well as a higher level of professional efficacy post intervention (Gorter, Eijkman, & Hoogstraten, 2001; van Dierendonck et al., 2005). Moreover, low professional efficacy in particular may even have worsened as a result of intervention (e.g., Häätinen et al., 2004; van Dierendonck et al., 1998).

No meta-analysis has so far been made available that would show the best strategy for alleviating burnout symptoms, but a review of over 30 approaches to preventing or treating burnout (Schaufeli & Enzmann, 1998) indicates that, at the individual level, cognitive-behavioral strategies have the best potential for success. At the organizational level, however, reducing or removing job stressors seem to decrease burnout. Although some organizational level interventions have resulted in intensifying burnout symptoms (Büssing & Glaser, 1999), burnout scholars have suggested that interventions combining both organizational and individual level activities might be the most beneficial approach to reducing those symptoms (Maslach, Schaufeli, & Leiter, 2001; Schaufeli & Enzmann, 1998). More specifically, improving job-person fit by focusing attention on the relationship between the person and the job situation, rather than either of these in isolation, seems to be the most promising way of dealing with burnout (Leiter & Maslach, 2000; Maslach & Goldberg, 1998; Maslach et al., 2001).

Burnout is an occupational problem and the possible antecedents of the syndrome are more likely to be situational than personal ones (Maslach & Goldberg, 1998). Job conditions, in terms of

job demands and lack of job resources, are particularly important antecedents of burnout (Maslach & Goldberg, 1998; Maslach et al., 2001). For example, there is evidence that certain perceived job conditions (such as poor co-operation and support from superior) have predicted burnout ten years later (Kalimo, Pahkin, Mutanen, & Toppinen-Tanner, 2003). In addition, numerous studies have shown a positive association between certain job demands (e.g., work overload, time pressures) and high emotional exhaustion (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Rasku & Kinnunen, 2003). Likewise, many studies have detected a positive relationship between lack of certain resources (e.g., job and supervisor satisfaction, job control, good workplace climate) and increased depersonalisation (or cynicism) and reduced personal accomplishment (Kalliath, O'Driscoll, Gillespie, & Bluedorn, 2000; Lee & Ashforth, 1996; Rasku & Kinnunen, 2003). Theoretically, job conditions are potential causes of burnout, but so far longitudinal studies have found surprisingly little empirical support for this (Schaufeli & Enzmann, 1998). Instead, the recent longitudinal research has provided evidence for reciprocal relationships between job characteristics and mental health (De Lange, Taris, Kompier, Houtman, & Bongers, 2004; Demerouti, Bakker, & Bulter, 2004).

It has also been shown that it is possible to change certain job conditions such as job control (Bond & Bunce, 2001) and time pressures (Büssing & Glaser, 1999) as well as such well-being indicators as job satisfaction (Cooley & Yovanoff, 1996) with different interventions. These changes, in turn, may ameliorate burnout symptoms.

To our knowledge, no previous study, besides the one by Häätinen et al. (2004), has investigated the effects of rehabilitation interventions on burnout and job conditions, or focused on how such interventions reduce burnout symptoms. The results of treating burnout by a rehabilitation strategy have shown that an intervention that focuses mainly on the individual has potential in reducing burnout and increasing perceived job resources (Häätinen et al., 2004), although the authors

discussed the importance of shifting the focus of the intervention to unfavourable job conditions, as these are assumed to be the causes of burnout (Maslach et al., 2001).

The Present study

The primary purpose of the present study was to test a new strategy in treating burnout and compare it to the traditional strategy (see Table 1, for more details) normally used in rehabilitation for burnout in Finland. We analyzed the short-term and long-term effects of both interventions on the outcome variables (burnout symptoms and perceived job conditions) over an intervention lasting one year. In addition, we analyzed how the traditional and new interventions affected burnout, that is, we sought to identify the mechanisms producing changes in burnout symptoms during the rehabilitation process.

Table 1. Focus and contents of the traditional and the participatory interventions.

| Employee rehabilitation intervention | Focus on individual | Focus on individual-organizational interface |
|--------------------------------------|--|---|
| The traditional intervention | <ul style="list-style-type: none"> • Tests and examinations by physician and physiotherapist (e.g., ECG, medical and physiotherapy examinations, physical capacity tests) • Group discussions and lectures by a physician (e.g., medical treatment), psychologist (e.g., stress management, time management, burnout) and psychiatrist (e.g., depression, psychotherapies), physiotherapist (e.g., ergonomics, physical exercise) • Physiological and occupational therapy • Physical exercise activities and relaxation | <ul style="list-style-type: none"> • Group discussions on work-related issues • Individual counselling sessions with psychologist (2 x 60 minutes) (e.g., stress management, work and private life interface, time management) --> content according to individual needs |
| The participatory intervention | <ul style="list-style-type: none"> • The same as above | <ul style="list-style-type: none"> • The same as above • Workplace connection: collaboration with representatives of the workplace; targeted at specific causes of stress at work as identified by the rehabilitation clients (2 x 1 day) |

Both the traditional and participatory interventions were expected to reduce the exhaustion component of burnout, as they focused on helping individuals to better cope with their stress and to reduce arousal by the deployment of various rehabilitation activities (such as relaxation, physical exercise and stress management discussions; see Table 1 for more details). Previous individual-focused stress management programs have resulted in a lower level of exhaustion (e.g., Hättinen et al., 2004, van Dierendonck et al., 1998). The participatory intervention was also expected to reduce cynicism and increase professional efficacy. The problem-solving interactions between workplace members which the participatory approach utilizes have in previous studies decreased cynicism / depersonalization and increased personal accomplishment / professional efficacy (Cooley & Yovanoff, 1996).

Among perceived job conditions, we expected the interventions to decrease time pressures at work as they both included individual-focused stress management activities, including time management discussions and training (Table 1). Additionally, we expected the participatory intervention to improve perceived job control (e.g., Mikkelsen, Saksvik, & Landsbergis, 2000) because it helps individuals to identify their own job stressors and to create solutions to these misfits. Workplace climate and satisfaction with supervisor are also expected to be improved by this intervention because of the collaboration between the participants' supervisors and other workplace members. Previously participatory approach has been successful in increasing participants' work climate and job satisfaction (e.g., Cooley & Yovanoff, 1996; Mattila, Elo, Kuosma, & Kylä-Setälä, 2006; Mikkelsen et al., 2000).

Concerning mediators of change, we expected that in both interventions, change in burnout (i.e., exhaustion) would be mediated by a change, i.e. decrease, in time pressures at work. In the participatory intervention, the changes in two other burnout symptoms (i.e., cynicism and reduced professional efficacy) were expected to be mediated in particular by a change, i.e. increase, in perceived job control (Bond & Bunce, 2001). Theoretically, it is also possible that the change in

these symptoms would also be mediated by an improved workplace climate and satisfaction with supervisor.

METHOD

Design and participants

This study utilized a quasi-experimental design (Cook & Campell, 1979), as randomisation presents a serious challenge in the rehabilitation context: clients have the right to appropriate treatment.

Thus, it is unethical to randomise clients into controls and groups differing by treatment.

Nevertheless, we managed to recruit a control group of people who were waiting for rehabilitation.

Their changes in burnout and perceived job conditions were followed for four months, before they entered rehabilitation.

The traditional intervention (“Vitality and energy for working life” = Vitality) was set up in accordance with the Finnish rehabilitation legislation by the Social Insurance Institution of Finland. The participants in this intervention came from different workplaces. The participants sent their medical report and application for rehabilitation to the local office of the Social Insurance Institution whence they were referred to a rehabilitation centre situated in central Finland. The physicians at the rehabilitation centre then selected the participants on the basis of their medical report and application. The selected participants were diagnosed as having various job-related psychological health problems, such as burnout. The participants were, however, allowed to have mild depression, anxiety and self-esteem problems since these problems usually coincide with burnout symptoms.

The participatory intervention was set up with the help of the Social Insurance Institution of Finland for the purposes of this study. The clients came from two workplaces, both of which were suggested as candidates for this study by the occupational health care services as they were known to have job-related psychological problems. The participants applied for rehabilitation in the same

way as in the traditional intervention and a physician made the final selection, again on the basis of the participants' medical report and application for rehabilitation.

In both interventions, the participants were recruited for the study on the first day of their arrival at the rehabilitation centre, where they were given a short introduction to the study by the researchers (and later on by the rehabilitation personnel). Voluntary participation, confidentiality, and anonymity were emphasized. The same introduction was given to the participants in the participatory intervention. Both interventions were carried out in groups of 8 to 10 clients.

In all, the sample comprised of 110 employees all of whom suffered from job-related psychological health problems, mainly burnout. Of the 110 subjects, 70 were assigned to the traditional intervention. Five of these were unwilling to participate in the study, thereby reducing the traditional group to 65. The participatory intervention comprised 20 women from two different workplaces: the local university and the town's social and health departments. The controls consisted originally of 20 employees, who came from various workplaces and were awaiting rehabilitation (traditional intervention). Finally, since the participatory intervention comprised female white-collar workers only, we matched the traditional intervention and the control group accordingly, which resulted in 32 participants in the traditional group and 12 participants in the waiting list control group. Thus, after this matching there were 64 participants altogether. However, restricting the sample solely to white-collar women can also be justified more theoretically: limiting the target group diminishes the risk of underlying confounding factors, such as gender, education, occupation and occupational tasks (Maslach et al., 2001; Schaufeli & Enzmann, 1998). This improves the validity of the study, especially when randomisation is not possible and we are evaluating a new intervention strategy.

Figure 1 illustrates the design and duration of both interventions, including the control group.

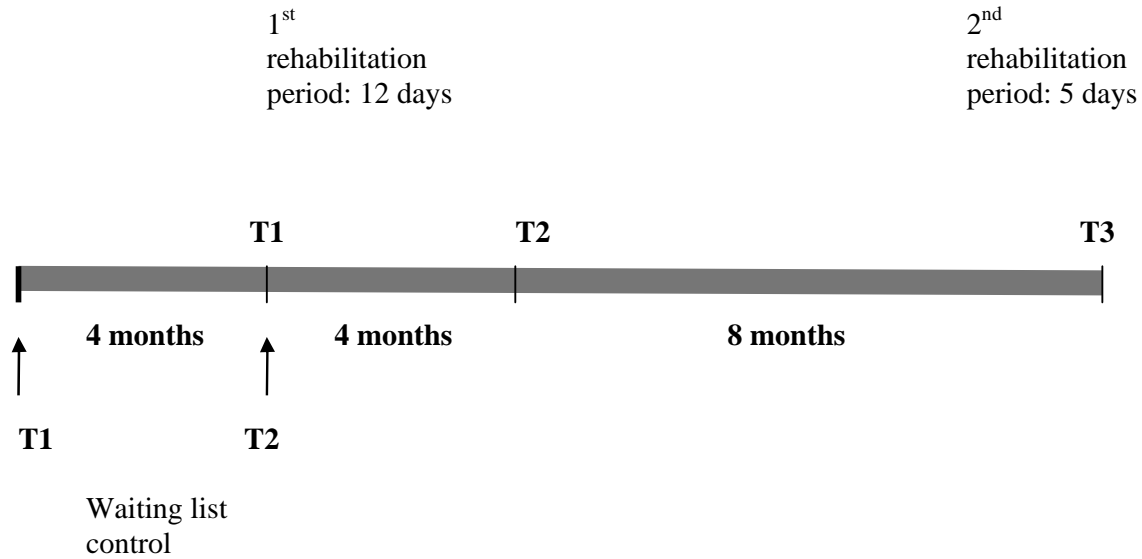


Figure 1. The rehabilitation process and measurements of the two intervention groups and control group. Note. Control group measures span T1 to T2 and intervention groups T1 to T3.

The baseline measurement was implemented at the rehabilitation centre where the participants filled out a set of questionnaires before the rehabilitation started (Time 1). Four months after the first rehabilitation period (lasting for 12 days) questionnaires were again mailed (Time 2) and, finally, questionnaires were again filled in at the centre (Time 3) after the second period of the intervention process (lasting 5 days). Altogether the whole rehabilitation process lasted one year. The control group was to fill out questionnaires twice (at Time 1 and at Time 2) before entering rehabilitation. Between the rehabilitation periods all the rehabilitation clients worked as usual, if they were capable.

Out of the total sample of 64 participants, seven did not return the questionnaires at Time 2. Of these, three were from the traditional intervention (1 unemployed, 1 on sick leave and 1 did not answer for an unknown reason), two from the participatory intervention (1 did not answer for an unknown reason, 1 on shared-job leave), and two from the control group (1 unemployed, 1 on shared-job leave). At Time 3 nine out of the 64 participants did not answer the questionnaires: six

were from the traditional intervention (1 still unemployed, 2 on sick leave, 1 had dropped out of the rehabilitation process, 2 did not answer for an unknown reason), and three from the participatory intervention (all did not answer for unknown reasons). Thus, the data comprising all three measurements were obtained from 25 in the traditional intervention and 15 in the participatory intervention, whereas 8 in the control group filled out the questionnaires on only two occasions.

Description of the interventions

The traditional and the participatory interventions are targeted at persons who are employed when seeking rehabilitation. The general purpose of rehabilitating people suffering from job-related health problems is to maintain and improve their ability to work and prerequisites for continued working in the future. Both rehabilitation programmes are based on a multidisciplinary and holistic approach to job-related psychological health problems, that is, the interventions include a comprehensive evaluation of the clients' psychological, physical and social status. On the basis of these evaluations, all clients receive a personal rehabilitation plan, which they are instructed to follow throughout the intervention process and, it is hoped, after the rehabilitation process has ended.

The traditional program is aimed at employees who are under 50 years of age and have become mentally overburdened by their jobs. The intervention comprises a set of fixed programmatic activities, although other activities, such as physical exercise, are also available according to individual needs (Table 1). The focus of the traditional intervention is primarily on the individual but, when necessary, also on the individual-organizational interface (see Schaufeli & Enzmann, 1998). Generally, individual-level intervention activities are aimed at increasing the individual's ability to cope with stress and promoting awareness of stress-evoking situations and how people react to stress. Activities aiming at the individual-organizational interface focus on

increasing employees' resistance to specific job stressors in the context of their working environment.

The content of the participatory intervention was basically similar to that of the traditional intervention with one exception (Table 1). The participatory intervention included a link to the rehabilitation clients' workplace, which meant that the participants' supervisor, a member of the occupational health and safety organization, and a representative from occupational health care were invited to the rehabilitation centre during both rehabilitation periods for one day. In the first rehabilitation period the workplace-related representatives collaborated together with the participants and the rehabilitation team to find ways of improving the job conditions of the participants on the basis of a memo prepared by the latter before this meeting. The memo included issues that the participants considered it was essential to remedy in order to enhance their job-related well-being and health. In the second rehabilitation period the same people gathered again at the rehabilitation centre and discussed whether the agreed remedies had been implemented and whether there had been problems in doing this.

The purpose of these two meetings was to increase the participants' control over issues relating to their jobs and improve their job conditions. This, in turn, was expected effectively to reduce job-related problems of well-being, such as burnout. The objective of including representatives of the workplace in the rehabilitation process was to involve and put the employer under an obligation to implement the actions agreed upon to remedy the defects in the workplace.

Measures

Burnout was assessed by the MBI-GS (Maslach et al., 1996). The measure consists of 16 statements and three subscales: exhaustion (Ex), cynicism (Cy), and reduced professional efficacy (PE). High scores on exhaustion (5 items; Time 1 Cronbach $\alpha = .93$, Time 2 $\alpha = .94$, Time 3 $\alpha = .94$), cynicism (5 items; Time 1 $\alpha = .89$, Time 2 $\alpha = .87$, Time 3 $\alpha = .88$) and reduced professional efficacy (6

items: Time 1 $\alpha = .84$, Time 2 $\alpha = .78$, Time 3 $\alpha = .80$) are indicative of burnout. The items of the measure were rated on a 7-point frequency-based scale (0 = never, 6 = every day).

Time pressures at work were measured with three items (e.g., “Do you have to hurry to get your work done?”). The Cronbach alpha’s for the scale were Time 1 $\alpha = .73$, Time 2 $\alpha = .74$, Time 3 $\alpha = .63$. *Job control* is a nine-item measure and was used to evaluate respondents’ possibility to control different aspects of their work (e.g., workload and quality of work; Time 1 $\alpha = .87$, Time 2 $\alpha = .85$, Time 3 $\alpha = .82$). The quality of the *workplace climate* was assessed with five items which described the atmosphere of workplace (e.g., “encouraging and supporting new ideas”; Time 1 $\alpha = .68$, Time 2 $\alpha = .88$, Time 3 $\alpha = .90$). The three measures (job control, workplace climate and time pressures at work) have been widely used in Finnish occupational studies and validated by the Finnish Institute of Occupational Health (Bergström et al., 1997; Elo, Leppänen, Lindström, & Roponen, 1990). *Satisfaction with supervisor* was assessed using three items (e.g., “To what extent are you satisfied with the support and guidance given by your superior”; Time 1 $\alpha = .89$, Time 2 $\alpha = .93$, Time 3 $\alpha = .94$) from the Finnish version of the Job Diagnostic Survey (Vartiainen, 1989). All of the items describing job conditions were rated on a 5-point Likert-type response scale (1 = strongly agree, 5 = strongly disagree).

Statistical analysis

As a first step, we tested for differences in the participants’ background factors [age, living with a partner, number of children living at home, hours worked per week, years worked in the current organization, years worked in the current position and socioeconomic status (lower vs. upper white-collar workers)] between the three groups (traditional, participatory and control group) by using either the chi-square test or one-way analysis of variance (ANOVA). The post hoc comparisons were performed either with Scheffe’s (equal variances assumed) or Tamhane’s (equal variances not

assumed) test. The background variables in which the groups differed were used as covariates in the further analyses.

In order to test the effects of the rehabilitation interventions on the outcome variables, we conducted multivariate analysis of covariance (MANCOVA) for repeated measures. We used the two rehabilitation interventions and the control group as a between-groups variable and time as a repeated measure. In addition, the background factors, age and living with a partner, served as covariates. When the Group x Time interaction effect was significant, we proceeded with the univariate analysis. Where samples are small, interaction effects are not necessarily detected, and so for this reason and because we were testing a new intervention strategy we also analysed the within-subjects effect on each group separately with MANCOVA for repeated measures. Furthermore, we compared different measurements (T1 vs. T2, T2 vs. T3, and T2 vs. T3) within each group separately by using Bonferroni's test for pairwise time comparisons. The magnitude of the effects was measured with the eta-square (η^2). According to Cohen (1988), the size of an effect can be classified as small (0.01 to 0.04), medium (0.05 to 0.11), or large (0.12 to 1.0).

The mediator effects were tested by entering the hypothesized mediator variable as a covariate in the MANOVAs for repeated measures at the corresponding time points. A reduction in the size of the effect, compared to the MANOVAs for repeated measures without mediators as covariates, would indicate that the covariate, or mediator, explains a proportion of the variance in the outcome variable. This, in turn, shows that the covariate functions as a mediator in the process. In all the analyses missing data were treated by listwise deletion.

RESULTS

Short-term and long-term intervention effects

Since we used non-random assignment, we tested whether the two intervention groups and the control group would differ significantly on the outcome variables at the baseline (pre intervention).

There were no differences found in burnout or perceived job conditions at the baseline between the groups. Instead, the three groups differed in terms of two background variables (Table 2). The participants in the traditional intervention were older than those in the participatory intervention, $F(2, 61) = 5.55, p < .01$, and more participants in the participatory intervention lived with a partner (90%) compared to those in the other two groups (66% and 50%).

Table 2. Socio-demographic and professional characteristics in the two interventions and in the control group.

| Characteristic | 1) Traditional intervention ($n = 32$) | 2) Participatory intervention ($n = 20$) | 3) Control group ($n = 12$) | Test of significance |
|--|---|---|----------------------------------|----------------------------|
| | <i>M (SD)</i> | <i>M (SD)</i> | <i>M (SD)</i> | |
| Age | 51.6 (5.97) | 45.9 (6.56) | 48.9 (5.47) | $F = 5.55^{**}$ $1 > 2$ |
| Number of children living at home | 0.5 (1.09) | 0.9 (0.83) | 0.8 (0.63) | $F = 0.94$ |
| Total hours worked per week | 44.4 (11.42) | 43.1 (8.46) | 43.6 (6.57) | $F = 0.95$ |
| Years worked in current position / profession | 18.9 (10.04) | 16.46 (8.60) | 12.25 (11.42) | $F = 1.36$ |
| Years worked in current organization | 14.6 (8.30) | 16.2 (8.74) | 13.4 (10.54) | $F = 0.26$ |
| | % within groups | % within groups | % within groups | Test of significance |
| Living with a partner (cohabiting or not) | 66 % vs. 34 % | 90 % vs. 10 % | 50 % vs. 50 % | $\chi^2 = 6.42^*$ |
| Socioeconomic status (lower vs. upper white-collar worker) | 66 % vs. 34 % | 40 % vs. 60 % | 42 % vs. 58 % | $\chi^2 = 4.02$ |

* $p < .05$, ** $p < .01$, *** $p < .001$

Job burnout. When testing the short-term intervention effects, the three burnout symptoms served simultaneously as dependent variables, and age and living with a partner acted as covariates in the 3 (Group) x 2 (Time) multivariate analysis of covariance (MANCOVA) for repeated measures. The Group x Time interaction effect was significant, $F(6, 100) = 2.42, p < .05, \eta^2 = .13$,

showing that the changes in burnout scores were different in the three groups during the first four-month period (from Time 1 to Time 2). We proceeded with the univariate analysis which showed that exhaustion, $F(2, 52) = 5.96, p < .01, \eta^2 = .19$, developed differently in the three groups. A borderline interaction effect was also detected with respect to cynicism, $F(2, 52) = 2.99, p < .06, \eta^2 = .10$, during the four months. When examining the changes in burnout symptoms separately in each group, the within-subjects effects showed no changes in burnout symptoms in the traditional intervention during the four months. Instead, in the participatory intervention both exhaustion, $F(1, 17) = 25.07, p < .001, \eta^2 = .60$, and cynicism, $F(1, 17) = 6.43, p < .05, \eta^2 = .27$, decreased. In the control group cynicism, $F(1, 9) = 6.99, p < .05, \eta^2 = .44$, also decreased.

Perceived job conditions. Neither interaction nor main time or group effects were detected for any of the job condition variables in the 3 (Group) x 2 (Time) multivariate analysis of covariance (MANCOVA) for repeated measures. Only one borderline result showed an interaction effect for time pressures, $F(2, 52) = 2.73, p < .10, \eta^2 = .10$. We then proceeded to examine short-term changes in the three groups separately. In the traditional intervention, the within-subjects effects showed that satisfaction with supervisor decreased during the four months, $F(1, 25) = 4.71, p < .05, \eta^2 = .16$. In the participatory intervention and the control group, no within-subjects changes were found in any of the job condition variables during the four months. Instead, when comparing the Time 1 and Time 2 scores, an increase in job control ($p < .01$) was detected in the participatory intervention. Furthermore, in the control group time pressures at work increased ($p < .05$) from Time 1 to Time 2.

In sum, positive short-term changes were detected only in the participatory intervention. Among the participants of this intervention both exhaustion and cynicism decreased, and there were also signs that job control increased. Furthermore, in the traditional intervention, the satisfaction with supervisor decreased during the four months and in the controls, time pressures at work increased but cynicism decreased as they waited for treatment.

The long-term effects of the interventions are shown in Tables 3 and 4. The control group was no longer in these analyses. The two intervention groups differed in terms of age and living with a partner (see Table 2); these were added as covariates in the 2 (Group) x 3 (Time) MANCOVAs for repeated measures. In cases where the sphericity assumption was violated we used the Greenhouse-Geisser adjustment.

Table 3. Long-term changes in job burnout and perceived job conditions: Results of the MANCOVA analyses.

| Two rehabilitation interventions | (1) Traditional intervention (<i>n</i> = 32) | | | (2) Participatory intervention (<i>n</i> = 20) | | | <i>F</i> value | <i>F</i> value | <i>F</i> value |
|--|--|---------------------------------|---------------------------------|--|---------------------------------|---------------------------------|------------------------------|-----------------------------|-------------------------------------|
| | T1 <i>M</i> (<i>SD</i>) | T2 <i>M</i> (<i>SD</i>) | T3 <i>M</i> (<i>SD</i>) | T1 <i>M</i> (<i>SD</i>) | T2 <i>M</i> (<i>SD</i>) | T3 <i>M</i> (<i>SD</i>) | Group effect (η^2) | Time effect (η^2) | Group x Time effect (η^2) |
| <i>Job burnout</i> | | | | | | | | | |
| Exhaustion (<i>n</i> = 40) | 2.84 (1.54) | 2.51 (1.44) | 2.27 (1.68) | 3.23 (1.62) | 1.64 (0.98) | 1.71 (1.07) | 0.60 (.02) | 0.84 (.02) | 5.18** (.13) |
| Cynicism (<i>n</i> = 40) | 2.01 (1.53) | 2.09 (1.44) | 1.92 (1.56) | 2.09 (1.36) | 1.21 (0.63) | 1.25 (0.94) | 1.42 (.04) | 0.96 (.03) | 3.42* (.09) |
| Reduced professional efficacy (<i>n</i> = 40) | 1.46 (1.22) | 1.57 (1.06) | 1.42 (1.03) | 1.81 (1.00) | 1.72 (0.98) | 1.58 (0.82) | 0.49 (.01) | 1.11 (.03) | 0.34 (.01) |
| <i>Perceived job conditions</i> | | | | | | | | | |
| Time pressures at work (<i>n</i> = 44) | 3.56 (0.70) | 3.60 (0.49) | 3.44 (0.61) | 3.60 (0.76) | 3.30 (0.59) | 3.43 (0.66) | 0.30 (.01) | 1.31 (.03) | 1.65 (.08) |
| Job control (<i>n</i> = 44) | 3.06 (0.82) | 3.14 (0.69) | 3.17 (0.76) | 2.84 (0.63) | 3.21 (0.55) | 3.21 (0.47) | 0.03 (.00) | 1.51 (.04) | 0.90 (.04) |
| Good workplace climate (<i>n</i> = 44) | 3.15 (0.96) | 3.13 (0.97) | 3.27 (0.94) | 3.05 (0.47) | 3.38 (0.98) | 3.52 (0.86) | 0.27 (.01) | 4.17* (.09) | 0.86 (.04) |
| Satisfaction with supervisor (<i>n</i> = 43) | 2.72 (1.01) | 2.77 (0.94) | 2.91 (1.16) | 3.06 (1.02) | 3.14 (1.09) | 3.41 (0.92) | 2.23 (.05) | 2.15 (.05) | 0.08 (.00) |

$p < .05$, ** $p < .01$, *** $p < .001$, † $p < .10$ (marginally significant).

Note. Age and living with a partner served as covariates in all analyses. Control group was not included in these analyses.

Table 4. Within time effects and pairwise time comparisons in the two intervention groups.

| Variable | 1) Traditional Intervention | | | | | | 2) Participatory intervention | | | | | | | | | |
|---------------------------------|-----------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------------------|----------------|----------------|----------------|----------------|-----------------------------|---------|---------|---------|------|
| | <i>n</i> | T1 <i>M</i> | T2 <i>M</i> | T3 <i>M</i> | <i>F value</i> | <i>p value</i> ¹ | <i>n</i> | T1 <i>M</i> | T2 <i>M</i> | T3 <i>M</i> | <i>F value</i> | <i>p value</i> ¹ | | | | |
| <i>Job burnout</i> | | | | | | | | | | | | | | | | |
| | | | | | | T1 – T2 | T1 – T3 | T2 – T3 | | | | | T1 – T2 | T1 – T3 | T2 – T3 | |
| Exhaustion | 25 | 2.90 | 2.57 | 2.37 | 0.71 | .456 | .088† | 1.00 | 15 | 3.13 | 1.55 | 1.53 | 0.73 | .002** | .007** | 1.00 |
| Cynicism | 25 | 2.06 | 2.15 | 1.93 | 0.25 | 1.00 | 1.00 | .818 | 15 | 2.00 | 1.11 | 1.23 | 0.83 | .144 | .039* | 1.00 |
| Reduced professional efficacy | 25 | 1.55 | 1.63 | 1.47 | 1.46 | 1.00 | 1.00 | .604 | 15 | 1.66 | 1.62 | 1.50 | 0.03 | 1.00 | 1.00 | 1.00 |
| <i>Perceived job conditions</i> | | | | | | | | | | | | | | | | |
| Time pressures at work | 27 | 3.33 | 3.43 | 2.86 | 0.08 | 1.00 | .041* | .001** | 17 | 3.43 | 3.21 | 2.99 | 0.40 | .737 | .300 | .706 |
| Job control | 27 | 3.06 | 3.11 | 3.15 | 1.51 | 1.00 | 1.00 | 1.00 | 17 | 2.83 | 3.25 | 3.24 | 0.68 | .030* | .035* | 1.00 |
| Good workplace climate | 27 | 3.10 | 3.11 | 3.16 | 4.09* | 1.00 | 1.00 | 1.00 | 17 | 3.11 | 3.40 | 3.69 | 1.64 | .555 | .079† | .242 |
| Satisfaction with supervisor | 26 | 2.74 | 2.77 | 2.83 | 1.36 | 1.00 | 1.00 | 1.00 | 17 | 3.02 | 3.14 | 3.53 | 2.60† | 1.00 | .373 | .508 |

* $p < .05$, ** $p < .01$, *** $p < .001$, † $p < .10$ (marginally significant).

¹ pairwise comparisons with Bonferroni's test

Job burnout. No interaction effects were detected in burnout in the 2 (Group) x 3 (Time) multivariate analysis of covariance (MANCOVA) for repeated measures where all three symptoms served as dependent variables. However, as seen in Table 3, univariate tests showed that exhaustion and cynicism changed differently in the two intervention groups over the long-term (from Time 1 to Time 3). However, when examining the two groups separately with MANOVA for repeated measures, no within-subjects changes were detected during the one-year period. Instead, the pairwise time comparisons (shown in Table 4) revealed that in the participatory intervention the level of exhaustion decreased from Time 1 to Time 2 and from Time 1 to Time 3, and the level of cynicism decreased from Time 1 to Time 3. In the traditional intervention, there was only a borderline ($p < .10$) decrease in exhaustion between Time 1 and Time 3.

Perceived job conditions. No interaction effects were detected in the 2 (Group) x 3 (Time) multivariate analysis of covariance (MANCOVA) for repeated measures. Instead, there was a main time effect for workplace climate, which showed an improvement in both interventions over the one-year period (Table 3). When the two interventions were analysed separately, the within-time effects showed an improvement in workplace climate in the traditional intervention over the year, but in the pairwise comparisons no differences were found between the measurement times (Table 4). In the participatory intervention, the results of the pairwise comparisons showed only a borderline ($p < .10$) improvement in workplace climate from Time 1 to Time 3. Furthermore, a borderline ($p < .10$) increase in satisfaction with supervisor was found in the participatory intervention over the year, although the pairwise time comparisons did not detect this change. Instead, the pairwise time comparisons showed, first, that in the traditional intervention

time pressures at work decreased from Time 1 to Time 3 and from Time 2 to Time 3, and, second, that in the participatory intervention job control increased from Time 1 to Time 2 and from Time 1 to Time 3.

To sum up, the analyses showed that exhaustion and cynicism decreased significantly only in the participatory intervention, while perceived workplace climate improved in both interventions over the year. Furthermore, perceived job control increased from Time 1 to Time 2 and from Time 1 to Time 3 in the participatory intervention. In the traditional intervention perceived time pressures decreased from Time 1 to Time 3 and from Time 2 to Time 3.

Mediator effects

Since no statistically significant changes (at the level of significance $p < .05$ or less) in burnout symptoms were observed in the traditional intervention over the one year, we tested for mediator effects only in the participatory intervention. There were two potential mediator variables, perceived job control and workplace climate, both of which showed significant signs of change during the 12 months. Thus, we tested whether the increase in the levels of job control and workplace climate mediated the decrease in the levels of exhaustion and cynicism in the participatory intervention.

The results showed that before the hypothesized mediator was taken into account, the within-group time effect for exhaustion was significant, $F(2, 28) = 18.06, p = .000, \eta^2 = .563$. When job control was entered as a covariate the effect size was attenuated by 20%; however, the F statistic remained significant, $F(2, 27) = 11.20, p = .000, \eta^2 = .453$.

When investigating workplace climate as a mediator, the effect size was attenuated only by 6%, the F statistic remaining significant, $F(2, 27) = 15.32, p = .000, \eta^2 = .532$.

In the case of cynicism, before entering the covariate into the analysis the within-group time effect was also significant, $F(2, 28) = 4.76, p = .017, \eta^2 = .254$, but when job control was entered as a covariate, not only was the effect size attenuated by 46%, but the F statistic for cynicism became non-significant, $F(2, 27) = 2.17, p = .134, \eta^2 = .138$. The effect size was not at all attenuated when workplace climate was taken into account as a covariate.

Overall, with respect to exhaustion, the results showed that when the hypothesized mediators, workplace climate and job control, were taken into account, the effect sizes were attenuated by 6% and 20%, respectively. It appears that these perceived job conditions, especially job control, functioned as partial mediators in the change in exhaustion over the year. Furthermore, with respect to cynicism, workplace climate showed no mediating influence. Instead, job control played an important role in the decrease in cynicism during the year-long intervention.

DISCUSSION

This study compared the effectiveness of a traditional treatment strategy with a specially tailored treatment strategy (participatory intervention) on job burnout and perceived job conditions among white-collar female rehabilitation clients who all suffered from job-related psychological health problems. In addition, the aim was to explore the possible mechanisms by which these two interventions ameliorate burnout symptoms.

The participatory intervention, which combined the individual and individual-organizational levels when treating burnout, was a more effective strategy compared to the traditional rehabilitation strategy among the present sample of white-collar women. First, both interventions were expected to reduce exhaustion; this our results partly supported. After adjusting for covariates (age and living with a partner), only the participatory intervention resulted in a statistically significant decrease in exhaustion during the 12-month rehabilitation process. Second, our hypotheses were partly supported in regard to cynicism and reduced professional efficacy both of which were expected to decrease during the participatory intervention. However, only cynicism decreased during the 12-month rehabilitation. The present results were thus in line with those of previous burnout intervention studies showing that exhaustion is the symptom easiest to reduce (e.g., 1986; Hättinen et al., 2004; van Dierendonck et al., 1998; van Dierendonck et al., 2005). In the participatory intervention, exhaustion was found to have decreased after only four months, whereas the decrease in cynicism was not apparent until the end of the intervention year.

The results regarding perceived job conditions were more mixed. We hypothesized that time pressures at work would be decreased in both interventions, whereas job control, workplace climate and satisfaction with supervisor would be improved in the participatory intervention. As expected, time pressures at work did decrease in the traditional intervention. There was also a negative, short-term decline in satisfaction with supervisor among the traditional participants, which became non-significant when the long-term effects of the intervention were analysed. This probably occurred because of the decline in the size of the sample which, in turn, affected the mean scores when all

three time points were included. Instead, the hypotheses were not fully supported with regard to the effectiveness of the participatory intervention: time pressures at work did not decrease and there was only a borderline ($p < .10$) increase found in satisfaction with supervisor at 12 months. However, as expected, job control increased long-term only four months from the start of the intervention. Furthermore, the perceived workplace climate improved in both interventions during their 12-month course.

Cynicism decreased spontaneously among the controls. We do not know whether this was due to initiatives by participants in treating themselves during their period of waiting. Te Brake, Gorter, Hoogstraten, and Eijkman (2001) noticed in their intervention study among dentists that the participants who did not take part in the intervention showed less exhaustion compared to the norm categories. The authors only checked for self-initiatives in the first post-test and argued that the control group could have taken actions subsequently, thereby explaining the positive shift. Usually, burnout symptoms are rather stable over time (Schaufeli & Enzmann, 1998) and unlikely to decrease in the absence of treatment. This was the case in the study conducted among forest industrial workers, which found that exhaustion persisted for eight years (Toppinen-Tanner, Kalimo, & Mutanen, 2002).

Another possible explanation for the spontaneous decrease in cynicism in the control participants is that discovered in the study by Wade et al, (2003). They investigated the benefits of multidisciplinary rehabilitation for people with Parkinson's disease and their carers. This randomised controlled crossover trial showed that the untreated group was less depressed than the group who had received treatment four months earlier. The authors discuss whether the fact that the control group was about to

start rehabilitation may have improved their mood, resulting in lower levels of depression. In this study too it is possible that cynicism in the waiting-list controls may have lessened because they knew they were about to receive treatment.

Our hypotheses concerning the mediators of change in burnout symptoms in the traditional intervention were not met since the burnout symptoms did not decrease at all. Instead, our hypotheses were met concerning job control as a mediator of change in burnout symptoms in the participatory intervention. The results showed that the participatory intervention increased job control and that this increase resulted in lower levels of exhaustion and cynicism over the 12-month rehabilitation process. In the case of cynicism in particular, the F statistic became non-significant when job control was taken into account. Thus, job control seems to be an important job resource. This result is in line with Bond and Bunce (2001) who also identified job control as a mediator of the improvements observed during the intervention. Job control has a central role in the Mediation Model of Burnout (Leiter & Maslach, 2004) which proposes that six areas of working life (workload, control, reward, community, fairness, and values) affect the individual's experience of the burnout / engagement continuum (Leiter, 2005). Further, according to the model, the level of burnout / engagement determines both work and health outcomes. Job control plays an important role in this model because it has direct consequences for other areas of working life, meaning that people with high job control are more likely to influence other aspects of their working life. The second hypothesized mediator, workplace climate, had only a minimal mediating influence on exhaustion and none on cynicism.

The main purpose when treating burnout clients in rehabilitation is to break the vicious circle of the loss in one's resources leading to even greater burnout. The two interventions in this study were able to improve some of the perceived job resources, such as job control in the participatory intervention and workplace climate in both interventions, as well as to reduce job demands (time pressures at work) in the traditional intervention. This study was in line with previous findings indicating that interventions which focus on improving job conditions (or job-person fit), can deal with burnout more effectively (Leiter & Maslach, 2000; Maslach & Goldberg, 1998; Maslach et al., 2001). This was evident in the participatory intervention, in which increased job control in turn reduced exhaustion and cynicism.

For some reason, the participatory intervention was not able to improve the participants' professional efficacy. Professional efficacy represents the self-evaluation and attitudinal dimension of burnout, which may make this component more resistant to interventions. On the basis of two empirical studies (Gorter et al., 2001; van Dierendonck et al., 2005), which resulted in an increase in professional efficacy, it appears that in order to improve a person's professional efficacy, the burnout program should include more self-evaluative elements where participants can examine themselves and become more aware of themselves as human beings as well as workers. If burnout programs are to enhance professional efficacy, the self-evaluative theme in such programs should also be more intensive and repetitive. In our intervention the topics for group discussions changed in every session, which may not sufficiently have helped the participants to deepen their self-knowledge. This may also require individual discussions at more frequent intervals.

One limitation of this study was the use of non-randomization, as this always poses a threat to internal validity. However, it was the only way to implement the research in the rehabilitation context. We tried to reduce this threat by limiting the two intervention and control groups to female white-collar employees. We also controlled for possible differences in the outcome variables between the three groups before the intervention started. However, we cannot be sure whether the results were due to the technical content of the respective interventions, in other words, whether the effectiveness of the participatory intervention was due to the workplace connection, i.e., the co-operation between rehabilitees and the representatives of the workplace which aimed at improving participants' job conditions. We know that cynicism decreased, at least to some extent, because job control increased. What remains unanswered is what, in addition to the increase in job control and improvement in workplace climate, caused the decrease in exhaustion in the participatory intervention.

Other limitations of this study are the small sizes of the samples and hence the constraints on generalizability. Obviously, although these findings must be interpreted with caution given the small sizes of the groups, they nevertheless imply that the participatory intervention deserves to be taken seriously when considering alternative ways of treating burnout. Clearly, the results of this study can be generalized only to white-collar women and needs to be replicated among larger samples, different socioeconomic groups and among both genders. It would also be important to test the stability of the research results with a follow-up.

The strengths of our study were the longitudinal research design and the nature of the sample. Although we were able to utilize the control group for only four months, the

fact that the interventions lasted for 12 months gives valuable information about their effectiveness on the progress of burnout. Moreover, the criticism levelled previously that only relatively healthy people have been investigated in burnout studies (Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001) enhances the value of the present sample since it comprised individuals who had actively sought rehabilitation because they were suffering from job-related psychological health problems and whose need for rehabilitation had been established by a physician.

In conclusion, our findings demonstrate that, compared to the traditional approach, the strategy used in the participatory intervention seemed to be more effective in reducing exhaustion and cynicism, and increasing perceived job control and workplace climate over a 12-month period. This means that an individual-organizational approach is a more efficacious treatment strategy for burned-out employees compared to an approach focusing solely on individual level. These results can reasonably be generalized to female white-collar employees. However, we need urgently to replicate this study with the aforementioned improvements in the research design, since the traditional way of dealing with burnout in rehabilitation is costly and apparently less effective. Therefore, in the future, we recommend systematically linking the workplace to burnout rehabilitation interventions, where small groups from the same workplaces are treated together, not only because doing so appears to be beneficial to the participants themselves but also because we believe that it can have positive carry-over effects in the workplace in general.

As we stated earlier, there are many factors that contribute to the outcome of rehabilitation, besides the content of the intervention. These factors may include

individual (such as personality, health behaviour) factors, work- and family-related factors or factors related to the intervention process which we cannot control, especially during long treatments. This can lead to a situation in which the subjects in any one group are heterogeneous and, as a result, the effects of treatment at the group level become minimal or non-existent. Growth mixture modelling is one possible approach to identifying homogeneous subgroups (Muthén et al., 2003) characterized by different types of burnout growth trajectories. Furthermore, besides the intervention program, knowing what factors actually predict membership of a specific burnout trajectory would help in planning more efficient rehabilitation for burned-out employees.

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