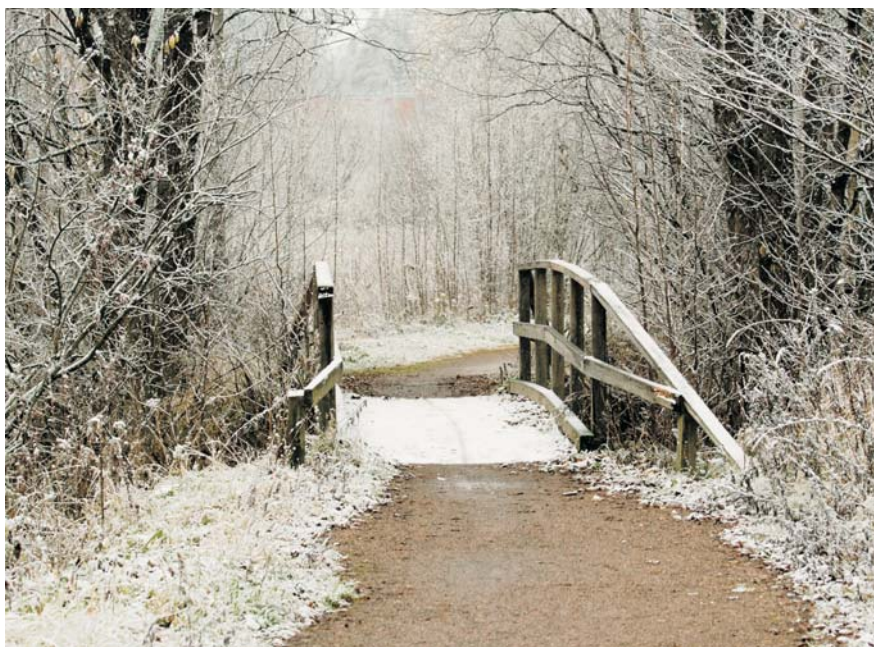


Marja Hättinen

Treating Job Burnout in Employee Rehabilitation

Changes in Symptoms, Antecedents,
and Consequences



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UNIVERSITY OF JYVÄSKYLÄ

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UNIVERSITY OF JYVÄSKYLÄ

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ABSTRACT

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Finnish summary: Työuupumuksen hoito työkäisten kuntoutuksessa: muutokset työuupumuksen oireissa, ennakoijissa ja seurauksissa

Diss.

This longitudinal study examined the manifestations of burnout and changes in its symptoms during a 1-year rehabilitation intervention and a 6-month follow-up by using person- and variable-oriented approaches. In addition, the aim was to study the changes in certain antecedents and consequences of burnout during the intervention. The data were obtained as a part of a research project ($N = 175$) that was conducted among working-aged rehabilitation clients. Burnout was studied as a syndrome comprising exhaustion, cynicism, and reduced professional efficacy. Antecedents of burnout were examined in terms of personal resources (sense of coherence and coping) and job conditions (time pressures at work, job control, workplace climate, satisfaction with supervisor). Consequences of burnout were evaluated by depression and job satisfaction. The main results of three studies showed that a) the experience of burnout was heterogeneous at baseline and across time; b) exhaustion and cynicism declined in certain subgroups as early as 4 months after the first rehabilitation period and this decline was maintained during the follow-ups; c) the participatory approach appeared to be more effective as compared to the traditional approach; d) decreased job demands and increased resources were associated with recovery from burnout; and e) decreased depression and increased job satisfaction were associated with recovery from burnout. A more precise targeting of burnout interventions is needed since the rehabilitation program included a group of employees whose burnout symptoms were only minor, as well as a group with high levels of burnout and depression who did not benefit from rehabilitation. The latter result suggests that rehabilitation started too late for them. The participatory type of intervention might have greater potential as an efficient treatment strategy for burnout since it gives participants better opportunities to exercise control over their work and, consequently, results in better fit between the individual and the job.

Keywords: burnout, job conditions, personal resources, rehabilitation intervention, longitudinal study

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Vaajakoski, October 2008

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1 INTRODUCTION

1.1 Burnout in changing working life

Burnout is a serious job-related syndrome (Maslach, Jackson, & Leiter, 1996) that generally develops gradually as a result of prolonged exposure to job stressors, thereby depleting an employee's resources and leading to extensive psychological strain (Kinnunen & Häätinen, 2002; Schaufeli & Enzmann, 1998). In 1997, the prevalence of severe burnout among the Finnish working population was about 7% (Kalimo & Toppinen, 1997), whereas in 2000 it was 2.5% (Ahola et al., 2004). It is difficult to say what the prevalence of burnout would be today, as we approach the end of the first decade of the third millennium; the experience of general stress symptoms has showed, however, a slightly decreasing trend from 1997 to 2006 (Elo & Ervasti, 2007). Recently identified changes in Finnish employees' working conditions (Elo & Ervasti, 2007), ill-health (as a cause of incapacity to work; Ahola, Joensuu, & Kivistö, 2007), and future changes in the Finnish population structure (Statistics Finland, 2007) may all have an influence on the present and future prevalence of burnout which, in turn, presents a challenge to the design of various well-being interventions targeted at employees suffering from burnout.

Job conditions are important antecedents of burnout (Maslach, Schaufeli, & Leiter, 2001). In Finland, employees' experiences of job conditions have changed during the present millennium (Kauppinen et al., 2007). Busyness at work was slightly higher in 2006 as compared to 2000 and 2003 (Elo & Ervasti, 2007). Furthermore, the control over one's own work and over the order of execution of work tasks decreased from 1997 to 2006 (Elo & Ervasti, 2007), and control over the pace of one's work decreased from 2001 to 2006 (Ylöstalo, 2006). Perceptions of these particular job conditions are especially important from the perspective of burnout. Busyness in terms of time demands is – along with poor control over one's work – among the most common antecedents of burnout (Maslach et al., 2001; Maslach & Leiter, 1997; Schaufeli & Enzmann,

1998) and deterioration in these particular job characteristics may have an effect on the prevalence of burnout among the Finnish working population.

Burnout can have serious health effects (for an overview, see Shirom, Melamed, Toker, Berliner, & Shapira, 2005) and it may also act as an independent risk factor for work disability (Ahola, 2007). One possible consequence of burnout is depression (e.g., Ahola & Hakanen, 2007; Greenglass & Burke, 1990), which, among mental disorders, is the most general cause of permanent work disability in Finland (Ahola et al., 2007). It is possible that some individuals suffering from depression may have a history of prolonged burnout. Therefore, detecting early signs of burnout and effecting a reduction in burnout among those who are already suffering from it may prevent depression, as well as disability caused by depression.

The negative changes that have taken place in employees' job conditions and the amount of disability due to depression are real concerns. Furthermore, far-reaching changes are imminent in Finnish working life, according to the population projection for 2007–2040 (Statistics Finland, 2007). The proportion of persons over 65 years of age in the Finnish population will rise from 16% to 26% by 2030, while the proportion of working-aged people will decrease from the present 66.5% to 57.5% by 2040 (Statistics Finland, 2007). Population aging and the decrease in the supply of labor call for finding effective means to maintain and improve employees' well-being and health and thus, prolong individuals' working age.

The rehabilitation of working-aged individuals in terms of reducing burnout and preventing depression and disability is one way to meet the above-mentioned labor force challenges and insure a capable workforce in society. In general, rehabilitation can be defined as systematic, multidisciplinary activities aiming at supporting a rehabilitee or a group of rehabilitees to obtain better quality of life and sense of coherence in situations where their possibilities for coping in everyday life has been diminished (Järvikoski & Härkäpää, 2004). Traditionally, rehabilitation activities have been based on disease, defect, or deficiency, and accordingly, the focus of rehabilitation activities has been on treating and decreasing the defects and restrictions of a rehabilitee (Järvikoski & Härkäpää, 2004). Alongside this deficiency paradigm, a new, so-called empowering and ecological paradigm has been arisen. Empowerment refers to the strengthening a rehabilitee's experiences of control, self-determination, and involvement throughout the rehabilitation process. The ecological framework is based on the view that an individual's life course is a result of the interaction between individual and his/her environment. This new paradigm can be characterized as client-centered, emphasizing the rehabilitee's active participation and decision making during the rehabilitation process. In order to help a rehabilitee with the challenges he/she is facing, rehabilitation needs to find appropriate solutions within the environment as well.

There is some research evidence that the effects of rehabilitation are more profound when it combines individual-level actions with actions targeted at the client's work community (Rissanen & Aalto, 2002). The need to obtain more information about the effectiveness and outcomes of rehabilitation, especially

the effectiveness of the workplace connection in rehabilitation, has been addressed by the Finnish Ministry of Social Affairs and Health (2004). However, to date, no substantive knowledge on whether multidisciplinary rehabilitation reduces especially burnout has been defined. However, multidisciplinary rehabilitation has been documented to provide a positive impact on employed individuals' psychological well-being (Härkäpää, 2002), as well as on depression (e.g., Viinamäki et al., 2003). This study addresses the need for information regarding burnout interventions and the role of the workplace connection in burnout rehabilitation. The study compares two rehabilitation interventions: an individual rehabilitation (care as usual) and rehabilitation with a workplace connection. Furthermore, the study examines the changes in certain antecedents (such as job conditions) and consequences (such as depression) of burnout during the employee rehabilitation interventions.

This Introduction section of the study proceeds by defining burnout and describing its relation to job stress and depression (1.2). In the Subsection 1.3, various developmental models and theories of burnout are presented. Subsection 1.4 focuses on the possible antecedents and consequences of burnout. In the Subsection 1.5, an evaluation of interventions that have been applied to burnout is presented. Subsection 1.6 defines the aims of the study.

1.2 Defining and assessing burnout

1.2.1 Burnout as a job-related psychological stress syndrome

The concept of burnout was first introduced almost four decades ago by Herbert Freudenberger (Maslach & Schaufeli, 1993). Freudenberger, a German-American psychiatrist, observed volunteers helping young drug addicts and noticed that many volunteers experienced a variety of mental and physical symptoms, and a gradual loss of energy, motivation, and commitment. At the same time, an American social psychologist, Christina Maslach, reported the same kind of phenomenon among health care workers. She approached this phenomenon from a social cognitive perspective and was particularly interested how people coped with it and what kind of cognitive strategies they used when dealing with strong emotional arousal (Maslach, 1993). During the 1980s, burnout was studied more systematically and scientifically, resulting in its conceptual and operational definition and a corresponding measure that has subsequently been widely used in scholarly research, that is, the Maslach Burnout Inventory (MBI; Maslach, 1993; Schaufeli & Enzmann, 1998).

According to two earlier versions of MBI (MBI-HS, MBI-ES; Maslach et al., 1996), burnout is a three-dimensional syndrome characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment, and often occurs among human service and education occupations. The most recent version of the MBI measure does not restrict burnout to any particular

occupation and includes the same, although slightly modified re-labeled, dimensions: exhaustion, cynicism, and reduced professional efficacy (MBI-GS; Maslach et al., 1996). The first dimension of burnout, exhaustion, is considered to be the core component of the syndrome. The exhaustion items refer to feelings of being depleted of one's resources at work and constant fatigue. Cynicism refers to indifference, that is, a distant and cynical attitude towards one's work. Reduced professional efficacy describes loss of competence and productivity, and the tendency to evaluate one's past and present accomplishments at work negatively, thereby encompassing both social and nonsocial aspects of occupational accomplishments.

Compared to the two other dimensions of burnout, exhaustion is the closest to the orthodox stress reaction (Maslach, 1993), whereas cynicism and reduced professional efficacy go beyond the individual stress experience by adding the employee's attitude toward the job (cynicism) and toward the self (feelings of inefficacy) into the conceptualization of burnout (Maslach, 2003). These two latter dimensions represent attitudinal components reflecting one's attitude towards one's work (cynicism) and towards one's performance at work (professional efficacy; Schaufeli & van Dierendonck, 1993). The psychometric properties of the MBI-GS have been found to be satisfactory, especially its factorial validity, among both international (Cooper, Dewe, & O'Driscoll, 2001; Schutte, Toppinen, Kalimo, & Schaufeli, 2000; Schaufeli & Enzmann, 1998), and Finnish samples (Kalimo, Hakanen, & Toppinen-Tanner, 2006; Schutte et al., 2000).

Although the MBI is the measure most widely used to assess burnout in research (Schaufeli & Enzmann, 1998), there is, however, no consensus on its conceptual and operational definition (Cox, Tisserand, & Taris, 2005). In addition to a three-dimensional conceptualization and measure like the MBI (Maslach et al., 1996), unidimensional (e.g., Kristensen, Borritz, Villadsen, & Christensen, 2005; Näätänen, Aro, Matthiesen, & Salmela-Aro, 2003; Pines, 1993; Shirom, 1989) and two-dimensional (Demerouti, Bakker, Vardakou, & Kantas, 2003; Halbesleben & Demerouti, 2005) measures of burnout are also available.

1.2.2 Job burnout in relation to job stress and depression

Job burnout can be confused with some closely related concepts, such as job stress and depression (Maslach & Schaufeli, 1993). In reviews and in the literature, burnout has been considered to be a consequence of chronic job stress (i.e., Burke & Richardsen, 2001; Hobfoll & Shirom, 2001; Maslach & Schaufeli, 1993; Maslach et al., 2001; Schaufeli & Enzmann, 1998). However, these two concepts differ, in particular regarding two of the dimensions of burnout (Maslach & Schaufeli, 1993). Whereas emotional exhaustion represents a traditional stress response, depersonalization and reduced personal accomplishment constitute attitudinal components of burnout not covered by the traditional job stress concept (Cordes & Dougherty, 1993; Schaufeli & van Dierendonck, 1993). In cross-sectional studies, job stress as operationalized by job strain (i.e., by high demands and low control at work; Karasek, 1979), has

been associated with job burnout (see for reviews Ahola, 2007; van der Doef & Maes, 1999). One longitudinal study that investigated the temporal relationship between job strain, burnout, and depressive symptoms found evidence that job strain predisposes to one to job burnout directly, but also via depression (Ahola & Hakanen, 2007). Additionally, job stress and burnout can be distinguished retrospectively on the basis of their development (Maslach, 1993): Job stress refers to an adaptation process that is temporary, whereas burnout refers to a breakdown in the adaptation process.

The relationship between burnout and depression has been widely studied. The two concepts share an appreciable amount of variance, especially in relation to emotional exhaustion and depression, which share 12% - 38% of their variance (Schaufeli & Enzmann, 1998). One explanation for this overlap is that these two entities may share a common antecedent, chronic stress at work, which may have an influence on both burnout and depression (Schaufeli & Enzmann, 1998; Shirom et al., 2005). The same fundamental personality trait, neuroticism, may also underlie depression and emotional exhaustion, causing the substantial correlation between the two concepts (Schaufeli & Enzmann, 1998). In cross-sectional designs, burnout and depression correlate positively, and they may share a common etiology (McKnight & Glass, 1995) and, in part, similar symptoms (Iacovides, Fountoulakis, Kaprinis, & Kaprinis, 2003), but they are not seen as identical phenomena (Ahola et al., 2005; Glass & McKnight, 1996; Glass, McKnight, & Valdimarsdottir, 1993). The same conclusion – burnout and depression are not identical concepts – was made in a recent population-based study in Finland, which found that the probability of having a depressive disorder rises with the level of job burnout, even though not all those with severe burnout fulfilled the criteria for a depressive disorder (Ahola et al., 2005).

Furthermore, according to the well-being categorization of Warr (2007), depression is considered as context-free, encompassing all life domains, whereas burnout is regarded as job-related. This context specificity was supported in a cross-sectional study on teachers, which found that a lack of reciprocity in their relationship with students was related to burnout but not to depression, whereas lack of reciprocity in the relationship with one's spouse was related to depression but not to burnout (Bakker et al., 2000). Two other cross-sectional studies (Glass et al., 1993; Leiter & Durup, 1994) that focused on clarifying the distinction between burnout and depression by confirmatory factor analyses found that the items of burnout and depression did not load on the same factor. Instead, a model comprising two second-order factors of burnout and depression was preferred over a one second-order factor comprising a generalized negative affect.

Burnout and depression may develop in tandem (McKnight & Glass, 1995): Later phases of burnout may be accompanied by depressive symptomatology (Shirom et al., 2005). A few longitudinal studies have found some evidence that depression is a consequence of burnout (e.g., Ahola & Hakanen, 2007; Greenglass & Burke, 1990). One recent study focused on the associations between job strain, burnout, and depressive symptoms among

Finnish dentists during a 3-year follow-up (Ahola & Hakanen, 2007). The authors concluded that although there is a reciprocal relationship between burnout and depressive symptoms, the path from burnout to depression appears to be stronger than the path from depression to burnout.

To conclude, although burnout and depression are clearly related, the previous studies do not indicate complete isomorphism (cf., Glass & McKnight, 1996). They reflect different areas of life, with depression being more context free and burnout clearly job related.

1.3 Development of job burnout

No all-embracing theory of burnout development exists; instead, there are several developmental models or theories of burnout (Schaufeli & Enzmann, 1998). These models and theories can be categorized into individual, interpersonal, organizational, and societal approaches. This subsection describes only those models or theories referred to in the original publications of the present study.

1.3.1 Individual approach

Individual perspectives on burnout emphasize the role of factors and processes within the person (Schaufeli & Enzmann, 1998). An example is the conservation of resources (COR) theory (Hobfoll, 1989; Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001). Although the theory was primarily constructed as a general stress theory, it has been applied to burnout as well (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001).

The underlying basic tenet of the COR theory is that people have a deep motivation to obtain, maintain, and protect what they value, that is, their personal resources (Hobfoll, 1989). Resources are divided into four categories: objects (e.g., house), conditions (e.g., well-being, health), personal characteristics (e.g., sense of coherence), and energies (e.g., knowledge). Psychological stress, such as burnout, is expected to occur when resources are threatened, lost, or when a person invests resources but fails to regain corresponding valued resources (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001). According to the COR theory, individuals place greater weight on the effects of losses than those of gains and, therefore, strive to protect themselves from resource loss. Because loss is deemed more significant than gain, employees also are more sensitive to stresses at work that threaten their resources. In the work context, work demands, which can be considered as antecedents of burnout (Maslach & Leiter, 1997; Maslach et al., 2001; Schaufeli & Enzmann, 1998), are perceived as losses, since meeting them requires resource investments in order to protect from further resource depletion (Hobfoll & Shirom, 2001).

Resource losses and gains occur in spirals: An initial loss may lead to the depletion of the resources, which decreases the availability of same to meet the next threat of loss (Hobfoll, 2002; Hobfoll & Shirom, 2001). Alternatively, resources tend to generate other resources (i.e., gain cycles) (Hobfoll, 2002). Separate resources create developmental pathways - resource caravans - which tend to appear together (Hobfoll, 2002). The theory implicates that individuals who lack resources are more vulnerable to the cycles of resource depletion, whereas those rich in resources are less likely to encounter stressful events (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001). Individuals with a strong resource pool are able to distance themselves from stressful situations that accompany the lack of resources (Hobfoll & Freedy, 1993), or they are more capable of problem-solving and investing resources to improve their situation or obtain new resources (Hobfoll, 2002). Because the symptoms and causes of burnout are described in terms of resource loss in the COR theory, (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001), burnout may result from unsuccessful coping, from a perceived net loss of valuable personal resources that cannot replenished. Individuals suffering from burnout may be caught in a spiral of losses that further exacerbate those losses.

According to the COR theory, burnout interventions should focus on enhancing resources and preventing vulnerability to resource loss (Hobfoll & Freedy, 1993). The theory emphasizes that perceptions should be seen as real, rather than as products of personality differences, and thus greater emphasis should be placed on the objective factors (underlying events or circumstances) that shape perceptions. This is also in line with Maslach and her colleagues, who argue that, because the antecedents of burnout are more likely to be situational than personal (e.g., Maslach & Leiter, 1997), there is a particular need for organizational interventions (which focus on changing the work situation; Maslach et al., 2001). Moreover, Hobfoll and Freedy (1993) state that interventions should focus first on the causes of losses or, in the case of burnout, the objective causes of worksite stress that underlie perceptions: Perceptions will eventually be changed as circumstances change. Hobfoll and Freedy (1993) presented five key aspects of interventions aimed at reducing burnout: a) emphasis on the causes of losses, b) focus on the objective and subjective nature of stress, c) focus on building resources and enhancing the availability of resources, d) interruption of the loss chain, and e) activation of gain spirals.

1.3.2 Interpersonal approach

The interpersonal approach to burnout emphasizes that the emotional strain from interactions with demanding or difficult clients or coworkers are the cause of burnout (Schaufeli & Enzmann, 1998). An example of the interpersonal approach is the process model of burnout (Leiter & Maslach, 1988), which was later modified by Leiter (1991, 1993). In this model, burnout is considered a sequential process that starts with emotional exhaustion resulting from a demanding environment, that is, the interpersonal demands expended during human services work (Leiter & Maslach, 1988). When one tries to cope with or

protect oneself from exhaustion, depersonalization develops. Depersonalization is seen as a dysfunctional coping strategy which, together with exhaustion, eventually impairs one's relationship with work associates, resulting in weakening values and goals, and, finally, in a decline in one's sense of accomplishment. This developmental sequence of burnout symptoms (exhaustion, depersonalization, and reduced personal accomplishment) has received some support from longitudinal studies (e.g., Taris, Le Blanc, Schaufeli, & Schreurs, 2005; Toppinen-Tanner, Kalimo, & Mutanen, 2002).

Leiter (1991, 1993) reformulated the sequential process of the three burnout symptoms. He maintained the causal order between emotional exhaustion and depersonalization as described above: exhaustion develops as a result of work (overload or dull routine) and interpersonal demands and this, in turn, contributes to increased depersonalization. However, the presence of resources (e.g., social support, effective coping, autonomy and participative decision making) influences personal accomplishment, which may develop independently from exhaustion and depersonalization. According to this model, demands are related to emotional exhaustion, whereas the lack of resources is related to depersonalization and diminished personal accomplishment.

1.3.3 Organizational approach

The organizational approach stresses the role of the work environment in the development of burnout (Schaufeli & Enzmann, 1998). Schaufeli and Enzmann have placed two approaches to burnout in the organizational category: that burnout is an intrinsic part of organizational life, or that burnout results from a chronic imbalance between person and job. In the first approach, offered by Golembiewski and Munzenrider (1984, 1988), burnout is triggered by job stressors that cause a serious decrease in performance and productivity. Golembiewski and Munzenrider (1988) developed a phase model that was derived from a modified version of the MBI. They dichotomized the distribution of burnout scores at the median as high and low and grouped the various combinations of the three burnout symptoms into eight progressive phases. The eight phases do not represent a developmental process but a way of classifying individuals according to the 'virulence' of their burnout symptoms (Schaufeli & Enzmann, 1998). In phase I a person has no symptoms, in phases II-III a person has some symptoms, starting with depersonalization (II) or low personal accomplishment (III). In phase IV a person has both the above-mentioned symptoms, whereas in phase V emotional exhaustion is experienced. In phase VI both depersonalization and emotional exhaustion are present and in phase VII personal accomplishment and emotional exhaustion are experienced. Finally, in phase VIII, all three burnout symptoms are present.

Van Dierendonck, Schaufeli, and Buunk (2001) compared the models of Leiter and Maslach (1988) and Golembiewski and Munzenrider (1984, 1988) with their own alternative by investigating the causal relations among the three dimensions of burnout. Van Dierendonck et al. (2001) hypothesized that the

burnout process starts with reduced personal accomplishment, followed by depersonalization, which influences exhaustion. The three causal models were examined using data from five longitudinal studies on the basis of which the best fitting model was the one where personal accomplishment synchronously influenced depersonalization which, on its turn, synchronously influenced emotional exhaustion. The authors found that the Leiter and Maslach (1988) model fitted better to the data than the Golembiewski and Munzenrider (1984, 1988) model. However, their own model provided the best fit across the five studies, suggesting that reduced personal accomplishment is the starting point of burnout instead of being its endpoint, as Leiter and Maslach (1988) proposed, or being a mediator between depersonalization and emotional exhaustion, as Golembiewski and Munzenrider (1984, 1988) proposed.

The second organizational approach on burnout is presented by Maslach and Leiter (1997), who expanded their initial views of burnout as an interpersonal problem. According to their more recent approach, burnout develops as a result of the chronic imbalance between the person and the job in the organizational context. Whereas the authors previously saw burnout as a continuum anchored by a not-burned-out pole and a burned-out pole, they now see engagement and burnout as the continuum. Engagement constitutes energy, involvement, and efficacy. Moreover, the authors identified six areas of organizational life in which any mismatches between the worker and the workplace potentially can cause burnout: workload, lack of control, lack of reward, lack of community, lack of fairness, and value conflict (Leiter & Maslach, 2000; Maslach & Leiter, 1997). Explaining burnout in terms of the interaction between the person and the job offers a more complex framework for understanding burnout, as compared to approaches that consider personal and situational factors separately (Leiter & Maslach, 2004; Maslach & Leiter, 1997). A cross-sectional study that examined the relationship between burnout and the six areas of work life with hierarchical regression analysis found that the six areas significantly explained the three burnout dimensions, after controlling for age, gender, and occupational education (Kärnä & Aro, 2002). Together with the background variables, the six areas of work life explained 38% of the variance of exhaustion, 45% of the variance of cynicism, and 26% of the variance of professional efficacy. The most significant contributor to exhaustion was workload, whereas to cynicism it was value conflict, and to professional efficacy the most significant contributors were both control and reward.

To conclude, no single theoretical explanation of burnout can account for the complexity of the burnout phenomenon (Schaufeli & Enzmann, 1998). However, Schaufeli and Enzmann offered an integrative model of burnout based on the common features offered by most models or theories. According to their model, burnout starts when an employee with a strong initial motivation is constantly faced with job conditions that are experienced as unfavorable (job-person mismatch). The burnout process proceeds further when dysfunctional personal coping is adopted, resulting in negative individual and organizational consequences.

1.4 Antecedents and consequences of job burnout

1.4.1 Personal resources as antecedents

Burnout is believed to develop as a result of a complex interplay between the person and the job (Hobfoll & Shirom, 2001; Maslach, 2000; Maslach & Goldberg, 1998; Maslach & Leiter, 1997; Schaufeli & Enzmann, 1998). It is plausible that individual traits predispose employees to burnout within the interaction with organizational factors (Shirom, 2003). Of the Big Five personality factors (McCrae & John, 1992), the trait of neuroticism, in particular, has been associated with burnout (e.g., Langelaan, Bakker, van Doornen, & Schaufeli, 2006; for an overview, see Schaufeli & Enzmann, 1998; Zellars, Perrewé, & Hochwarter, 2000). Moreover, personality factors such as core self-evaluations (low levels of self-esteem, self-efficacy, locus of control, and emotional stability; see Judge & Bono, 2001) have been related to burnout. However, they also have had an influence on burnout together with perceived organizational constraints, suggesting both personal and situational contributions (Best, Stapleton, & Downey, 2005).

Enhancing coping strategies and a sense of coherence (SOC) is an important goal of rehabilitation, since it can be assumed that promoting them would help employees deal with burnout. Coping strategies and SOC can be seen as antecedents of burnout, since their lacking may predispose employees to stress and burnout (Antonovsky, 1987; Schaufeli & Enzmann, 1998). Coping strategies help individuals to face stressful life or job situations, and they play a significant role in an individual's health and well-being (Lazarus & Folkman, 1984; Leiter, 1991; Pomaki & Anagnostopoulou, 2003; Sears, Urizar, & Evans, 2000). Coping - particularly unsuccessful coping in times of distress - occupies a key role in several models or theories that explain the development of burnout as caused by a person-job mismatch (Schaufeli & Enzmann, 1998). Emotion-oriented coping (Sears et al., 2000) and avoidance-oriented or escape coping have previously been associated with a high level of burnout (Chan & Hui, 1995; Leiter, 1991), whereas task-oriented or control coping has been related to decreased exhaustion (Leiter, 1991) or increased personal accomplishment (Greenglass & Burke, 2000; Lee & Ashforth, 1996; Leiter, 1991; Rasku & Kinnunen, 2003).

SOC is a generalized orientation toward the environment and expresses the extent to which an individual perceives the world as comprehensible, manageable, and meaningful (Antonovsky, 1987). It could be considered a stress resistance resource, since its relationship with well-being and health has been widely acknowledged: It could be considered a stress resistance resource, and its relationship with well-being and health has been widely acknowledged (e.g., Feldt, 2000; Kalimo, Pahkin, & Mutanen, 2002; Kivimäki, Feldt, Vahtera, & Nurmi, 2000). Furthermore, high SOC has been shown to protect workers from strain, and thus helps maintain well-being (Kalimo et al., 2002). Workers with

low SOC have experienced more emotional exhaustion (Feldt, 1997; Feldt, Kinnunen, & Mauno, 2000; Gilbar, 1998) and burnout (Söderfeldt, Söderfeldt, Ohlson, Theorell, & Jones, 2000).

Coping strategies (Steward & Schwarzer, 1996) and SOC (Feldt et al., 2000; Feldt, Leskinen, Kinnunen, & Ruoppila, 2003) have been found to be only moderately stable over time. Moreover, a 35-year follow-up study found that the stability of SOC after the age of 30 depended strongly on its level: SOC was more stable among those with high SOC, as compared to those with low SOC (Hakanen, Feldt, & Leskinen, 2007). Unlike personality traits, which are seen as quite stable over time (e.g., McAdams, 1995; McCrae & Costa, 1990), coping strategies and SOC are topics relevant to rehabilitation because they both could be considered as amenable to change.

1.4.2 Job-related antecedents

The possible antecedents of burnout are, however, more likely to be situational and organizational than personal (Hakanen, 2004; Maslach, 2003; Maslach & Goldberg, 1998; Schaufeli & Enzmann, 1998; Shirom, 2003). Of the numerous models that have attempted to provide an insight into psychosocial work characteristics and well-being, two well-known models are considered here since they offer suitable frameworks in this study's context. According to the job demand-control model (JDC; Karasek, 1979; Karasek & Theorell, 1990), the combination of high job demands and low job control is expected to result in psychological stress reactions, such as burnout. Support for this strain hypothesis has been found both in cross-sectional studies (for a review, see van der Doef & Maes, 1999) and longitudinal studies (for a review, see De Lange, Taris, Kompier, Houtman, & Bongers, 2003).

According to the job demands-resources model (JD-R; Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004), the two main categories of job conditions that are particularly important antecedents of burnout are job demands and resources. Contrary to the JDC model (Karasek, 1979; Karasek & Theorell, 1990), the JD-R model incorporates the whole range of occupations and is not limited to specific job demands and resources. According to this model, burnout is likely to occur when (certain) job demands are high and (certain) job resources are limited, an assumption that has received support in previous studies (see, Bakker & Demerouti, 2007, for a review of the model).

High job demands have been related primarily to emotional exhaustion (Demerouti et al., 2001; Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998), whereas the lack of resources has been related to cynicism or reduced professional efficacy (e.g., Demerouti et al., 2001; Hakanen, Bakker, & Schaufeli, 2006; Lee & Ashforth, 1996; Llorens, Bakker, Salanova, & Schaufeli, 2006). In cross-sectional studies, job demands, in terms of workload and time pressures at work, are the two most significant contributors to burnout, since together they have explained 25–50% of the variance of emotional exhaustion (Schaufeli & Enzmann, 1998). In the intervention study by Büssing and Glaser (1999),

which examined the effects of an organizational redesign within a hospital setting, a significant decrease was found in time pressures experienced by the employees in the experimental hospital over a 3-year period. The present study took time pressures at work as a measure of rehabilitees' job demands, firstly, because it represents one of the most common demands burnout employees encounter and, secondly, because the study sample comprised employees from different occupations and socioeconomic backgrounds, it was impossible to take into account the demands typical for each occupation represented.

Resources are necessary not only to deal with job demands, but also because they are important in their own right: Resources stimulate personal growth, learning, and development (Hobfoll, 2002). Of the various job resources, job control has been found to play a significant role in organizational settings because it provides direct consequences for other areas of working life as well. People with high job control are more likely to influence other aspects of their working life (Leiter, 2005; Warr, 2007). Also, a level of job control has been found to benefit employees' health and well-being (Karasek & Theorell, 1990; Sauter, Hurrell, & Cooper, 1989). In intervention studies, job control has been amenable to change (Bond & Bunce, 2001; Elo, Lehtomäki, Nuutinen, & Hulkkonen, 2000) and it has been found to serve as a mechanism by which improvements in participants' well-being and job performance have occurred (Bond & Bunce, 2001). Consequently, job control was included in the job resources of the present study.

Resources related to social processes at work are also important subjects of burnout research. Workplace climate and satisfaction with one's supervisor reflect the feelings of community and the quality of interpersonal relationships experienced at work (cf., Maslach & Leiter, 1997). Positive attitudes toward the workplace climate have been related to personal accomplishment in a meta-analysis (Lee & Ashforth, 1996), whereas satisfaction with one's supervisor has been negatively related to both emotional exhaustion and depersonalization (Kalliath, O'Driscoll, Gillespie, & Bluedorn, 2000). Positive relationships with one's supervisor may aid an employee in coping with job demands and protect him/her from ill-health (Väänänen et al., 2003). A 10-year follow up conducted in an international industrial forestry enterprise showed that poor cooperation and support from a superior predicted burnout 10 years later (Kalimo, Pahkin, Mutanen, & Toppinen-Tanner, 2003).

Although interpersonal relationships are not directly addressed in individual-level rehabilitation, this study explored the two above-mentioned indicators of interpersonal relationships. Workplace climate and supervisor satisfaction are relevant subjects for this study since potential improvements in them indicate that rehabilitation provided carry-over effects in the rehabilitees' workplaces as well. Moreover, since some rehabilitation programs include work community activities in addition to individual-level activities, these interventions could be expected to influence workplace climate and supervisor satisfaction. In a previous study, a workplace climate improved as a result of a participative intervention over a 2-year period (Mattila, Elo, Kuosma, & Kylä-Setälä, 2006).

1.4.3 Consequences of job burnout

The emphasis in burnout research has been on its antecedents, whereas the possible consequences of burnout have been less frequently studied. Nevertheless, burnout may have damaging effects on the individual level in terms of mental and physical health problems (Ahola, 2007; Shirom et al., 2005), as well as health behavior (for overviews, see Cordes & Dougherty, 1993; Schaufeli & Enzmann, 1998). Among mental disorders, burnout has been related to, for instance, depressive and anxiety disorders (Ahola, 2007; Shirom et al., 2005), and among physical illnesses to musculoskeletal problems, cardiovascular and respiratory diseases (Ahola, 2007), and somatic complaints (Shirom et al., 2005). Additionally, burnout is likely to have interpersonal, work orientation, attitudinal, and organizational-level consequences (e.g., Cordes & Dougherty, 1993; Schaufeli & Enzmann, 1998).

Of the possible consequences of burnout, depression and job satisfaction have been the most commonly studied (Schaufeli & Enzmann, 1998). The relationship between depression and burnout was discussed previously in Subsection 1.2.1. The conclusion of this discussion was that depression is considered more likely to be a consequence than an antecedent of burnout (for overviews, see Ahola, 2007; Schaufeli & Enzmann, 1998).

Job satisfaction represents how people feel about their work in general and the particular aspects of their jobs (Spector, 1997), and it has been approached as either a single-item global measure or as measures of various aspects of the job (Schaufeli & Enzmann, 1998; Spector, 1997). The relationship between job satisfaction and burnout has been demonstrated in three meta-analyses (Faragher, Cass, & Cooper, 2005; Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998). Job satisfaction has been related, in particular, to the dimension of depersonalization (Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998). However, the causal relation between job satisfaction and burnout remains unresolved. First, it is possible that burnout causes a decline in job satisfaction, meaning that job dissatisfaction is an affective outcome of burnout (Maslach, 1993). Second, the reverse causal explanation is that job dissatisfaction causes burnout. Third, it is also possible that both concepts may be caused by a third variable, such as poor job conditions. Nevertheless, there is some evidence to show that poor job satisfaction is a consequence of burnout (Burke & Greenglass, 1995; Wolpin, Burke, & Greenglass, 1991). Job satisfaction has increased as a result of interventions of the participatory type (e.g., Cooley & Yovanoff, 1996; Mikkelsen & Gundersen, 2003).

Given that depression is the most common reason among mental disorders for disability pension awards (Ahola et al., 2007) and that self-perceived ill-health and low satisfaction have both been shown to be independent predictors of early retirement (Mein et al., 2000), it was considered important to study whether rehabilitation, the ultimate goal of which is to prevent disability and prolong working life, can in fact influence these outcome variables.

1.5 Intervention studies on job burnout

1.5.1 Three levels of interventions

The purpose of this subsection is to present a general overview of the interventions that have been applied to burnout and to review the recent intervention studies on the topic. Interventions applied to burnout can be differentiated according to their level and purpose (Schaufeli & Enzmann, 1998). Burnout interventions can be categorized into three levels: individual, individual-organizational, and organizational, although usually only the individual and organizational levels are distinguished (Briner & Reynolds, 1999). Additionally, interventions may serve different purposes: identification, primary prevention, secondary prevention, tertiary prevention or treatment, and rehabilitation (Schaufeli & Enzmann, 1998). The distinction between prevention and intervention is not clear-cut, and in many cases the same strategies have been used to forestall or ameliorate the symptoms of burnout (Maslach & Goldberg, 1998). In this study, the concept intervention is used for the sake of clarity, and only the different levels, not purposes, of burnout interventions are distinguished.

Individual-level approaches to burnout interventions have been most prominent in both research and in practice (Maslach et al., 2001). The purpose of these approaches is basically to support individuals in their coping better with their stress and arousal by helping them to modify their appraisals of stressful situations and/or to deal more effectively with the symptoms of stress (Murphy, 1996; Schaufeli & Enzmann, 1998). Cognitive-behavioral techniques, such as rational-emotive-behavioral training (e.g., Malkinson, Kushnir, & Weisberg, 1997), are typical individual-level interventions. Cognitive-behavioral techniques assume that thoughts (cognitions), feelings (emotions) and actions (behaviors) are causally interrelated (Schaufeli & Enzmann, 1998). A change in or reappraisal of individuals' irrational or stress-inducing thoughts may reduce negative feelings and, eventually, undesirable behavior. Meta-analyses on stress management interventions have shown that cognitive-behavioral techniques are more effective than the other types of intervention in reducing work-related psychological complaints (Richardson & Rothstein, 2008; van der Klink, Blonk, Schene, & van Dijk, 2001). With respect to burnout, reviews have shown that these techniques have consistently reduced emotional exhaustion (e.g., Hättinen & Kinnunen, 2002, 2005; Schaufeli & Enzmann, 1998). A recent study that examined participation in occupational and individually focused interventions among Finnish burnout employees found that individuals with burnout were less often targets of organizational interventions and participated more frequently in individual-focused interventions than employees with no burnout (Ahola et al., 2007).

Interventions targeted at the individual-organizational level focus on increasing employees' resistance to specific job stressors by concentrating on the

interaction between the employee and the organization (Schaufeli & Enzmann, 1998). The purpose of these interventions is not only to increase awareness and improve individual coping skills via the fostering of time management and interpersonal skills (e.g., Higgins, 1986), but also to provide support at work through interventions such as peer support groups (e.g., Cooley & Yovanoff, 1996). Treating complaints, for example, with psychotherapy (e.g., Salmela-Aro, Näätänen, & Nurmi, 2004) and employee rehabilitation (e.g., Kinnunen et al., 2004) are in the individual-organizational category. However, because rehabilitation programs targeted at working-aged individuals normally include cognitive elements, they can be categorized on the individual level as well.

Organizational-level interventions seek to change the work situation by removing or reducing job stressors through job content and work environment improvements (e.g., Bunce & West, 1996), or by improving the fit between the employee and the organization through, for instance, organizational development (e.g., Landsbergis & Vivona-Vaughan, 1995). Also, various stress audits, psychosocial check-ups, health and safety services, and employee assistance programs belong to this category (Schaufeli & Enzmann, 1998).

1.5.2 The recent intervention studies on burnout

The purpose of this subsection is to evaluate recent studies of the burnout interventions in order to use their results comparatively with the results of this study. Schaufeli and Enzmann (1998) reviewed more than 30 studies of burnout interventions and concluded that only a few well-designed studies exist. Further, they noted that most of the interventions were individually focused and general in nature, rather than specifically tailored to reduce burnout. Overall, the burnout literature still lacks significant reviews and meta-analyses based on burnout interventions. A few meta-analyses are, however, available on stress management interventions (Richardson & Rothstein, 2008; van der Klink et al., 2001), including various stress-related outcomes (such as anxiety, stress, burnout symptoms). One recent research evaluated the effectiveness of stress interventions among healthcare workers (Marine, Ruotsalainen, Serra, & Verbeek, 2008). In addition to stress, anxiety, and general health symptoms, the study analyzed separately the intervention effects on burnout symptoms as well. The researchers grouped the interventions as person-directed (cognitive-behavioral, relaxation, music-making, therapeutic massage, and multicomponent) and work-directed (attitude change and communication, support from colleagues, participatory problem solving, and decision-making, and changes in working organization). The meta-analysis of three burnout interventions revealed that there is limited evidence that person-directed interventions can reduce emotional exhaustion and lack of personal accomplishment. There is also limited evidence that work-directed interventions can reduce, in particular, the depersonalization component of burnout.

This present study summarizes only those intervention studies that have used burnout as an outcome variable and have been published during this

millennium. None of these studies were included in above-mentioned reviews and meta-analyses. All nine studies presented in this research (shown in Table 1) meet the four inclusion criteria: They a) evaluate an intervention, b) focus on burnout (or at least one symptom of burnout) measured by the MBI as an outcome, c) are reported in English, and d) are targeted at employees or the self-employed (instead of, for example, patients, care-givers, spouses, etc.). The nine studies were divided according to their focus as follows: three were targeted at the organizational level (Elo, Ervasti, Kuosma, & Mattila, 2008; Halbesleben, Osburn, & Mumford, 2006; Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007), two at the individual-organizational level (Gorter, Eijkman, & Hoogstaten, 2001; Te Brake, Gorter, Hoogstraten, & Eijkman, 2001), three targeted the individual level (Mackenzie, Poulin, & Seidman-Carlson, 2006; van Dierendonck, Garssen, & Visser, 2005; Van Rhenen, Blonk, van der Klink, van Dijk, & Schaufeli, 2005), and one compared individual and individual-organizational level interventions (Blonk, Brenninkmeijer, Lagerveld, & Houtman, 2006). The studies are summarized (e.g., study design, descriptions of interventions, measurements, and main results) in alphabetical order in Table 1. The studies' research designs also have been rated by the present author using the criteria offered by Murphy (1996; see note in Table 1).

Organisational-level interventions. The three organizational-level interventions (Elo et al., 2008; Halbesleben et al., 2006; Le Blanc et al., 2007) produced mixed results regarding changes in burnout symptoms: Only one of them decreased burnout (Halbesleben et al., 2006). However, it is important to acknowledge that the studies by Le Blanc et al. (2007) and Elo et al. (2008) included participants whose level of burnout was already low at the baseline, suggesting that the interventions were clearly preventive in nature. The levels of burnout symptoms were higher in the study by Halbesleben et al. (2006). All three interventions applied participatory approaches, although one study also included several other interventions as well (Elo et al., 2008).

The quality of the target groups differed between these three studies. The study by Halbesleben et al. (2006) focused on a smaller group of employees who can be considered rather homogeneous, since all were firefighters from the same department and it can be assumed that the majority of them were men (the gender distribution was not stated). The other two intervention studies (Elo et al., 2008; Le Blanc et al., 2007) included larger groups of employees whose occupations differed and who came from different departments of the company.

The study by Halbesleben et al. (2006) focused explicitly on burnout, including a thorough identification of specific job stressors associated with employees' burnout via observations, interviews, and surveys, whereas the intervention study conducted by Le Blanc et al. (2007) focused on burnout as a part of a larger research project. The field experiment by Elo et al. (2008) also had a more general goal. The study by Halbesleben et al. (2006) applied action research (researchers were involved with the research process), whereas the interventions in the two other studies were carried out by persons other than the researchers. The duration of the interventions varied from 6 months (Le

Blanc et al., 2007) to 2 years (Elo et al., 2008). The statistical procedures varied also: The interventions that did not reduce burnout used more rigorous statistical analyses of the data (repeated measures ANCOVA and multilevel regression analysis with covariates), whereas the study by Halbesleben et al. (2006) applied *t*-tests to detect the change in burnout.

TABLE 1 Burnout Intervention Studies Conducted since 2000

<i>Study</i>	<i>Participants, design of the study, and intervention program</i>	<i>Experimental and control groups, measurements, and statistical analysis</i>	<i>Main results</i>
Blonk, Brenninkmeijer, Lagerveld, & Houtman, 2006****	<u>Participants:</u> Dutch self-employed; 81% male; only those with a stress-related or adjustment disorder were included (those with psychiatric disorders were excluded). <u>Design:</u> A randomized design with no-treatment control group. <u>Intervention:</u> a) cognitive-behavioral therapy (CBT); 11 twice-weekly 45-minute sessions; first 6 sessions focused on cognitive restructuring and registration of symptoms and situations; 5 sessions focused on a further expansion of cognitive restructuring; b) combined intervention (CI), of 5-6 hour-long sessions twice a week; included a brief CBT-derived intervention that combined an individual CBT-based intervention and a workplace intervention focusing on stressor reduction at work; focused strongly on graded activity. <u>Focus and duration of intervention:</u> Individual (CBT) and individual-organizational (CI); duration N/A.	<u>Groups:</u> CBT intervention (T1 <i>n</i> = 40; T3 <i>n</i> = 30); CI intervention (T1 <i>n</i> = 40; T3 <i>n</i> = 28); no-treatment control group (T1 <i>n</i> = 42; T3 <i>n</i> = 28). <u>Measurements:</u> T1, preintervention; T2, 4 months after intervention commencement; T3, 10 months following commencement. <u>Statistical analysis:</u> Dropout analysis (no differences in any of the variables between those who stayed and those who dropped out); repeated measures in MANOVA.	Burnout decreased generally within 10 months among all participants in all three groups: Emotional exhaustion declined from T1 to T2, T1 to T3, and T2 to T3; depersonalization declined from T1 to T2 and T1 to T3 for all participants.

TABLE 1
(continued)

Elo, Ervasti, Kuosma, & Mattila, 2008***	<p><u>Participants:</u> Finnish municipal employees (non-supervisors); 81% male and 87% blue-collar workers. <u>Design:</u> Field experiment, no control group, one intervention group. <u>Intervention:</u> Organizational stress management program with multiple interventions, including a survey feedback process, training sessions for supervisors, participative work conferences, leadership training with a psychodynamic orientation, lectures, guided discussions, and recreational excursions. <u>Focus and duration of intervention:</u> Organizational; 2 years.</p>	<p><u>Group:</u> $n = 625$ (those who responded at T1 and T2), which was further divided into three groups based on the employees' level of participation. <u>Measurements:</u> T1, pre-intervention; T2, 2-year follow-up. <u>Statistical analysis:</u> Repeated measures ANCOVA with age, gender, and socioeconomic status as covariates.</p>	<p>Exhaustion was not related to the level of participation in an organizational stress management intervention and it did not decrease during follow-up. (Only exhaustion was measured).</p>
Gorter, Eijkman, & Hoogstraten, 2001****	<p><u>Participants:</u> Dutch general dental practitioners; 79% male. <u>Design:</u> Quasi-experimental study, non-equivalent control group. <u>Intervention:</u> Career counseling program with 3 x 24-hour group sessions; one session/month; each participant also had individual counseling. <u>Focus and duration of intervention:</u> Individual-organizational; 6 months.</p>	<p><u>Groups:</u> Program participants T1 $n = 19$; T2 $n = 16$; no participants group T1 $n = 72$; T2 $n = 66$, which was divided into self-initiating group ($n = 35$), where participants had taken the initiative for preventive steps themselves) and no initiative group ($n = 30$), where participants had not done so. <u>Measurements:</u> T1, pre-intervention; T2, posttest 1 month after the last group session. <u>Statistical analysis:</u> Student's t test (paired comparison).</p>	<p>Among program participants and self-initiating group, emotional exhaustion decreased during the follow up.</p>

TABLE 1
(continued)

Halbesleben, Osburn, & Mumford, 2006***	<p><u>Participants:</u> American firefighters; gender N/A. <u>Design:</u> Field experiment, no control group, one intervention group. <u>Intervention:</u> Collaborative action research that included various interventions addressing the underlying causes of burnout identified by researchers. <u>Focus and duration of intervention:</u> Organizational; duration N/A (1 year?)</p>	<p><u>Group:</u> Intervention group T1 $n = 83$; T2 $n = 65$. <u>Measurements:</u> T1, preintervention; T2, 1 year after the intervention conclusion. <u>Statistical analysis:</u> Overall changes were tested with Hotelling's T^2 (with a Bonferroni correction) pairwise time comparisons of T1 and T2.</p>	<p>Exhaustion and cynicism decreased during 1 year (Only exhaustion and cynicism were measured).</p>
Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007****	<p><u>Participants:</u> Dutch oncology care providers (physicians, nurses, and radiotherapy assistants); gender N/A. <u>Design:</u> Quasi-experimental design. <u>Intervention:</u> Team-based participatory approach, including 6 x 3- hour sessions/ month. <u>Focus and duration of intervention:</u> Organizational; 6 months.</p>	<p><u>Groups:</u> 9 wards in the intervention group, T1 $n = 260$; T3 $n = 208$; 20 wards in the control group, T1 $n = 404$; T3 $n = 96$. <u>Measurements:</u> T1, preintervention; T2, 6 months later, immediately after intervention; T3, 6 months after T2. <u>Statistical analysis:</u> Dropout analysis (54 were missing at T2 but returned at T3; attrition was not related to the variables central to the study), multilevel regression analysis: a three-level regression model with measurement occasions nested within individuals, who were nested within wards.</p>	<p>Program had stabilizing effect on burnout: Intervention group felt less exhaustion than did the control group immediately at the program's conclusion and 6 months later. Control group's exhaustion increased during follow-up.</p>

TABLE 1
(continued)

Mackenzie, Poulin, & Seidman-Carlson, (2006)*****	<p><u>Participants:</u> American nurses and nurse aides from a large urban geriatric teaching hospital; 97% female (1 male). <u>Design:</u> A randomized design with a wait-list control group. <u>Intervention:</u> A brief mindfulness-based stress reduction (MBSR) intervention: 4 x 30 min. group sessions (1 session/week) that included didactic section, experimental exercises, and homework (guided mindfulness exercises to be practiced at least 10 min/day, 5 days a week). <u>Focus and duration of intervention:</u> individual; 1 month.</p>	<p><u>Groups:</u> Intervention, $n = 16$ (at both measurements); wait-list controls, $n = 14$ (at both measurements). <u>Measurements:</u> T1, preintervention; T2, immediately following the 4-week intervention. <u>Statistical analysis:</u> Repeated measures ANOVA.</p>	<p>Emotional exhaustion decreased among intervention participants though their emotional exhaustion was higher at T1, as compared to the control group. Depersonalization did not change among intervention group, but control participants' depersonalization increased. A main group effect for personal accomplishment showed better personal accomplishment for intervention group.</p>
Te Brake, Gorter, Hoogstraten, & Eijkman, 2001****	<p><u>Participants:</u> Dutch dentists; 87% male. <u>Design:</u> Quasi-experimental study, non-equivalent control group. <u>Intervention:</u> Career counseling program with 3 x 24-hour group sessions and individual counseling sessions. <u>Focus and duration of intervention:</u> Individual-organizational; 6 months.</p>	<p><u>Groups:</u> Intervention group, T1 $n = 19$; T3 $n = 14$; self-initiating group, T1 $n = 37$; T3 $n = 28$; and control group, T1 $n = 36$; T3 $n = 28$. <u>Measurements:</u> T1, preintervention; T2, 1 month after the last group session; T3, 1 year following the end of intervention program. <u>Statistical analysis:</u> Paired t-tests; (differences between research groups on socio-demographic and professional variables were examined (gender, organization of practice [solo/other], number of patients, ownership of practice [total, partial, no ownership]).</p>	<p>Intervention participants' emotional exhaustion decreased and personal accomplishment increased from T1 to T2.</p>

TABLE 1
(continued)

van Dierendonck, Garssen, & Visser, 2005****	<p><u>Participants:</u> Employees of 3 major industrial (mostly engineering) companies in the Netherlands; 84% male.</p> <p><u>Design:</u> A quasi-experimental study with a comparison group.</p> <p><u>Intervention:</u> Based on insights from psychosynthesis, a) personal psychosynthesis exploring the structure of one's own psyche and becoming familiar with the contents of one's personal unconscious; and b) spiritual psychosynthesis integrating the personality around a deeper center, the spiritual self, of which the integrated personality becomes an instrument; 10 days spread over 3 months; four groups (8-11 persons/group). <u>Focus and duration of intervention:</u> Individual; 3 months.</p>	<p><u>Groups:</u> Intervention group, T1 $n = 38$; T3 $n = 34$; comparison group (colleagues from the same companies), $n = 46$ (at both measurements).</p> <p><u>Measurements:</u> T1, preintervention; T2, directly after the program; T3, 6 months after T2. <u>Statistical analysis:</u> Repeated measures MANOVA (groups did not differ on age, work experience, and gender).</p>	<p>Intervention participants' exhaustion decreased and professional efficacy increased from T1 to T2 and from T1 to T3 (Group X Time). No changes in cynicism.</p>
Van Rhenen, Blonk, van der Klink, van Dijk, & Schaufeli, 2005****	<p><u>Participants:</u> Employees working in a telecommunications company in the Netherlands; 90 % male. <u>Design:</u> A randomized clinical trial (no control or comparison group); only those with high rate of distress. <u>Interventions:</u> Physical intervention with relaxation or cognitive intervention aiming at restructuring irrational beliefs; 4 hourly training sessions during working hours, over a period of 8 weeks. <u>Focus and duration of interventions:</u> Individual; 2 months.</p>	<p><u>Groups:</u> Physical intervention (with relaxation) group, T1 $n = 71$; T3 $n = 39$; cognitive intervention group, T1 $n = 59$; T3 $n = 36$. <u>Measurements:</u> T1, preintervention; T2, 2 months after completion of training period; T3, 6 months after T2. <u>Statistical analysis:</u> Dropout analysis showed no selection effect demonstrated for the completers; repeated measures MANOVA.</p>	<p>Exhaustion and reduced professional efficacy decreased in both groups from T1 to T2, and reduced professional efficacy decreased from T1 to T3.</p>

Note. The asterisks after the authors' names indicate the research design rating (Murphy, 1996):

- ***** evidence obtained from properly conducted study with a randomized control group
 **** evidence obtained from properly conducted study with control group but without randomization
 *** evidence obtained without a control group or randomization but with evaluation

In sum, one (Halbesleben et al., 2006) out of the three organizational-level interventions reduced burnout. Notably, previous studies investigating the effects of organizational-level interventions on work-related stress have been found weak or nonsignificant outcomes (e.g., Briner & Reynolds, 1999; van der Klink et al., 2001). The strength of the intervention study by Halbesleben et al. (2006) was that the researcher conducted a thorough diagnosis of the stressors responsible for burnout symptoms, and that the actions taken were targeted at the identified causes of burnout.

Organizational interventions that focus on the key elements causing employees' stress have been found to be successful, as was shown in the comparison of 11 European work stress prevention studies (Kompier, Cooper, & Geurts, 2000). The fact that the participants from the target organizations included in the three organizational interventions varied in terms of demographics might have led to differential effects of on burnout. Given that a heterogeneous sample comprises individuals with different demographic and occupational characteristics, it can lead to a situation where individuals have varying needs with respect to an intervention but, because they receive the same treatment, some may benefit from intervention whereas others will not. This, in turn, results to non-significant outcomes.

Individual-organizational level interventions. Two individual-organizational-level studies seemed to utilize the same baseline data (Gorter et al., 2001; Te Brake et al., 2001), with the exception that the latter had a longer follow-up. The results showed that emotional exhaustion decreased and personal accomplishment increased among those in both the intervention and self-initiating groups (individuals who indicated that they had taken preventive steps on their own initiative) during the first month after the intervention (Gorter et al., 2001), but that this effect had disappeared among the intervention participants 1 year after the counseling program (Te Brake et al., 2001). Among the self-initiating participants, the effects on emotional exhaustion and personal accomplishment were maintained during the postintervention, while cynicism also decreased. Overall, the career counseling program seemed to have beneficial effects in the short-term but these effects diminished over time. However, those who sought help for themselves benefited in the long run.

One explanation for the shorter effect of the intervention compared to the self-initiating actions could be that the self-initiating group had an intrinsic motivation for change compared to the intervention group participants, who went through a pre-fixed program that they could not influence (Te Brake et al., 2001).

Individual-level interventions. Three individual-level interventions (Mackenzie et al., 2006; van Dierendonck et al., 2005; Van Rhenen et al., 2005) and one that compared individual to individual-organizational level intervention (Blonk et al., 2006) were included in this category. All four studies that focused on the individual or individual-organizational levels showed reduction in the (emotional) exhaustion component of burnout, although in the study by Mackenzie et al., (2006), the level of exhaustion was already higher at the baseline among the intervention participants as compared to the wait-list

controls. In addition to the reduced exhaustion in all four interventions, one intervention reduced depersonalization (Blonk et al., 2006) and two increased professional efficacy or decreased reduced professional efficacy (van Dierendonck et al., 2005; Van Rhenen et al., 2005). The studies that compared two different intervention approaches to burnout (Blonk et al., 2006; Gorter et al., 2001; Te Brake et al., 2001; Van Rhenen et al., 2005) did not find differences between them in their effects.

This nondifferential effect of these interventions on burnout may be due to the low number of treatment sessions, which varied from 3 (24 hours each) to 11 (45 minutes each). Besides the low number and limited duration of the sessions, the content of the interventions, as combined interventions, could explain the absence of differential effects on burnout. In their meta-analysis, Richardson and Rothstein (2008) found that the more components added to a cognitive-behavioral intervention, the less effective it became. This could explain the result of the study by Blonk et al. (2006), which did not find differential effects between cognitive behavioral therapy (CBT) and a brief CBT-derived intervention combined with a workplace intervention. From the perspective of burnout, the latter alternative would have been expected to be more effective (although the authors did not construct any hypothesis on this), but it is possible that the combination of both CBT and workplace elements reduced the effectiveness of this particular intervention. Richardson and Rothstein (2008) did not offer an explanation as to why the combination of cognitive-behavioral interventions with other interventions yield smaller effects compared to the effects of single-mode cognitive-behavioral interventions.

Additionally, the same meta-analysis (Richardson & Rothstein, 2008) suggests that simpler interventions (such as relaxation and medication) do not suffer from being bundled with other interventions; thus they can be used as a part of a larger set of treatment components. This was supported by another meta-analysis showing that physical exercise combined with relaxation produced larger effects on distress than relaxation alone (van der Klink et al., 2001). As in the study by Van Rhenen et al. (2005), the results of the above-mentioned meta-analyses could explain why physical exercise combined with relaxation was as good a treatment for burnout as a cognition-focused program, although the latter has normally shown larger effect sizes (Richardson & Rothstein, 2008; van der Klink et al., 2001).

The effectiveness of intervention studies in relation to the research design. The two studies that received the highest research rating (see Murphy, 1996), that is, utilized randomized control trials (Blonk et al., 2006; Mackenzie et al., 2006), showed modest effectiveness on burnout symptoms. In the study of Blonk et al. (2006), no interaction effect on burnout was found, since both two intervention groups and a control group decreased burnout symptoms. Mackenzie et al. (2006) found that exhaustion decreased as a result of intervention, although the program participants had already higher levels of exhaustion at the baseline, as compared to control participants. Both studies were categorized in the individual-level approaches.

Most of the studies (5 out of 9) obtained their research evidence by using a quasi-experimental research design. Two studies seemed to utilize in part the same data. In general, the effectiveness of the interventions used in these studies reduced burnout compared to control groups, with one exception. The only organizational study (Le Blanc et al., 2007) did not decrease burnout due to the fact that the level of burnout was already low among the participants. The other four studies were individually based quasi-experiments. Three studies in this category included two interventions but did not find differential effects between them. One study did not have a control or comparison group. In sum, the quasi-experimental studies resulted in a reduction in burnout symptoms compared to their no-treatment groups, but the researchers could not show that one treatment would be better than another.

Two studies (Elo et al., 2008; Halbesleben et al., 2006) that obtained their research evidence by evaluating one intervention group showed mixed outcomes: One intervention decreased burnout, while the other did not. Although the research designs of the two studies were similar, it is difficult to compare these two organizational-level studies directly to draw conclusions on why one seemed to reduce burnout while other did not. This is due to difference between focuses of the studies, the heterogeneity of the target groups, the statistical analyses, and the baseline levels of burnout.

1.5.3 Summary of the effectiveness of the recent burnout interventions

In general, it appears that various interventions have the potential to reduce burnout. However, more rigorous research designs (randomized control trials) did not demonstrate as beneficial effects on burnout as the results from most of the other kinds of research designs. Organizational approaches show perhaps more limited and mixed effects on burnout (one of three studies found reduced burnout), probably due to a more complex research design. Organizational interventions are still scarce. Richardson and Rothstein (2008) discussed the possibility that the small number of organizational-level interventions in their meta-analysis could have affected the stability of the results for this subgroup, and, therefore, more studies on the organizational level that also assess organizational-level outcomes are needed. Thus, it is premature to draw the conclusion that organizational interventions are not effective. Comparative studies of different interventions that produce similar outcomes are also needed (Richardson & Rothstein, 2008).

The studies that involved two interventions in one research did not detect differences between the groups in their effects. This could be explained by the limited number and duration sessions, but also by the possibility that cognitive-behavioral interventions in particular seem to lose their effectiveness when combined with other interventions, whereas simpler interventions seem to produce larger effects (see Richardson & Rothstein, 2008). Moreover, the equivalence paradox (Stiles, Shapiro, & Elliot, 1986) may also be responsible for two separate interventions producing the same outcome (Bunce, 1997; Bunce & West, 1996). The equivalence paradox refers to a situation where two different

interventions share elements that, despite the different technical contents of the interventions, are associated with similar changes in outcome variables. These elements or nonspecific factors may be related, for instance, to the process of participation (such as interpersonal warmth or psychological safety). Compared to organizational level interventions, various individual- and individual-organizational-level interventions managed to reduce burnout, especially in terms of lowered exhaustion that was accompanied by a decrease in either cynicism or reduced professional efficacy. It is, however, difficult to compare these two levels, since the circumstances under which the studies in which these approaches are conducted (such as inclusion of the participants) are different. Also, as discussed above, the organizational approach already included three incomparable studies due to different research designs, the heterogeneity of the target groups, statistical analyses used, and the variation in baseline levels of burnout.

1.6 Aims of the study

The primary aim of the present study was to examine the manifestations of burnout and changes in its symptoms among working-aged employees 4 months after the first rehabilitation period, 12 months after the onset of the rehabilitation, and in a 6-month follow-up. Furthermore, the study compared two rehabilitation interventions: an individual rehabilitation (care as usual) and rehabilitation with a workplace connection. Additionally, the study sought to investigate possible changes in the perceptions of antecedents and consequences of burnout during employee rehabilitation.

The study utilized variable-oriented and person-oriented approaches. Where the variable-oriented approach focuses on statistical relations between variables across individuals (Magnusson, 1998), the person-oriented approach aims at identifying different groups of individuals who share similar patterns of relations among variables (Bergman & Trost, 2006; Laursen & Hoff, 2006). The person-oriented approach to the burnout phenomenon provides an opportunity to discover the distinctive configurations of the three symptoms that characterize the phase of burnout that each individual is experiencing at entry to rehabilitation (cf., Magnusson, 1998). Furthermore, it makes it possible to follow possible heterogeneous changes in burnout symptoms during the rehabilitation process. In addition, because burnout is not considered a mental disorder and thus no diagnostic guidelines are offered for its identification (ICD-10; World Health Organization, 1992), the detection of burnout may be difficult and lead to variations in diagnostic practices. This would be further manifested in the heterogeneity of burnout at the baseline. Thus, the rationale for using the person-oriented approach is to study whether the referral for rehabilitation targeted at employees who have become exhausted by their jobs has been appropriate. Additionally, identifying homogeneous groups of

individuals with same levels of and change in burnout symptoms across time, and studying the antecedents and consequences of burnout in these groups, could be valuable in planning more effective treatment.

The specific aims of the study were to investigate

- (1) Different manifestations of burnout symptoms at the baseline and the short-term (4 months) changes regarding psychological health (burnout symptoms and depression), personal resources (SOC and coping strategies), and job conditions (time pressures at work, job control, workplace climate, supervisor satisfaction) according to burnout patterns (Study I);
- (2) The effectiveness of two burnout interventions on burnout and job conditions during the short- (4 months) and long-term (12 months) intervals (Study II);
- (3) The mechanisms (mediator effects) through which burnout might decrease in the long-term (12 months; Study II),
- (4) The altered developmental pathways of burnout symptoms (burnout trajectories) during the rehabilitation interventions (12 months) and at follow-up 6 months later, as well as the relations of the trajectories with the antecedents (time pressures at work, job control, and workplace climate) and consequences (depression and job satisfaction) of burnout (Study III).

2 METHOD

2.1 Participants and procedure

The study comprised rehabilitation clients ($N = 175$) from one rehabilitation center situated in central Finland. The data used in this dissertation were drawn from a longitudinal research project, *Job Burnout: Evaluation, Development and Effectiveness of Intervention*, which was conducted among working-aged employees between 2000 and 2004 (Kinnunen et al., 2004). Collecting the baseline data took 1 year and collecting the data at the subsequent four measurement times (Time 1 to Time 4) took about 3 years. Two rehabilitation programs were included in the study: “Vitality and energy for working life” (Vitality) and “Maintaining and promoting working ability” (Working Ability). However, two slightly different Vitality interventions were implemented: a traditional Vitality (“care as usual”) and a participatory Vitality (tailored intervention). Figure 1 shows the time span of the full rehabilitation process, rehabilitation periods, and the measurement points (T1–T4) during the interventions.

The Working Ability intervention lasted about 1½ years and included four rehabilitation periods (13 + 12 + 5 + 5 days). As can be seen in Figure 1, this study focused on the first rehabilitation period only (from Time 1 to Time 2) since the actions taken in the Working Ability rehabilitation during the first rehabilitation period were quite similar to the Vitality intervention. Both the traditional and participatory Vitality interventions lasted about 1 year and comprised two rehabilitation periods (12 + 5 days). The Working Ability intervention was carried out in groups of 4 to 6 people, whereas the participants in the Vitality intervention underwent the rehabilitation process in groups of 8 to 10. The study also included a waiting-list control group who were in line for the traditional Vitality rehabilitation.

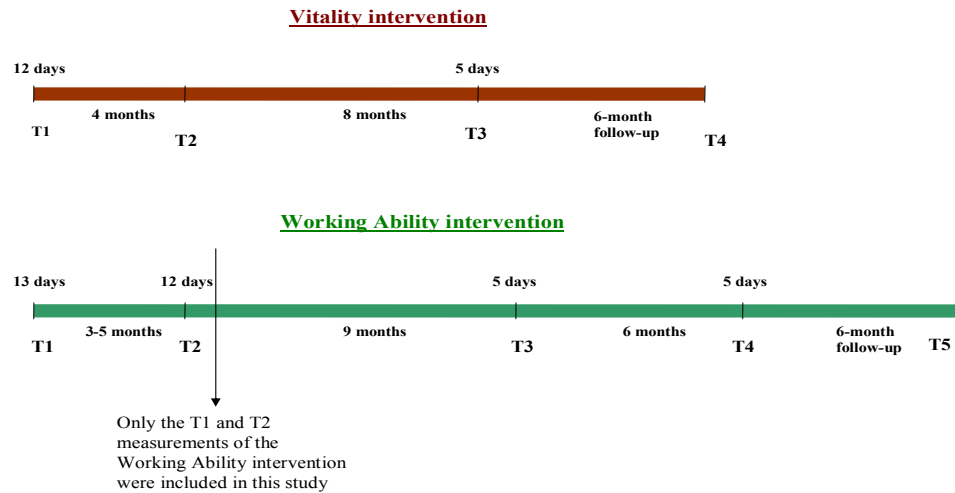


FIGURE 1 The rehabilitation process and measurement times in the Vitality and Working Ability Interventions

Data were collected on 23 rehabilitation groups altogether: 12 Working Ability ($n = 70$), 7 traditional Vitality ($n = 65$), 2 participatory Vitality ($n = 20$), and 2 waiting-list control groups ($n = 20$). Three participants in the Working Ability intervention and five in the traditional Vitality intervention refused to participate in the study. The data were collected by questionnaires that were code-numbered at the rehabilitation center before being sent to the researchers. The participants were recruited before the intervention and given a brief introduction to the study; emphasis was placed on the fact that participation was voluntary, the information gathered would be treated as confidential, and that the anonymity of the participants would be respected.

The samples of the three original studies are presented in Figure 2. Study I ($n = 135$) comprised those participating in the Working Ability and Vitality intervention. Of the 143 clients in the intervention 135 agreed to participate in the study. During the 4-month follow-up period, seven more dropped out. Thus, of the 135 clients who participated at the baseline (Time 1), 128 were still in the study 4 months later (Time 2). The study focused on the first rehabilitation period only, which lasted 12 days in the Vitality intervention and 13 days in the Working Ability intervention. The participants filled out a set of questionnaires before the intervention started in the rehabilitation center (Time 1) and a postal questionnaire 4 months after the first rehabilitation period (Time 2).

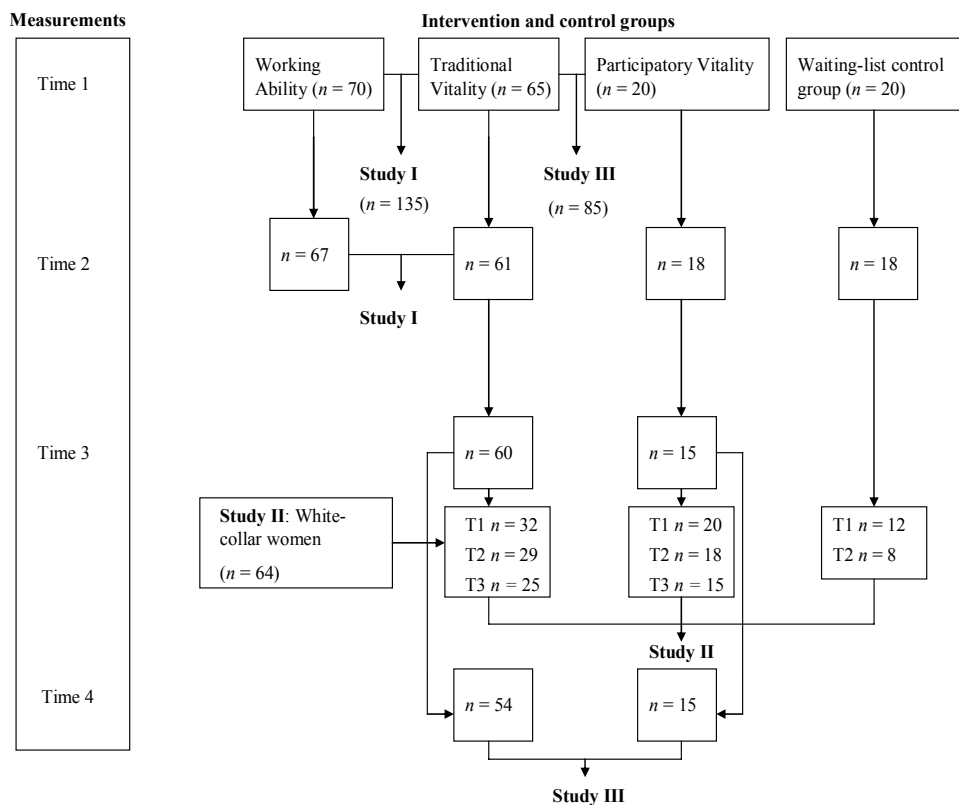


FIGURE 2 The study samples

Note. The study encompasses only the Time 1 and Time 2 measurements of the Working Ability (Study I) and waiting-list control groups (Study II)

Study II comprised 64 (at Time 1) white-collar women within the two Vitality programs. At the onset, the sample consisted of 110 employees, all of whom suffered from job-related psychological health problems, mainly burnout. Of these 110 subjects, 70 participated in the traditional intervention. Five subjects declined to participate in the study, thereby reducing the traditional group to 65 (Figure 2). 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 included female white-collar workers only, the traditional intervention and the control group were matched accordingly, resulting in 32 participants in the traditional group and 12 participants in the waiting list control group. Thus, after matching, there were 64 participants altogether. Out of the total sample of 64 participants at Time 1, seven did not return the questionnaires at Time 2. Of these seven, 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 more 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. The baseline measurement was implemented at the rehabilitation center, 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 mailed (Time 2) and, finally, questionnaires were again filled in at the center (Time 3) after the second period of the intervention process (lasting 5 days). Altogether the whole rehabilitation process lasted 1 year. The control group filled out questionnaires twice (at Times 1 and 2) before entering rehabilitation.

Study III involved 85 employed individuals (at Time 1) from two Vitality programs. The participants filled out the questionnaires four times: a) at the center before they started the rehabilitation (T1; $n = 85$), b) by mail 4 months after the first 12-day rehabilitation period (T2; $n = 80$), c) before they left the rehabilitation center 8 months after their second 5-day rehabilitation period (T3; $n = 78$), and d) by mail 6 months after the rehabilitation had ended (T4; $n = 69$). Sixteen clients did not respond to every question in the MBI inventory or at every measurement. Of these, seven responded to two out of four measurements and one dropped out after the first measurement. Others responded at three out of four measurement times. See Table 2 for background characteristics of the participants in each study.

TABLE 2 Background characteristics of the participants in three original studies at Time 1

<i>Background factors</i>	Study I (<i>n</i> = 135)		Study II (<i>n</i> = 64)		Study III (<i>n</i> = 85)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Age						
• < 46 years	18	13.3	17	27.0	23	27.0
• 46 – 50 years	36	26.7	16	25.0	21	25.0
• 51 – 55 years	50	37.0	18	28.0	23	27.0
• 56 years or more	31	23.0	13	20.0	18	21.0
Gender						
• women	81	60.0	64	100.0	64	75.0
• men	54	40.0	0	0.0	21	25.0
Living with a partner						
• yes	100	74.0	45	70.0	63	74.0
• no	35	26.0	19	30.0	22	26.0
Vocational education						
• no or a vocational course	35	26.0	4	6.3	14	16.5
• school	42	31.0	11	17.2	19	22.3
• college	40	30.0	26	40.6	30	35.3
• academic degree	15*	11.0	23	35.9	22	25.9
Total hours worked per week						
• < 39 hours	31	25.2	11	17.2	14	16.5
• 39 – 49 hours	54	39.3	32	50.0	32	37.6
• 50 hours or more	29*	21.5	14*	21.9	20*	23.5

* missing data

2.2 Employee rehabilitation

The rehabilitation interventions studied here can be defined as tertiary preventive interventions (Cooper & Cartwright, 1997; Reynolds, 1997; Waal, 1995). Unlike early rehabilitation interventions (e.g., ASLAK[®]), which can be categorized as secondary preventive interventions (Waal, 1995), the present interventions are targeted at employees who are already suffering from various physical, psychological, and social limitations, symptoms, and disabilities. The central aims of rehabilitation in the case of working-aged individuals are to maintain and improve working ability and functional capacity and, ultimately, to reduce applications for disability pensions and to prolong working life (Härkäpää & Hurri, 2007). The interventions in the present study were named employee rehabilitations, which refers to the basic inclusion criteria, meaning that in order to be eligible for treatment, clients should be working-aged individuals and they must have a valid employment contract at the time they apply for rehabilitation. Table 3 presents the background characteristics of the participants according to the three rehabilitation interventions.

TABLE 3 Background characteristics of the participants according to the three rehabilitation interventions at Time 1

<i>Background factors</i>	Working Ability (<i>n</i> = 70)		Vitality (<i>n</i> = 65)		Participatory Vitality (<i>n</i> = 20)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Age						
• < 46 years	4	5.7	11	16.9	10	50.0
• 46 – 50 years	20	28.6	19	29.2	4	20.0
• 51 – 55 years	32	45.7	18	27.7	5	25.0
• 56 years or more	14	20.0	17	26.2	1	5.0
Gender						
• women	37	52.9	44	66.7	20	100.0
• men	33	47.1	21	32.3	0	0.0
Living with a partner						
• yes	55	78.6	45	69.2	18	90.0
• no	15	21.4	20	30.2	2	10.0
Vocational education						
• no or a vocational course	21	30.0	14	21.5	0	0.0
• school	24	34.3	18	27.7	1	5.0
• college	19	27.1	21	32.3	8	40.0
• academic degree	4*	0.6	11*	16.9	11	55.0
Total hours worked per week						
• < 39 hours	19	27.1	12	18.5	2	10.0
• 39 – 49 hours	31	44.3	25	38.5	12	60.0
• 50 hours or more	13*	18.6	16*	24.6	4*	20.0

*missing data

The interventions studied here (the Working Ability and the two Vitality interventions) were set up in accordance with the requirements of the Social Insurance Institution of Finland (KELA), which is the major single provider of rehabilitation services for the employed population under 65 years of age (Suoyrjö et al., 2007). The two types of interventions (the Working Ability and Vitality) were based on a multidisciplinary and holistic approach, meaning that the interventions included a comprehensive evaluation of participants' physical, psychological and social conditions. On the basis of these evaluations, each participant received a personal rehabilitation plan that they followed throughout the rehabilitation process and, it was hoped, would continue to be followed after the rehabilitation process had ended. The contents of the Working Ability (Study I) and the Vitality (Studies I-III) interventions comprised various individual-level activities (e.g., test and examinations, group discussions with different rehabilitation professionals, physiological and occupational therapy, physical activities, and relaxation) and activities on the individual-organizational level (group discussions and individual counseling sessions with a psychologist).

The Working Ability intervention (vocational rehabilitation) is targeted at employees who are 40 to 60 years of age and whose working ability has generally been reduced or threatened by disease, disability, or some other disorder. Individuals usually seek rehabilitation when the actions taken to improve their situation by their employer and by occupational health care services have failed. When a client has received a sickness allowance for at least 60 days, KELA is required by law to assess the client's need for rehabilitation. Based on this evaluation and the client's medical report and application for rehabilitation, the decision regarding selection for the Working Ability intervention is made by medical experts in KELA's local offices, from where the relevant documents are sent to a rehabilitation center. The Working Ability type of rehabilitation was examined only in Study I.

The Vitality intervention is a discretionary medical rehabilitation. *Discretionary* here means that there is no subjective right to this type of rehabilitation and that the services are provided in accord with the funds allocated annually in the national budget. It is aimed at employees who are under 50 years of age and have become exhausted by their work. Applicants were not excluded for mild anxiety, depression and self-esteem problems, since these symptoms usually coincide with burnout. The Vitality intervention is the only rehabilitation program available to those suffering from burnout in the context of this study. The participants send their medical report and rehabilitation application to their local office of KELA, from where the relevant documents are sent to a rehabilitation center. The participants in the Vitality intervention program are selected by the physicians at the rehabilitation center on the basis of the participants' medical report and application for rehabilitation. The purpose of this intervention is to restore, maintain, and improve individuals' physical, psychological, and social resources by finding practical solutions to the problems of coping in working life. The idea of this intervention is that the employee him/herself finds ways in which to recognize and evaluate his/her own resources and working situation in order to be able to monitor and recognize the signs of impending psychological health problems or to find ways of helping him/herself in the recovery process.

Two slightly different forms of the Vitality intervention were utilized in the study. The focus of the traditional Vitality intervention ('care as usual') is primarily on the individual level as described above, but, when necessary, also on the individual-organizational interface (for instance, group discussions on the work-family interface). Participants in this intervention come from different workplaces. 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 this person reacts to stress. Activities aimed at the individual-organizational interface focus on increasing employees' resistance to specific job stressors in the context of their working environment.

Applications for the participatory Vitality intervention were made in the same way as for the traditional intervention, with a physician at the rehabilitation center making the final selection on the basis of the participants' medical report and application for rehabilitation. The clients came from two

workplaces, both of which had been suggested as candidates for this study by the occupational health care services, since the workplaces were known to have job-related psychological problems. These were the local university and the town's social and health departments. The participatory Vitality intervention was specially set up for purposes of this study, and thus was not a standard rehabilitation service. This intervention was the same as the traditional intervention, but with one exception. The participatory intervention included a link to the rehabilitation clients' workplace, which meant that the participants' supervisors, a member of the occupational health and safety organization, and a representative from occupational health care were invited to the rehabilitation center during both rehabilitation periods for one day. In the first rehabilitation period, the workplace-related representatives collaborated together with the respective participants and the rehabilitation team to find ways of improving the participants' job conditions on the basis of a memo prepared by the participants before this meeting. The memo included issues that the participants considered 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 center and discussed whether the agreed-upon remedies had been implemented and whether there had been problems in doing this. The traditional Vitality was included in Studies I-III, whereas the participatory Vitality was included in Studies II and III.

2.3 Measures

2.3.1 Job burnout

Job burnout was measured with the MBI-GS (Maslach et al., 1996; Kalimo et al., 2006). The scale comprised three subscales and 16 items: exhaustion (5 items), cynicism (5 items), and professional efficacy (6 items). The items were rated on a 7-point frequency-based scale (0 = *never*, 6 = *every day*). High scores on exhaustion, cynicism, and reduced professional efficacy (reversed items) are indicative of burnout. For the exhaustion scale, the Cronbach's alphas were Time 1 = .93 - .95, Time 2 = .94, Time 3 = .94, and Time 4 = .95; for cynicism, the alphas were Time 1 = .86 - .89, Time 2 = .83 - .87, Time 3 = .88 - .92, and Time 4 = .81; and for reduced professional efficacy, the alphas were Time 1 = .80 - .84, Time 2 = .78 - .85, Time 3 = .80 - .84, and Time 4 = .87.

2.3.2 Antecedents of job burnout: Personal resources and job conditions

Rehabilitation clients' personal resources were measured with task-, emotion-, and avoidance-oriented coping and SOC. *Coping strategies* were measured with the 21-item shortened version of the Coping Inventory for Stressful Situation (Endler & Parker, 1990). Each of the three coping strategies contained 7 items. The extent to which each strategy has been used in a stressful situation at work

was rated on a 5-point Likert-type scale (1 = *not at all*, 5 = *very much*). For task-oriented coping, the Cronbach's alphas were Time 1 = .83 and Time 2 = .86; for emotion-oriented coping, the alphas were Time 1 = .83 and Time 2 = .82; and for avoidance-oriented coping, the alphas were Time 1 = .72 and Time 2 = .68.

Sense of coherence (SOC) was operationalized by the shortened 13-item Orientation to Life Questionnaire (Antonovsky, 1987). Participants were asked to select a response on a 7-point semantic differential scale with two anchoring phrases. The SOC scale includes five items about comprehensibility (1 = *very often*, 7 = *very seldom*), four about manageability (1 = *never happened*, 7 = *always happened*), and four about meaningfulness (1 = *very seldom or never*, 7 = *very often*). The three intercorrelated components form the composite measure of SOC. The Cronbach's alphas for the SOC scale were as follows: Time 1 = .88 and Time 2 = .88. Personal resources were measured only in Study I.

Job conditions were evaluated by job demands and job resources. Of job demands, *time pressures at work* (e.g., "Do you have to hurry to get your work done?") were assessed with four items (Study I) or three items (Studies II and III) (Elo, Leppänen, Lindström, & Roponen, 1990). In Studies II and III one item ("Do you have time for breaks and rest during workday") was removed because it lowered the scale's internal consistency at Time 2 and Time 3. The Cronbach's alphas for the scale were as follows: Time 1 = .65 - .74, Time 2 = .66 - .74 and Time 3 = .62 - .63.

Job resources were assessed by three measures. *Job control* was measured by nine items in which respondents were asked to evaluate their possibility to control certain aspects of their work (e.g., work load, quality of work, and working pace). The responses were rated on a 5-point scale (1 = *very little*, 5 = *very much*; Bergström et al., 1997). The Cronbach's alphas for the scale were as follows: Time 1 = .87 - .90, Time 2 = .85 - .87, and Time 3 = .82 - .87. The quality of *workplace climate* assessed the atmosphere in the workplace by five items (e.g., encouraging and supporting new ideas) on a response scale from 1 (= *totally disagree*) to 5 (= *totally agree*; Bergström et al., 1997). The Cronbach's alphas for the scale were as follows: Time 1 = .68 - .84, Time 2 = .88 and Time 3 = .89 - .90. Job control and workplace climate were assessed in Studies I-III. *Supervisor satisfaction* was assessed using three items (e.g., "To what extent are you satisfied with the support and guidance given by your superior") from the Finnish version of the Job Diagnostic Survey (Vartiainen, 1989) and was rated on a 5-point scale (1 = *very dissatisfied*, 5 = *very satisfied*). The Cronbach's alphas for the scale were as follows: Time 1 = .87 - .89, Time 2 = .89 - .93 and Time 3 = .94. This scale was used in Studies I and II.

2.3.3 Consequences of job burnout: Depression and job satisfaction

Consequences of burnout were assessed by two measures. *Depression* was evaluated with the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The BDI is a 21-item questionnaire asking about the degree to which the respondent is currently experiencing negative thoughts, feelings, and behavior. The items cover a range of general self-evaluations

unrestricted to work or the work environment. Specifically, the inventory contains 21 symptom-attitude categories: mood, pessimism, sense of failure, lack of satisfaction, feeling of guilt, sense of punishment, self-hate, self-accusations, self-punitive wishes, crying spells, irritability, social withdrawal, indecisiveness, body image, work inhibition, sleep disturbance, fatigability, loss of appetite, weight loss, somatic preoccupation, and loss of libido. In each category the respondent had to choose one statement (from four to six statements), which was scored from 0 to 3. The higher the BDI score (range from 0 to 63), the more severe was the level of depression. The Cronbach's alphas for the scale were as follows: Time 1 = .89 - .91, Time 2 = .90 and Time 3 = .92. The BDI was used in Studies I and III.

Job satisfaction was measured with the Finnish version of the Job Diagnostic Survey (JDS; Vartiainen, 1989) which assesses a respondents' satisfaction with his/her supervisor (three items), personal development possibilities (five items), salary (two items), and relationships at work (three items). The response scale ranged from 1 (= *very dissatisfied*) to 5 (= *very satisfied*). The Cronbach's alphas for the scale were as follows: Time 1 = .85 and Time 3 = .85. Job satisfaction measure was used in Study III.

2.3.4 Background characteristics

Several background characteristics of the participants were examined in the three original studies: age (Studies I-III), gender (Studies I and III), living with a partner (yes/no; Studies I-III), vocational education (Study I), socioeconomic status (Studies I-III), total hours worked per week (Studies I-III), self-reported prolonged illnesses (Studies I and III), and rehabilitation program (Studies I and III). Additionally, number of children living at home (Study II), years worked in current position/profession (Studies II and III), and years worked in current organization (Studies II and III) were evaluated. Moreover, in Study III, self-reported use of antidepressants (no/yes), extra therapeutic counseling during rehabilitation (no/yes), and respite from work (no/yes; studying, unemployment, sick-leave, part-time retirement) were examined.

2.4 Data analyses

The study utilized variable-oriented and person-oriented approaches. In the person-oriented approach, the individual is regarded as the unit of measurement, meaning it is assumed that the entire population is heterogeneous. This heterogeneity is manifested by identifying different groups of individuals who share similar associations among variables (Bergman & Trost, 2006; Laursen & Hoff, 2006; Magnusson, 1998). When applying the person-oriented approach in longitudinal studies, groups of individuals are identified at multiple points of time to determine heterogeneous change in those groups (Laursen & Hoff, 2006). In contrast to the person-oriented

approach, the variable-oriented approach is based on the assumption that the variable is the main conceptual and analytical unit (Bergman & Magnusson, 1998) and the associations between variables are similar for all persons in the study population (Laursen & Hoff, 2006). When applying the variable-oriented approach in a longitudinal study context, the same over-time estimates of the entire sample are the focus of interest; thus, average trajectories of change in a single variable are found (Laursen & Hoff, 2006).

Person-oriented analyses. In Study I, cluster analysis was employed in order to identify manifestations of burnout symptoms within the rehabilitation clients (Aldenderfer & Blashfield, 1984). Three standardized burnout variables at Time 1 were used as clustering variables in a hierarchical, agglomerative cluster analysis. Ward's method was used as a linkage method and squared Euclidean distance as a similarity method (Bergman & Magnusson, 1991). Finally the cluster solution obtained by Ward's method was subjected to a K-means cluster analysis. In Study III, in order to detect different levels and changes in burnout symptoms longitudinally during the 1-year rehabilitation and 6-month follow-up (Times 1–4), Growth Mixture Modeling (GMM; Muthén, 2006; Muthén & Muthén, 2000) was performed. This was done to investigate whether there was heterogeneity in the altered developmental pathways of burnout.

Variable-oriented analyses. A multivariate analysis of covariance (MANCOVA) and analysis of variance (ANOVA) for repeated measures were conducted to examine whether there were any changes in the outcome variables (burnout patterns, burnout interventions, and burnout trajectories) between the different groups after the employee rehabilitation intervention (Studies I–III). Repeated measures MANOVA and MANCOVA were applied when studying the mediator effects (Study II). Chi-square test or one-way analysis of variance (ANOVA) was used to examine the differences in background characteristics (burnout patterns, burnout interventions, and burnout trajectories) between the groups (Studies I–III).

SPSS was used as a statistical tool in all the analyses except for the trajectory analysis (i.e., GMM), which was performed using the Mplus statistical package (Version 4.0; Muthén & Muthén, 1998–2005). The statistical procedures used are described in detail in the original studies. An overview of the original studies is presented in Table 4.

TABLE 4 Overview of the original Studies I-III

	<i>Participants</i>	<i>Research aims</i>	<i>Variables and measurements</i>	<i>Data analyses</i>
Study I	<ul style="list-style-type: none"> • $n = 135$ • 60% women; mean age 51 years; 79% white-collar employees • clients in two rehabilitation programs (Working Ability and Vitality programs) 	<ul style="list-style-type: none"> • to identify homogeneous burnout patterns • to test for the changes in psychological health, job conditions, and personal resources within burnout patterns over 4 months 	<ul style="list-style-type: none"> • covariates: rehabilitation program, age, and number of prolonged illnesses • job burnout • depression • job conditions: time pressures at work, job control, workplace climate, supervisor satisfaction • personal resources: task-, emotion-, and avoidance-oriented coping; sense of coherence • T1 = pre-intervention; T2 = 4 months after intervention 	<ul style="list-style-type: none"> • Chi-square test • ANOVA • cluster analysis • repeated measures MANOVA and MANCOVA
Study II	<ul style="list-style-type: none"> • $n = 64$ • 100% white-collar women; mean age 49 years • 32 clients in the traditional intervention • 20 clients in the participatory intervention • 12 waiting list controls 	<ul style="list-style-type: none"> • to compare the short- and long-term effects of two rehabilitation interventions on burnout and perceived job conditions during 1-year intervention • to identify the mechanisms through which the two interventions might decrease burnout 	<ul style="list-style-type: none"> • covariates: age and living with a partner • job burnout • job conditions: time pressures at work, job control, workplace climate, supervisor satisfaction • T1 = pre-intervention; T2 = 4 months after the first intervention period; T3 = 8 months after the first intervention period (immediately after the second intervention period) 	<ul style="list-style-type: none"> • Chi-square test • ANOVA • repeated measures MANOVA and MANCOVA

TABLE 4
(continued)

Study III	<ul style="list-style-type: none"> • $n = 85$ • 75% women; mean age 49; 75% white-collar employees • 65 clients in the traditional intervention • 20 clients in the participatory intervention 	<ul style="list-style-type: none"> • to investigate burnout trajectories during 1-year intervention and 6-month follow-up • to examine whether trajectories are related to the changes in antecedents and consequences of burnout during 1-year intervention 	<ul style="list-style-type: none"> • background characteristics: rehabilitation program, number of prolonged illnesses, psychotherapeutic treatment during rehabilitation • job burnout (T1, T2, T3, and T4) • antecedents of burnout: time pressures at work, job control, and workplace climate (T1 and T3) • consequences of burnout: depression and job satisfaction (T1 and T3) • T1 = pre-intervention; T2 = 4 months after the first intervention period; T3 = 8 months after the first intervention period (immediately after the second intervention period); T4 = 6 months after the intervention had ended 	<ul style="list-style-type: none"> • Growth Mixture Modeling • Chi-square test • ANOVA • repeated measures ANOVA
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3 OVERVIEW OF THE ORIGINAL STUDIES

Study I

Hätinen, M., Kinnunen, U., Pekkonen, M., & Aro, A. (2004). Burnout patterns in rehabilitation: Short-term changes in job conditions, personal resources, and health. *Journal of Occupational Health Psychology, 9*, 220–237.

The Study I comprised 135 employees from the Working Ability and Vitality interventions. The aims of the study were to examine, firstly, whether it would be possible to identify homogeneous patterns of burnout at the baseline (Time 1), and, secondly, the changes, if any, in various burnout patterns in burnout symptoms, perceived job demands (time pressures at work) and job resources (job control, workplace climate, supervisor satisfaction), personal resources (coping strategies and sense of coherence), and depression four months after the first rehabilitation period (Time 2).

On the basis of the developmental models of burnout, four burnout patterns were expected to be found (Hypothesis 1). Additionally, on the basis of previous intervention studies, which have mainly shown reduced burnout symptoms in the short term, it was hypothesized (Hypothesis 2) that exhaustion would decrease during the first four months after the employee rehabilitation. In addition, since exhaustion has been related to job demands, and cynicism and reduced professional efficacy have been related to lack of job resources, it was hypothesized (Hypothesis 3a) that in the pattern in which exhaustion was expected to dominate, employees would experience higher job demands compared with the pattern in which reduced professional efficacy was expected to dominate. In the latter pattern, employees would experience less job resources compared to those whose burnout pattern exhaustion was expected to dominate (Hypothesis 3b). No major changes were expected to occur in job demands and resources since the interventions were not focused on changing employees' job conditions (Hypothesis 3c). However, because one purpose of rehabilitation is to enhance employees' resources, it was hypothesized (Hypothesis 3d) that personal resources would increase (i.e., task-oriented coping and SOC would increase, whereas emotion-oriented and avoidance-

oriented coping would decrease) in all burnout patterns during the first four months after the intervention. Finally, employees would experience a higher level of depression in the burnout pattern in which exhaustion was expected to dominate (alone or together with cynicism), compared with the pattern in which reduced professional efficacy was expected to dominate (Hypothesis 4a). Furthermore, depression would decrease in every pattern during the first 4 months after the intervention (Hypothesis 4b).

The cluster analysis identified four burnout patterns as expected: not burned out ($n = 55$), exhausted and cynical ($n = 36$), burned out ($n = 26$), and low professional efficacy ($n = 18$). Because the patterns differed in the three background variables (type of rehabilitation program, age, and self-reported number of prolonged illnesses), they served as covariates in repeated measures MANCOVAs. As expected, the results confirmed the previous findings that exhaustion is the easiest symptom to alleviate. Exhaustion decreased in both the burned-out and exhausted-and-cynical patterns. Unexpectedly, cynicism decreased in the burnout pattern, and reduced professional efficacy increased in the exhausted and cynical pattern. Additionally, reduced professional efficacy decreased in the low professional efficacy pattern. Thus, Hypotheses 1 and 2 were supported.

There were no differences in perceived job demands (time pressures) between the burnout patterns. The only difference in job resources was in workplace climate, which was assessed as worst in the burned-out pattern. Thus, Hypotheses 3a was not supported and hypothesis 3b only partially supported. Although no changes in job conditions (Hypothesis 3c) were expected to be found, job control increased in all burnout patterns during the 4 months following intervention. Contrary to our Hypothesis 3d, personal resources did not change during rehabilitation. However, a main effect for burnout pattern was detected for task- and emotion-oriented coping and SOC. Participants who were not burned out used task-oriented coping more than those who experienced low professional efficacy. Burned-out employees used more emotion-oriented coping compared with those in the low professional efficacy and not-burned-out patterns. Furthermore, the not-burned-out group experienced a stronger SOC as compared with the exhausted-and-cynical and burned-out groups. Also, those in the low professional efficacy pattern experienced a stronger SOC than those in the burned-out pattern.

Finally, as expected, the level of depression declined in every burnout pattern during the 4 months after the intervention. However, a main group effect was also detected: The participants in the burned-out and exhausted-and-cynical patterns experienced more depression than the not-burned-out participants. Thus, Hypotheses 4a and 4b received support.

In sum, both positive and negative changes were detected in employees' psychological health during the four months following the employee rehabilitation intervention. Rehabilitation seemed to be the most useful for burned-out employees, who had the greatest lack of personal resources and suffered most from psychological health problems. Among the job conditions, positive changes were detected only for job control. Personal resources did not

change during the follow-up, which may suggest that they require a longer treatment period.

Study II

Hätinen, M., Kinnunen, U., Pekkonen, M., & Kalimo, R. (2007). Comparing two burnout interventions: Perceived job control mediates decreases in burnout. *International Journal of Stress Management*, 14, 227–248.

Study II comprised 64 female employees in the two Vitality interventions (traditional and participatory) and a waiting-list control. The aim of this quasi-experimental study was to compare among female white-collar workers the short- and long-term effects of the two Vitality interventions on burnout symptoms and perceived job conditions (time pressures at work, job control, workplace climate, and satisfaction with supervisor) during 12 months. Furthermore, the study aimed to identify the mechanisms through which burnout symptoms might decrease. The traditional intervention ($n = 32$) was mainly individually focused, whereas the participatory intervention ($n = 20$) included, in addition to the individually focused activities, a link to the participants' workplaces. This means that some members of participants' workplaces were invited to the rehabilitation center where they, together with the rehabilitees and rehabilitation staff, collaborated to find ways to improve job conditions of the rehabilitees. The waiting-list control group ($n = 12$) comprised employees awaiting the traditional Vitality intervention.

Both interventions were expected to decrease exhaustion (Hypothesis 1a), whereas the participatory intervention was also expected to decrease cynicism and reduced professional efficacy (Hypothesis 1b). Furthermore, both interventions were expected to decrease time pressures at work (Hypothesis 2a), but only the participatory intervention was expected to improve perceived job resources (Hypothesis 2b). Finally, it was hypothesized (Hypothesis 3a) that, in both interventions, the decrease in exhaustion would be mediated by a decrease in time pressures at work, whereas the decrease in cynicism and reduced professional efficacy in the participatory intervention was expected to be mediated in particular by an increase in perceived job control (Hypothesis 3b).

Short-term effects. The results of the 3 (Group) x 2 (Time) multivariate analyses of covariance for repeated measures, where age and living with a partner served as covariates, showed that burnout symptoms changed according to the group during 4 months. In particular, exhaustion developed differently in the three groups, whereas a borderline interaction effect was found for cynicism. When the changes in burnout symptoms were examined in each of the three groups separately, the within-subjects effects showed no changes in burnout symptoms in the traditional intervention, whereas both exhaustion and cynicism decreased in the participatory intervention. Also, cynicism in the control group decreased during 4 months. Thus, Hypotheses 1a and 1b were only partially supported.

Neither interaction nor main time or group effects were found for any of the job conditions variables. When the short-term changes in each of the three groups were analyzed separately, a decrease in satisfaction with supervisor was found in the traditional intervention group. Furthermore, when the Time 1 and Time 2 scores were compared, an increase in job control was detected in the participatory intervention. In the control group time pressures at work increased from Time 1 to Time 2. Therefore, Hypothesis 2a did not gain any support, and Hypothesis 2b gained partial support.

Long-term effects. The long-term effects were analyzed for only two intervention groups. The results of the 2 (Group) \times 3 (Time) multivariate analyses of covariance for repeated measures, with age and living with a partner as covariates, showed no interaction effects for burnout symptoms. Instead univariate tests showed that exhaustion and cynicism changed differently in the traditional and participatory groups during the 1-year period (from Time 1 to Time 3). When the changes were further examined separately in the two interventions, no within-subject changes were found. Instead pairwise comparisons revealed that exhaustion decreased from Time 1 to Time 2 and from Time 1 to Time 3 in the participatory intervention, as did cynicism from Time 1 to Time 3. Thus, Hypotheses 1a and 1b were again only partially supported.

No interaction effects were detected for job conditions. Instead, workplace climate improved in both interventions (main effect for time) during the 1-year period. The pairwise time comparisons showed that time pressures at work decreased from Time 1 to Time 3 and from Time 2 to Time 3b in the traditional intervention, and that job control increased from Time 1 to Time 2 and from Time 1 to Time 3 in the participatory intervention. Thus, Hypotheses 2a and 2b received partial support.

Mediator effects were tested only in the participatory intervention, since no statistically significant changes in burnout symptoms were observed in the traditional intervention over the 1-year period. Two potential mediators – perceived job control and workplace climate – showed changes during the 12 months. With respect to exhaustion, when job control was entered as a covariate, the effect size was attenuated by 20%, but the *F* statistic remained significant. When workplace climate was studied as a covariate, the effect size was attenuated by only 6% and the *F* statistic remained significant. In the case of cynicism, when job control served as a covariate, the effect size was attenuated by 46% and the *F* statistic became nonsignificant. As regards workplace climate, the effect size showed no attenuation. This means that these two perceived job conditions, especially perceived job control, functioned as partial mediators in the change in exhaustion over the 1-year period. Furthermore, with respect to cynicism, workplace climate showed no mediating influences, whereas job control mediated the decrease in cynicism during the 1-year intervention. Thus, Hypothesis 3a was not supported, while Hypothesis 3b received partial support.

In sum, the participatory intervention that combined individual and individual-organizational levels (a link to participants' workplace) was a more

effective treatment strategy among white-collar women. The participatory intervention increased perceived job control, which in turn, resulted in a lower level of exhaustion, and especially a lower level of cynicism, over the 1-year rehabilitation process.

Study III

Hätinen, M., Kinnunen, U., Mäkikangas, A., Kalimo, R., Tolvanen, A., & Pekkonen, M. (in press). Burnout during a long-term rehabilitation: Comparing low burnout, high burnout-benefited, and high burnout-not benefited trajectories. *Anxiety, Stress, and Coping*.

Study III was based on data from the 85 employees of the two Vitality interventions (the traditional and participatory). The study aimed at identifying burnout trajectories in terms of benefit, that is, subgroups of clients who share similar mean levels and changes in burnout during a 1-year rehabilitation intervention with a 6-month follow-up. After identifying the burnout trajectories, the relations of the trajectories with factors describing the clients, antecedents (time pressures at work, job control, and workplace climate), and consequences (depression and job satisfaction) of burnout during the 1-year intervention were examined.

To our knowledge, a person-oriented approach has not been used to study long-term changes in burnout; therefore, our first hypothesis concerning the expected burnout trajectories was exploratory and based mainly on the findings of variable-oriented studies. Previous intervention studies have shown mixed results in terms of decreases in the three burnout symptoms. Generally, exhaustion has decreased, whereas decreases in cynicism and reduced professional efficacy have not been so consistent. Additionally, some interventions have not clearly shown a decrease in burnout either at the group level or at the individual level. Therefore, we expected to find one trajectory comprising clients with a high initial level of burnout symptoms that would subsequently decrease (benefited trajectory) and one trajectory with a high initial burnout level that would remain stable (not-benefited trajectory) during the follow-up. Additionally, the assumption that identifying burnout is difficult due to the insufficient diagnostic guidelines led us to expect to find a trajectory with low burnout symptoms.

Secondly, we examined whether burnout trajectories would differ following two types of intervention, namely, traditional (individual-level rehabilitation) and participatory (focusing on improving job conditions through participatory activities) interventions. On the basis of the previous studies showing the effectiveness of different participatory approaches and on the empirically identified organizational and job-related risk factors of burnout, we expected that the majority of the clients from the participatory intervention would comprise the high burnout-benefited trajectory, whereas the majority of the clients from the traditional intervention would comprise the high burnout-not benefited trajectory.

Thirdly, we expected that the time pressure at work would decrease in the high burnout-benefited trajectory, whereas job control would increase and workplace climate would improve during the intervention. This expectation was based on the assumption that clients whose burnout symptoms decreased would be those in the participatory intervention and those whose symptoms did not decrease would be those participating in the traditional intervention. Positive changes among those in participatory intervention were expected because in this intervention it is possible to tackle relevant problems at work, among which time pressure is one of the most common problems. Furthermore, because the participatory approach relies on collaboration and dialogue among participants, expectations on increased job control, and improved workplace climate seemed to be justified. In contrast, we assumed that time pressure would not change or would even increase in the high burnout-not benefited trajectory, and that job control and the quality of the workplace climate would either not change or would be further impaired during the intervention.

Finally, because earlier studies have shown that burnout may lead to depression and job dissatisfaction, we expected that the decrease in burnout during the intervention would lead to a decrease in depression and an increase in job satisfaction in the high burnout-benefited trajectory. Furthermore, we expected that if a high level of burnout did not change during the intervention, as would be the case in the high burnout-not benefited trajectory, depression would not change or would increase, while job satisfaction would not change or would decrease.

GMM revealed three burnout trajectories. These were named the low burnout ($n = 39$), high burnout-benefited ($n = 29$), and high burnout-not benefited ($n = 17$) trajectories. The statistical solution preferred, however, a four-trajectory solution, which was rejected because one of the trajectories had a small size. When the low burnout trajectory was excluded and the decrease in burnout symptoms is the sole criterion for benefit, a little more than half (63%) of the clients benefited from their rehabilitation program. Half of those who participated in the participatory program benefited from the intervention, whereas 29% of those who participated in the traditional program benefited from the intervention. Moreover, all those in the high burnout-not benefited trajectory were clients from the traditional intervention. Thus, our first two expectations were partly supported.

The 3 (burnout trajectories) \times 2 (time) ANOVA for repeated measures showed an interaction effect for time pressure at work. When analyzing the three trajectories separately, the within-participants effects showed that time pressure decreased among those in the high burnout-benefited and in the low burnout trajectories. The 3 (burnout trajectories) \times 2 (time) ANOVA for repeated measures showed a main time effect for job control, meaning that job control increased in all three trajectories. However, when analyzing the three trajectories separately, the within-participants effects showed that job control increased only among those in the high burnout-benefited trajectory. Additionally, a group effect for workplace climate was detected, showing that those in the low burnout trajectory experienced a better workplace climate

compared with those in the high burnout-not benefited trajectory. Moreover, the within-participants effects revealed an improvement in the workplace climate in the low burnout and high burnout-benefited trajectories. Therefore, our expectations concerning the changes in job demands and resources according to the trajectories were supported.

The 3 (burnout trajectories) \times 2 (time) ANOVA for repeated measures showed an interaction effect for depression, meaning that the level of depression changed differently in the burnout trajectories. When the three trajectories were analyzed separately, the within-participants effects showed that depression decreased significantly among those in the low burnout and those in the high burnout-benefited trajectories. When analyzing changes in job satisfaction with the 3 (trajectories) \times 2 (time) ANOVA for repeated measures, a significant interaction effect for overall job satisfaction was detected. When analyzing the three trajectories separately, the within-participants effects showed that job satisfaction increased among those in the high burnout-benefited trajectory, whereas no changes appeared in the two other trajectories. Thus, expectations on the consequences of burnout were supported.

In sum, positive changes were detected in antecedents and consequences among the clients in the low burnout and high burnout-benefited trajectories. Recovery from burnout was associated with increased job resources and decreased job demands, as well as with increased job satisfaction and decreased depression. It seems that more precise targeting of rehabilitation is needed since the trajectories revealed not only clients with mild symptoms, but also clients who probably received this treatment too late.

4 DISCUSSION

4.1 Main findings of the study

4.1.1 Changes in burnout symptoms during employee rehabilitation

This study addressed a research area not previously investigated. It examined the manifestations of burnout and changes in its symptoms among working-aged employees 4 months after the first rehabilitation period and 12 months after the onset of the rehabilitation. Additionally, the study included a 6-month follow-up. The results of the research showed that exhaustion and cynicism decreased in certain subgroups: Among those who suffered most from burnout, among white-collar women in the participatory intervention, and among those in the trajectory characterized by high initial levels of burnout and a subsequent decrease in exhaustion and cynicism, including both participatory and traditional intervention participants. The reduction in symptoms, which was apparent already at 4 months after the first rehabilitation period, was maintained throughout the rehabilitation process and 6-month follow-up.

These findings of a decrease in burnout symptoms are in line with those of previous intervention studies (e.g., van Dierendonck, Schaufeli, & Buunk, 1998; van Dierendonck et al., 2005; Van Rhenen et al., 2005) and a review (Schaufeli & Enzmann, 1998) that have shown exhaustion to be the component of burnout most consistently reduced. In addition to exhaustion, interventions have usually also diminished reduced professional efficacy (e.g., van Dierendonck et al., 2005; Van Rhenen et al., 2005) or cynicism (e.g., van Dierendonck et al., 1998). It seems reasonable to conclude that the rehabilitation offered as a treatment for burned-out employees investigated in this study seems to be as effective as the majority of individual and individual-organizational interventions.

The main rehabilitation activities implemented in the interventions studied here were various psychosocial activities (including individual and group discussions with a psychologist and a social worker) and physical

exercise (including relaxation; for more details, see Kinnunen et al., 2004). This combination seemed to reduce burnout among some participants, although it is impossible to say which characteristics of rehabilitation are responsible for the changes in burnout symptoms. In fact, a combination of techniques has been recommended previously for stress management (Murphy, 1996). The review by Murphy (1996) showed that when the techniques were evaluated for each outcome separately, the most effective stress management technique was muscle relaxation in the case of physiological outcomes, and cognitive-behavioral skills training for psychological outcomes. In the rehabilitation programs studied here, the psychosocial discussions included not only didactic stress management, but also cognitive elements aimed at restructuring employees' irrational beliefs and encouraging them to appraise their cognitions, especially in relation to stressful situations. The effectiveness of cognitive-behavioral techniques on work-related stress and psychological complaints has been acknowledged (e.g., Murphy, 1996; Richardson & Rothstein, 2008; van der Klink et al., 2001). Also, physical interventions and relaxation have alone succeeded in reducing burnout (e.g., Higgins, 1986; Van Rhenen et al., 2005). Both physical exercise and relaxation lower the arousal and tension that burned-out employees tend to experience.

The results of this study also revealed that the changes in burnout symptoms were not entirely positive. In particular, the changes in professional efficacy were somewhat contradictory in Study I: Among those who suffered only from reduced professional efficacy, the symptom decreased, but in the exhausted-and-cynical pattern, it increased. This indicates that rehabilitation activities did not benefit all the participants, at least not during the short term. The difficulty of increasing professional efficacy may be due to its nature. Professional efficacy represents the self-evaluation and attitudinal dimension of burnout. Since reduced personal accomplishment is related to almost all of the Big Five factors, it is argued that this dimension reflects the employee's personality rather than his/her reaction to a stressful situation (Schaufeli & van Dierendonck, 1993; Shirom, 1989). In this case, rehabilitation activities would be inadequate to decrease this symptom. It is possible that in order to improve an individual's professional efficacy, a burnout program should include more self-evaluative elements, which would allow participants to examine and become more aware of themselves as human beings as well as workers.

A program that utilized self-evaluative elements in intervention program was carried out in two studies and, in both cases, professional efficacy improved (Gorter et al., 2001; van Dierendonck et al., 2005). In rehabilitation, group discussion themes usually change at each meeting, and thus are not often deepened or reworked. This is also the case with the individual discussions in rehabilitation, since there is usually only a limited amount of time available for talking with clients individually and working with their self-appraisals. For instance, a psychologist meets clients just once or twice during each rehabilitation period. However, there is also evidence that physical exercise alone can increase professional efficacy, when combined with relaxation (Van Rhenen et al., 2005), which is somewhat contradictory to a meta-analysis

showing a small effect for relaxation but a larger effect for cognitive interventions on psychological complaints (van der Klink et al., 2001).

In addition to the positive and negative changes in reduced professional efficacy, a group of employees who did not benefit from rehabilitation in terms of reduced burnout (the high burnout-not benefited trajectory) was also identified. This trajectory was related in particular to high levels of cynicism and reduced professional efficacy across time, as well as a high level of depression and the use of additional therapeutic counseling during rehabilitation. The developmental theory of burnout by Leiter and Maslach (1988) suggests that the appearance of cynicism and reduced professional efficacy follow exhaustion, indicating a progressive and more severe phase of burnout. It is possible, then, that those in the high burnout-not benefited trajectory may have suffered longer from burnout, which may have resulted in their having more severe and resistant symptoms of burnout. Furthermore, as cynicism and reduced professional efficacy can be considered to represent attitudinal components of burnout, they may therefore be difficult to change through rehabilitation activities, especially when both are at a high level.

Additionally, the participants in this trajectory were most likely to have participated in extra counseling, which suggests that they might have had personal and/or family problems that caused them further psychological distress. This, in turn, might have limited the personal resources available to them for recovery from burnout. Thus, in accord with the COR theory, they may have been caught up in a loss cycle of resources (Hobfoll & Freedy, 1993). One other possible explanation for why these employees did not benefit from the intervention could be that the rehabilitation intervention started too late for them. Moreover, all of the employees in this trajectory had participated in the traditional intervention. Thus, it is difficult to know, but worth considering, whether these employees would have benefited from participatory activities instead of the traditional ones, or whether they might not have benefited from rehabilitation of any kind. It is possible that these employees would have benefited from a more intensive type of intervention, such as psychotherapy.

Finally, a group of employees who did not seem to have severe burnout symptoms was detected and whose symptoms did not change during rehabilitation. It seems that the employees in low burnout trajectory were in a type of rehabilitation unsuited for their particular health problems. This also indicates that the referral for rehabilitation had not been appropriate, as was the case with the high burnout-not benefited trajectory as well. Rehabilitation focusing more clearly on a secondary, preventive level (early rehabilitation) could have been more suitable for these low burnout trajectory employees.

4.1.2 Burnout symptoms from the viewpoint of developmental theories of burnout

Although the study did not focus on the natural development of burnout symptoms, various burnout patterns (in Study I) and trajectories (in Study III) were revealed that can be discussed in the light of the developmental theories

of burnout. One burnout pattern was characterized by high levels in all of the burnout symptoms (the “burned out” pattern) and one by low levels in all the burnout symptoms (the “not burned out” pattern).

Additionally, two other burnout patterns were identified. Leiter’s (1993) process model suggests that emotional exhaustion is the first reaction to demanding work. Consequently, when other coping strategies have failed to reduce stress, a person often tries to cope with the situation by depersonalization. These two symptoms may, therefore, have clustered in these data as the “exhausted and cynical” pattern, describing the situation where people have resorted to defensive coping (depersonalization) as a consequence of the depletion of their emotional resources. However, no burnout patterns were identified where the participants would have experienced only exhaustion or cynicism. Therefore, the sequential process between these two symptoms remains unsolved. Leiter (1993) further proposes that personal accomplishment develops rather independently of the two other burnout symptoms, depending on the available resources, and this may explain the existence of the pattern of “low professional efficacy” in this study. Although the present study is not able to establish whether the burnout process starts with the symptom of exhaustion or cynicism, it seems possible that burnout may actually start with reduced professional efficacy (Van Dierendonck et al., 2001). This important result indicates that an employee’s expressions of loss of competence and productivity, and resulting negative self-evaluations of accomplishments, may indicate the first warning sign of burnout and should be taken seriously.

Different burnout patterns and trajectories can also be interpreted in the light of the phase model of burnout development (Golembiewski & Munzenrider, 1988). Applying this model to the four burnout patterns found in this study, “not burned out” (parallel to the model’s phase I) and “low professional efficacy” (phase III) represent the early phases of burnout development, whereas “exhausted and cynical” (phase VI) and “burned out” (phase VIII) represent progressed phases of burnout.

Parallel to the phase model, the COR theory contributes to the understanding of burnout development by suggesting that when resource loss occurs and if resources cannot be replenished, cycles of losses may follow and this, in turn, eventually leads to burnout (Hobfoll & Shirom, 2001). The implication for the development of burnout is that only one type of burnout symptom may appear at first, expanding over time to finally include all of the symptoms of burnout (Taris et al., 1999). In other words, the more the burnout symptoms the later the burnout development phase and the more severe the burnout condition. Also, GMM identified two trajectories in which burnout was at a high level at baseline. In fact, in the high-burnout-not benefited trajectory, cynicism in particular was at a higher level as compared to those in the trajectory who suffered from burnout but benefited from rehabilitation. This may suggest that burnout had progressed further (c.f., Leiter, 1993) among those who did not benefit from rehabilitation.

4.1.3 Comparison of the changes during of the traditional and participatory interventions

This study addressed the need to obtain more information about the effectiveness of the workplace connection in rehabilitation by comparing two rehabilitation interventions: an individual rehabilitation (traditional intervention) and rehabilitation with a workplace connection (participatory intervention). The participatory intervention seemed to be a more effective treatment for burnout among white-collar women, as compared to the traditional intervention. This result was supported according to the findings in Study III, because 50% of those in the participatory intervention, whereas 29% in the traditional intervention, benefited from rehabilitation. Previously, different participatory approaches to job stress and burnout have successfully reduced the participants' symptoms (e.g., Bond & Bunce, 2001; Halbesleben et al., 2006; Mikkelsen & Gundersen, 2003; Mikkelsen, Saksvik, & Landsbergis, 2000). The core ideas behind participatory approaches are to increase employees' control through participation in the decision-making process and through collaborative dialogue among the employee, his/her supervisor, rehabilitation managers, and researchers (in action research) to identify the factors causing health-related problems at work and to find ways to improve impaired conditions (Mikkelsen & Grundersen, 2003). The rehabilitees in the participatory intervention came from the same workplaces and thus it could be expected that sharing with and receiving support from peers would act as resources in the intervention process. Peer-support groups have certain elements, such as recognition, comfort, assistance, insight, and companionship, which are helpful in preventing and recovering from burnout (Schaufeli & Enzmann, 1998). Cooley and Yovanoff (1996) found that peer-support groups, together with a stress-management workshop, reduced emotional exhaustion and depersonalization in special educators, and the effects were sustained for 6 and 12 months.

However, the results regarding the beneficial effects of the participatory intervention can be generalized only to white-collar women and it is still an open question whether the participatory type of rehabilitation intervention would be effective in reducing burnout among other groups of employees, such as blue-collar employees, different age groups, or men. White-collar work (such as office work, teaching, and nursing) is based on the same kinds of interpersonal skills as are needed in a participatory intervention in order for it to succeed. Elo et al. (2008) have discussed that blue-collar employees do not necessarily have training or experience in analyzing work, or the factors contributing to organizational behavior and the work environment, which may prevent them from attaining similar goals from a participatory intervention. However, it is part of professional skills of the rehabilitation staff to be able to communicate and discuss about professional and health issues involved in rehabilitation with various groups of clients.

The findings of this study also revealed that, in addition to white-collar women in the participatory intervention, the high-burnout-benefited trajectory

also included employees from the traditional intervention. This indicates that, for some participants, the traditional type of intervention that did not attempt to change participants' work conditions was also beneficial. These individuals may have regained their resources and, as their mental well-being increased, they might have managed to effect changes on their own in their job content or job environment. The purpose of the traditional type of intervention is, in fact, to help employees themselves to identify their own resources and evaluate their working situation, thus finding ways to help themselves in the recovery process, aided by rehabilitation professionals. Nevertheless, it is also possible that, independent of the traditional rehabilitation, positive changes in the organization occurred during rehabilitation period that led to increased well-being. Moreover, as previous research on relationships between job characteristics and mental health shows (De Lange, Taris, Kompier, Houtman, & Bongers, 2004), it cannot be ruled out that the employees' evaluations of the same work environment changed as a result of their increased well-being.

The participatory intervention's link to the employees' workplaces is important and beneficial but possibly insufficient. Two days over the course of a rehabilitation process may not necessarily enough to tackle the problems the employees are encountering on the job. Further, it is important to note that this study could not verify whether objective changes actually occurred in the participants' workplaces.

4.1.4 Changes in antecedents and consequences of burnout during employee rehabilitation

The present study identified certain antecedents and consequences of burnout that were related to the differential development of burnout symptoms during employee rehabilitation. This study also added to the knowledge of the mechanisms of change in multidisciplinary rehabilitation targeted at those who have become exhausted by their jobs.

Of the job conditions examined, time pressures at work were reduced over the long term in the traditional intervention, as well as among those who belonged to the low burnout and high burnout-benefited trajectories. Although the traditional intervention did not focus on changing the job conditions of the participants (no link to the work community of the participants), it is possible that employees had learned time management skills during rehabilitation that they were able to implement in their jobs. Furthermore, a reason why time pressures did not decrease in the participatory intervention may reside in the type of occupations represented in this intervention: The women came from the fields of teaching and nursing. Time-based demands associated with these two professions come mainly from external sources (from students and patients) and thus are hard to influence by intervention activities. Cooley and Yovanoff (1996) proposed the terms *givens* and *alterables* when describing teachers' work. Givens are relatively inherent in the situation, such as the challenges posed by students, and thereby not subject to much change. Alterables, on the other hand, are characteristics of the job that are also more adaptable in the short

term, and include factors such as collegial interaction and support. It appears that, although the time pressures at work (givens) stayed at a high level among those in the participatory intervention, an increase in job control (alterable) reduced burnout symptoms. The increase in job control may have helped employees to cope with the type of time pressures innate to their professions and difficult to change.

The importance of job control as a psychosocial job resource has been demonstrated in the JDC model (Karasek, 1979; Karasek & Theorell, 1990). Despite high demands, job control allows employees to actively learn and develop themselves in meeting the demands they face at work (Karasek & Theorell, 1990). Because the combination of high job demands and low control may have create negative effects on well-being, improved job control may buffer independently the potentially negative effects of high demands on health and well-being (e.g., Bakker, Demerouti, & Euwema, 2005). In this study, job control was related to recovery from burnout. First, increased job control served as a mediator through which the participatory intervention produced its beneficial effects on burnout among white-collar women, especially in terms of decreased cynicism, during the 1-year intervention. Additionally, increased job control acted as a partial mediator in the decrease in exhaustion the same year. Secondly, the increase in job control and decrease in time pressures were related to the high burnout-benefited trajectory.

Both the traditional and participatory interventions appeared to have carry-over effects in terms of perceived improvement in the quality of the workplace climate. In addition, those in the low burnout and high burnout-benefited trajectories experienced improved workplace climate 1-year after the beginning of rehabilitation. Workplace climate reflects the quality of relationships at work, which is a fundamental component of community in an organization (Maslach & Leiter, 1997). Although an important communal resource, improved workplace climate did not mediate the decreases in burnout symptoms.

Despite the positive changes in perceived job conditions, the personal resources examined – SOC and coping strategies – did not change as a result of rehabilitation during the short-term (4 months). It is premature to say that rehabilitation activities are not able to influence personal resources; instead, it is more likely that detecting change in personal resources would require a longer treatment and follow-up. In line with the COR theory (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001), the patterns characterizing high burnout were related to lower personal and job-related resources (workplace climate and satisfaction with supervisor). Interestingly, employees in the low professional efficacy pattern, who otherwise had the best resources compared to those in the other patterns showing burnout, used task-oriented coping the least.

A relationship between task-oriented coping and personal accomplishment has been found in previous studies as well (Greenglass & Burke, 2000; Lee & Ashforth, 1996; Leiter, 1991; Sears et al., 2000). Reduced professional efficacy has shown a different pattern of correlations with job demands and resources as compared to exhaustion and cynicism: Reduced

professional efficacy has been more strongly related to inadequate coping than job demands or resources (Lee & Ashforth, 1996). A problem-focused, active response to problems and a positive evaluation of the self may reinforce each other (Lee & Ashforth, 1996). Following this line of thought, participants who experienced low professional efficacy may have felt that they were incompetent and inefficient in handling problems proactively, and therefore did not engage in task-oriented coping.

Of the consequences of burnout, depression showed a decrease during the short term, regardless of the burnout pattern. However, when the burnout trajectories were examined, the changes in depression varied according to the trajectory. Depression decreased in both the low burnout and high burnout-benefited trajectories, whereas it stayed at a high level in the high burnout-not benefited trajectory. The decrease in depression was especially meaningful for participants in the high burnout-benefited trajectory, since the depression scores fell from the category of mild to moderate depression to that of null to minimal depression (Beck, Steer, & Garbin, 1988). The high burnout-not benefited trajectory was particularly alarming, since the employees in this trajectory experienced high levels of job demands and depression, and low levels of resources and job satisfaction, none of which improved during the rehabilitation. Additionally, these employees more often participated in extra therapeutic counseling, compared to the employees in the low burnout trajectory. Employees with this package of negative characteristics are at risk for seeking early retirement or a disability pension, since evidence exists that employees are more likely to retire if their jobs have undesirable characteristics. High demands and poor job control increased the likelihood of thoughts of early retirement even when adjusted for age, gender, educational level, and self-rated health (Elovainio et al., 2005). Additionally, low job satisfaction has turned out to be a strong independent predictor of early retirement for both women and men (Mein et al., 2000).

In sum, a resource gain (Hobfoll & Shirom, 2001) was most clearly seen among those who benefited from rehabilitation in terms of reduced burnout. The rehabilitation managed to break successfully the employees' loss cycles. Additionally, those not suffering from burnout (low burnout trajectory) benefited from rehabilitation in terms of decreased time pressures, increased workplace climate, and decreased depression. Rehabilitation seemed to act as a preventive intervention for these employees.

Finally, job characteristics are, theoretically, expected to be the antecedents of burnout, and depression and job satisfaction the consequences of burnout. The causality between these variables has not turned out to be that straightforward. There is, in fact, evidence for reciprocal relationships between job characteristics and mental health (De Lange et al., 2004; Demerouti, Bakker, & Bulters, 2004). This means that poor job characteristics may lead to higher burnout, but also that higher burnout may lead to deterioration in perceived job characteristics. It was not possible in the present study to resolve the question of causality.

4.1.5 Heterogeneous burnout levels as a threat to evidence-based information

Two extreme burnout groups were identified in the study: those who had high levels of burnout and those with minor burnout symptoms. The latter group was rather large, and it involved employees who experienced low burnout symptoms and low depression, and whose job conditions were at the highest level compared to the other groups. Stress-management interventions have been criticized for offering programs to heterogeneous groups of employees with different distress levels (Reynolds & Brinner, 1994). Employees are usually recruited for interventions on a voluntary basis, with the result that the program offered may suit their needs to varying degrees. However, this study involved employees who had gone through a selection procedure and been assessed as suitable candidates for rehabilitation by a physician. Despite this, the MBI-GS showed heterogeneity in the participants' burnout levels. This result may indicate the health care industry's difficulty in detecting burnout. Burnout is not considered a mental disorder, but a condition that affects health status (see Z73.0 in ICD-10; World Health Organization, 1992). Therefore, in the absence of specific guidelines for the identification of burnout, variations can be expected in diagnostic practices. Ahola (2007) suggests that in order to elicit the need for individual and occupational interventions, it could be beneficial to use a coding system for burnout in addition to a diagnosis.

Both practical and methodological problems stem from this heterogeneity. One practical problem is the possibility that those with low burnout are selected for the wrong intervention program, thereby diverting health care resources (time and money) away from those who genuinely need the treatment, and potentially not treating the client as effectively as needed. Methodologically, we lack evidence-based information because analyzing heterogeneous samples leads to small or nonsignificant effect sizes, which, in turn, may lead to the conclusion that intervention has little or no effect.

This result calls for more precise targeting of the Vitality type of intervention. In order to do this, the inclusion and exclusion criteria need to be defined rigorously in line with the contents of the intervention. Without clear criteria, it is difficult to draw conclusions regarding the extent to which the variation in outcomes is due to the sample or to the intervention. In the case of job burnout, this is particularly challenging since we do not have common agreement on the conceptualization of job burnout. Despite this disagreement, it is important that the criteria chosen are explicit and that the benefits are assessed in accordance with those criteria.

4.2 Methodological considerations

The randomized controlled trial (RCT) is considered the most reliable research design when seeking scientific evidence on the effectiveness of an intervention

(Cook & Campbell, 1979). However, randomization presents a serious challenge in the rehabilitation context: Clients have the right to appropriate treatment (Järvikoski & Härkäpää, 2001). Thus, it is at least unethical to randomize clients into controls and groups that differ by rehabilitation program (Rissanen & Aalto, 2002). By extension, then, it is difficult to obtain a proper control group. Furthermore, if randomization were possible, the study would probably lack intervention effects, since some individuals would not get the treatment they need (Järvikoski & Härkäpää, 2001). Quasi-experimental and longitudinal designs, as well as qualitative research, have been suggested as possible alternatives to the RCT (Rissanen & Aalto, 2002).

Internal and external validity. Nonrandomization, however, is a threat to internal and external validity. Internal validity refers to such issues as how well the study was implemented (research design, measures used) and how confidently we can conclude that the changes in the dependent variables were produced by the independent variable, and not by extraneous ones (Cook & Campbell, 1979). Tertiary preventive interventions, such as the rehabilitation programs studied here, are long-term treatment processes that typically last 1 to 2 years. Rehabilitation clients work (if they are capable) and live outside the rehabilitation setting between the treatment periods. Therefore, the experiences beyond the control of the rehabilitation plan that individuals have between the measurements can influence the results and may jeopardize internal validity.

Moreover, many of the challenges concerning organizational interventions concern also rehabilitation interventions. Rehabilitation is a social process in which affect the outcome is also affected by various contextual factors. These factors include, for example, the interaction between clients, and between the clients and rehabilitation staff. Employee rehabilitation is usually carried out in groups, and the quality of the group functioning can influence the outcome of rehabilitation. Supportive peer-groups are valuable resources in the rehabilitation process, whereas problems in peer-group functioning may have detrimental effects on the outcome of the treatment.

The selection procedure and experimental mortality are also threats to internal validity (Cook & Campbell, 1979). The present participants all went through the same application procedure before they were referred for rehabilitation. Furthermore, the number of dropouts was quite small from Time 1 to Time 4 (during the whole rehabilitation process): sixteen clients did not respond to every question in the MBI inventory or at every measurement. Of these, seven responded to two out of four measurements and on dropped out after the first measurement. Others responded at three out of four measurement times. It is possible that those who did not respond on each occasion were more burned out: if so, the level of burnout would have been underestimated.

The issue of external validity concerns the extent to which the results of a study can be generalized to other persons, settings, and times (Cook & Campbell, 1979). The sample sizes of the present study were small, which inevitably restricts generalization, while it enhances the influence of error variance. Another limitation concerns the participatory intervention. Because the participants in the participatory intervention were all white-collar women,

the results can be generalized to this subgroup only. There is clearly a need to replicate the study with larger samples, and with both genders and different socioeconomic status.

Statistical analyses. The grouping of the rehabilitation clients in Study I was based on cluster analysis. To test whether the same cluster solution has any generalizability, it should be replicated repeatedly across other samples in the same general population (Aldenderfer & Blashfield, 1984). Also, the result of the GMM in Study III needs to be replicated, since the analysis was based on a small number of participants; a larger sample could produce more burnout trajectories and thus give more insight into differences in altered developmental paths as a result of rehabilitation. In fact, the results of GMM identified four trajectories, of which one was rejected because of the small number of participants. Furthermore, in order to be able to study differential treatment effects, the trajectories should be investigated in a sample that comprises participants in the same intervention. Also, in order to study the normative development of burnout, a control group should be included (Curran & Muthén, 1999). Analyzing both intervention and control groups allows one to examine to what extent the intervention can alter the normative developmental trajectory that exists without exposure to treatment. In this study, the size of the control group was small and, additionally, it showed a spontaneous decrease in cynicism. This could have been due to the fact that the members of the group knew they were about to receive treatment.

Measurements. The present study relied wholly on self-reports, which may result in common method variance. Firstly, self-reports are influenced by many other factors, such as personality and affective states (Kompier, 2005; Mäkikangas, Feldt, & Kinnunen, 2007), and they carry the risk of inflated relationships between job conditions and well-being because of common method variance. However, this study comprised well-known, validated measures that are useful and credible sources of information (Kompier, 2005). Objective information such as sickness absences, the period of time until return to work, and information concerning actual changes in employees' workplaces would have further strengthened the results. Also in this study, the job demands were measured only by time pressures at work and total hours worked per week. More diverse measures of job demand (e.g., organizational changes and job insecurity) would have expanded our understanding of concurrent changes in the demands leading to and the recovery from burnout.

Strengths of the study. Burnout is a chronic syndrome (Schaufeli & Enzmann, 1998; Shirom et al., 2005; Taris et al., 2005), and therefore its symptoms are unlikely to decrease without treatment. Nevertheless, alongside the above-mentioned possible explanations for change in the outcome variables, it could be argued that the participants of the study showed improvements because they knew they were involved in a study. This so-called 'Hawthorne effect' is usually a short-term effect; yet, in this study, the reduction in burnout symptoms was sustained for 14 more months (8 months after the decline and 6-months after the treatment), suggesting that the 'Hawthorne effect' was not detected in the results of the study.

A major strength of the study is the longitudinal design that, in addition to the 1-year intervention process, included a 6-month follow-up. Moreover, the study addressed a topic that has not been previously studied: changes in burnout during employee rehabilitation. Rehabilitation is a costly form of intervention and evidence of its usefulness in treating burnout is needed. This study also added knowledge of the change mechanisms through which burnout decreases during rehabilitation; this is an important issue from a practical viewpoint. Also, information on the effectiveness of an alternative treatment program (participatory intervention), when compared to that of the 'care-as-usual' program (traditional intervention), has practical value. In addition, the study produced an insight into the conditions under which a rehabilitation intervention is not effective, which may help evaluating the inclusion and exclusion criteria for burnout intervention programs offered in rehabilitation settings.

4.3 Practical implications and recommendations for future studies

There are different phases and steps in the process of recovery from burnout. Employees who lack personal and job-related resources seem to benefit from the change in the environment (Bernier, 1998). Employee rehabilitation that is conducted at a rehabilitation center offers an opportunity to take a psychological distancing from the workplace. This also enables the rehabilitee to explore his or her physical and psychological condition and values, as well as acknowledge his or her situation, which is the starting point of recovery. Typically in such treatments, employees spend 2 weeks in a rehabilitation setting during which some individuals started to regain their resources. For burned-out employees, it is essential, first, to focus the intervention on individual-level so that the alleviation in symptoms and resource restoration is possible. After that, the target of the intervention should also focus on the organizational level.

From the rehabilitation point of view, it would be essential to find ways to ensure the positive development of the well-being of rehabilitees. Short, refresher types of rehabilitation periods, lasting just a couple of days, have been suggested as one possible way of ensuring positive changes (Kurki, 2004). However, burnout develops as a result of a prolonged misfit between the employee and the job, and therefore it would be more important to develop new forms of rehabilitation activities within the treatment process that would better integrate the employee and his or her workplace. Rehabilitation targeted at working-aged individuals has been criticized for being too individually focused and for not understanding the true needs of working life (Suikkanen & Lindh, 2007).

A participatory intervention seems to have better possibilities to influence burnout, at least where white-collar women are concerned. Previous stress intervention reviews have stressed the importance of assessing the employees' work situation before intervening (e.g., Briner, 1997; Briner & Reynolds, 1999; Reynolds & Briner, 1994), as well as the participation and commitment of both employees and managers toward the stress intervention or prevention (e.g., Kompier, Geurts, Gründemann, Vink, & Smulders, 1998). The participants in this type of treatment are not considered passive objects but active subjects. These are valuable features that were applied in the present intervention. These features are also emphasized in the empowering and ecological paradigm of rehabilitation (Järvikoski & Härkäpää, 2004). However, one drawback in implementing these interventions has been that supervisors have not always been able to participate in these collaborative meetings. It would be necessary to explore how to enhance and develop cooperation between the rehabilitation staff and the rehabilitees' workplaces, possibly with the help of occupational health care services. The participatory type of intervention is, however, vulnerable in a sense that if there are problems in the relationships between the participants and/or the supervisor (since both come from the same workplace), the intervention is unlikely to succeed.

The burnout trajectory analysis revealed a group of employees who did not benefit from rehabilitation in terms of reduced burnout. It would be particularly important to examine this issue further. If the reason for not benefiting from rehabilitation was, as discussed earlier, the late start of rehabilitation, it would be useful to study what factors were responsible for that late start. Rehabilitation activities are hardly likely to help employees who have already tried all other remedies.

It appears that improving job control in situations where employees experience elevated time pressures seems to alleviate their symptoms. This is important information for organizations where structural obstacles to decreasing time demands are present. Enhancing their control over their work may help employees to meet these demands. In addition to coping with job demands, job control enables employees to learn effective strategies for solving work-related challenges, which may in turn lead to better work-related well-being and health. Although increased job control is a valuable job-related resource, which in this study functioned as a mechanism through which burnout decreased among white-collar employees, it is important to acknowledge that the mechanisms of change for blue-collar workers are likely to be quite different.

In the future, motivating employees and their workplaces to promote work-related well-being and health will be essential, as the population ages and the size of the labor force decreases. One way to promote individuals' well-being and decrease mental ill-health is to help them to change their goals (Sheldon, Kasser, Smith, & Share, 2002). Goal setting is widely considered to be a fundamental element in contemporary rehabilitation, especially in clinical settings (Siegert, McPherson, & Taylor, 2004). Goals give structure to rehabilitation, they channel rehabilitation professionals' work in the same

direction, they motivate rehabilitees, and they enhance rehabilitees' autonomy (Siegert et al., 2004). More specifically, both the goal content (Salmela-Aro & Nurmi, 2002) and the goal-setting procedure (Siegert et al., 2004) can be considered important to rehabilitation outcomes. There is evidence to show that the goal contents are related to well-being (Salmela-Aro & Nurmi, 2002, 2004). Those suffering from intensive burnout typically have been found to have too many work-related personal goals, goal-related stress, goals that are unattainable, and insufficient goal-related supervisor support (Salmela-Aro & Nurmi, 2002). It would be worth studying, therefore, whether motivation, in terms of personal goals or projects and the goal-setting procedure, could be assessed and developed for use in the rehabilitation of working-aged individuals.

Precise targeting and an early start are crucial to improving the effectiveness of rehabilitation (Rissanen & Aalto, 2002). However, this is particularly difficult for burnout rehabilitation in Finland, as in many other countries, since researchers and practitioners do not share a common agreement on the nature of burnout nor operate within nation-specific, clinically validated cut-off points to show the seriousness of burnout symptoms. With exception at least the Netherlands, where the MBI-GS is recommended as a tool for diagnosing work-related mental problems and clinically validated cut-off scores have been determined (Schaufeli & Taris, 2005). If burnout is to be treated and the effectiveness of the rehabilitation on burnout is to be evaluated, we need common agreement on its definition and identification.

On the basis of current knowledge on the possible causes and consequences of burnout, a rehabilitation intervention that is conducted principally outside the rehabilitees' workplaces may have only limited effects on burnout, as was found in the present study. Job-related burnout develops as a result of a complex interplay between a job and a person. More specifically it can emerge where a chronic discrepancy between an employee and his or her job conditions exists. Therefore, the promising results found for the participatory approach in this study should encourage its further study and use for treating burned-out employees in preference to an individually focused rehabilitation program. Although there are clear benefits in treating burned-out employees outside their workplaces, as discussed above, it should be considered whether, after the "in-patient period(s)," the intervention activities could somehow be focused more strongly on the organizational level. Whether organizational-level activities should be carried out by occupational health care or rehabilitation professionals, or both, is a matter of negotiation on the division of responsibilities between these two parties. An important unresolved issue is also how organizations could be more strongly committed in the rehabilitation process.

TIIVISTELMÄ

Työuupumuksen hoito työikäisten kuntoutuksessa: muutokset työuupumuksen oireissa, ennakoijissa ja seurauksissa

Tämän väitöskirjan tavoitteena oli tutkia työuupumuksen ilmentymiä ja muutoksia oireissa vuoden kestäneen kuntoutusintervention ja kuuden kuukauden seurannan aikana. Lisäksi tutkimuksessa verrattiin kahta työuupumusinterventiota, joista toinen oli tavanomaisesti käytössä oleva ja toiseen oli lisätty työyhteisökytkentä. Tutkimuksen tavoitteena oli myös tutkia muutoksia tietyissä työuupumuksen ennakoijissa ja seurauksissa intervention aikana sekä näiden yhteyttä työuupumustyyppeihin ja työuupumuksen kehityspolkuihin (trajektoreihin). Tutkimus pohjautui pitkittäisaineistoon, joka oli osa Työsuojelurahaston rahoittamaa työikäisten kuntoutusasiakkaiden keskuudessa vuosina 2000–2004 toteutettua projektia ”Työuupumus: arvioiminen, kehittyminen ja intervention vaikuttavuus”, joka toteutettiin työikäisten kuntoutusasiakkaiden ($N = 175$) keskuudessa vuosina 2000–2004. Työuupumusta mitattiin MBI-GS mittarilla, joka määrittelee työuupumuksen kolmiulotteiseksi oireyhtymäksi koostuen uupumusasteisesta väsymyksestä, kyynistyneisyydestä sekä heikentyneestä ammatillisesta itsetunnosta. Työuupumuksen ennakoijia tarkasteltiin yksilöllisten voimavarojen (koherenssi ja stressinhallintakeinot) sekä työolotekijöiden (työn aikapaineet, vaikutusmahdollisuudet työssä, työilmapiiri ja tyytyväisyys esimieheen) avulla. Työuupumuksen seurauksina tutkittiin masentuneisuutta ja työtyytyväisyyttä.

Ensimmäisen osatutkimuksen ($n = 135$) tavoitteena oli tarkastella, eriytyvätkö työuupumusoireet kuntoutuksen alkaessa siten, että kuntoutujat ovat luokiteltavissa erilaisiin työuupumustyyppeihin. Lisäksi tutkittiin neljän kuukauden seuranta-aikana tapahtuneita muutoksia uupumusoireissa, työolotekijöissä, yksilöllisissä voimavaratekijöissä sekä masentuneisuudessa. Toisessa osatutkimuksessa ($n = 64$) hyödynnettiin kvasikokeellista tutkimusasetelmaa ja vertailtiin kahden kuntoutusmuodon vaikuttavuutta toimihenkilöinä työskentelevien naisten kokemaan työuupumukseen ja työolotekijöihin vuoden kestäväen kuntoutusintervention aikana. Vertailtavat kuntoutusmuodot olivat yksilösuuntautunut, perinteinen kuntoutus sekä työyhteisökytkennän sisältävä, osallistava kuntoutus. Lisäksi tutkittiin, millaisten mekanismien kautta työuupumusoireet vähenevät. Kolmannessa osatutkimuksessa ($n = 85$) tutkittiin työuupumuksen kehityksellisiä polkuja (trajektoreja) vuoden kestäneen kuntoutusintervention sekä kuuden kuukauden seurannan aikana. Lisäksi tarkasteltiin työuupumustrajektoreitten yhteyksiä työuupumuksen ennakoijiin ja seurauksiin vuoden kestäneen kuntoutusintervention aikana.

Ensimmäisessä osatutkimuksessa löytyi neljä työuupumustyyppiä: eityöuupuneet ($n = 55$), väsyneet-kyynistyneet ($n = 36$), työuupuneet ($n = 26$) sekä heikosta ammatillisesta itsetunnosta kärsivät ($n = 18$). Kuntoutujien kokemassa työuupumuksessa tapahtui positiivisia ja negatiivisia muutoksia neljän kuu-

kauden aikana, kun kuntoutusmuodon, iän ja pitkäaikaissairauksien vaikutus oli vakioitu. Uupumusasteinen väsymys väheni työuupuneilla sekä väsyneet-kyynistyneet -ryhmällä. Lisäksi kyynistyneisyys väheni työuupuneitten ryhmässä. Ammatillinen itsetunto väheni ryhmässä, jossa kuntoutujat kärsivät heikentyneestä ammatillisesta itsetunnosta, mutta sen sijaan oire lisääntyi entisestään väsyneet-kyynistyneet -ryhmässä. Tutkituissa työolo- ja voimavaratekijöissä tapahtui positiivisia muutoksia: koetut vaikutusmahdollisuudet työhön lisääntyivät ja masentuneisuus väheni kaikissa neljässä uupumusryhmässä. Työuupumustyyppien välillä oli myös eroja työolo- ja voimavaratekijöissä seuranta-aikana: työuupuneitten ryhmässä koettiin työpaikan ilmapiiri huonommaksi verrattuna ei-työuupuneisiin. Ei-työuupuneet käyttivät enemmän tehtäväsuuntautuneita stressinhallintakeinoja verrattuna heikentyneestä ammatillisesta itsetunnosta kärsiviin, kun taas työuupuneet käyttivät enemmän emootiosuuntautuneita stressinhallintakeinoja verrattuna ei-työuupuneisiin ja heikentyneestä ammatillisesta itsetunnosta kärsiviin. Ei-työuupuneet kokivat elämänhallintansa paremmaksi verrattuna työuupumus - ja väsyneet-kyynistyneet -ryhmiin. Lisäksi heikentyneestä ammatillisesta itsetunnosta kärsivät kokivat elämänhallintansa paremmaksi verrattuna työuupuneisiin.

Toinen osatutkimus osoitti, että työuupumusoireista uupumusasteinen väsymys ja kyynistyneisyys vähenivät työyhteisökytkennän sisältävässä, osallistavassa kuntoutuksessa ($n = 20$) neljän kuukauden aikana sen jälkeen, kun iän ja parisuhteen vaikutus oli vakioitu. Sen sijaan työuupumusoireet eivät vähentyneet tilastollisesti merkitsevästi yksilösuuntautuneessa, perinteisessä kuntoutuksessa. Työolotekijöistä vaikutusmahdollisuudet työhön lisääntyivät osallistavassa kuntoutuksessa ja tyytyväisyys esimieheen väheni perinteisessä kuntoutuksessa ($n = 32$). Pitkäaikaisia muutoksia (12 kuukautta) tutkiessa havaittiin, että osallistavan kuntoutuksen myötä vähentynyt uupumusasteisen väsymyksen ja kyynistyneisyyden taso säilyi vuoden seurannassa, kun iän ja parisuhteen vaikutus oli vakioitu. Työilmapiirin koettiin parantuneen molemmissa kuntoutusmuodoissa vuoden seuranta-aikana. Lisäksi perinteisessä kuntoutuksessa työn aikapaineiden koettiin vähentyneen vuoden seuranta-aikana. Osallistavassa kuntoutuksessa neljän kuukauden aikana lisääntyneet vaikutusmahdollisuudet työhön säilyivät kohonneella tasolla kuntoutuksen loppuun.

Koska työuupumusoireet vähenivät seuranta-aikana osallistavassa kuntoutuksessa, muutosmekanismeja tarkasteltiin vain tässä interventiossa. Lisäksi, koska vain kahdessa hypoteettisessa mekanismissa tapahtui positiivisia muutoksia seuranta-aikana (vaikutusmahdollisuudet työhön ja työilmapiiri), vain nämä työolotekijät olivat mukana jatkoanalyysissä. Tulokset osoittivat, että lisääntyneet vaikutusmahdollisuudet työhön toimivat erityisesti kyynistyneisyyttä vähentävänä mekanismina toimihenkilöinä työskentelevillä naisilla vuoden kestäväntuntoutusinterventioajan aikana. Työilmapiirin parantuminen ei ollut yhteydessä uupumusoireiden vähenemiseen.

Kolmannessa osatutkimuksessa oli mukana sekä perinteisen että osallistavan kuntoutuksen kaikki kuntoutujat. Tulokset paljastivat kolme työuupumustrajektoria vuoden kuntoutusinterventioajan ja kuuden kuukauden seurannan aikana: vähän työuupuneet ($n = 39$), työuupuneet, jotka hyötyivät kuntoutuk-

sesta (uupumusasteinen väsymys ja kyynistyneisyys vähenivät neljän kuukauden jälkeen ja pysyivät alentuneella tasollaan koko seuranta-ajan) ($n = 29$) sekä työuupuneet, jotka eivät hyötynet kuntoutuksesta (työuupumusoireet eivät vähentyneet kuntoutuksen eivätkä seurannan myötä) ($n = 17$). Kun vähän työuupuneitten trajektoria ei laskettu mukaan ja hyötymisen kriteerinä pidettiin uupumusoireiden vähenemistä, vähän yli puolet (64%) kuntoutujista hyötyi kuntoutuksesta. Puolet (50%) osallistavaan kuntoutukseen osallistuneista hyötyi kuntoutuksesta, kun taas vastaava osuus perinteiseen kuntoutukseen osallistuvista oli 29%. Ei-hyötynet trajektorissa oli pelkästään perinteiseen kuntoutukseen kuuluvia kuntoutujia.

Vuoden seuranta-aikana tapahtui muutoksia työuupumuksen ennakoijissa ja seurausmuuttujissa. Työn aikapaineet vähenivät sekä vähän työuupuneitten että hyötynetitten trajektoreissa. Työn vaikutusmahdollisuudet lisääntyivät pelkästään hyötynetitten trajektorissa. Lisäksi työilmapiirin koettiin parantuneen sekä vähän työuupuneitten että hyötynetitten trajektorissa. Edelleen masentuneisuus laski vähän työuupuneitten ja hyötynetitten trajektoreissa, kun taas ei-hyötynetitten ryhmässä se pysyi korkealla tasolla koko kuntoutusprosessin aikana. Työtyytyväisyys lisääntyi vain hyötynetitten ryhmässä.

Kolmen osatutkimuksen päätulokset paljastivat, että työuupumusoireet vähenivät uupumusasteisen väsymyksen ja kyynistyneisyyden osalta neljä kuukautta ensimmäisen kuntoutusjakson jälkeen ja nämä tulokset säilyivät kuntoutuksen päättymiseen saakka sekä kuuden kuukauden seurannassa. Oireet eivät vähentyneet kaikilla, vaan oireiden väheneminen tapahtui tietyissä osaryhmissä. Työikäisille tarkoitettussa työuupumuskuntoutuksessa oli eritasoisesti uupumusoireista kärsiviä: kuntoutuksessa oli mukana työntekijöitä, jotka eivät juuri kokeneet työuupumusoireita sekä työntekijöitä, joiden työuupumusoireiden taso oli korkea. Viimeksi mainitussa ryhmässä työuupumusoireiden muutos eriytyi kuntoutuksen myötä: osalla voimakkaasti työuupuneista oireet vähenivät, kun taas osalla ne pysyivät korkealla tasolla kuntoutuksen aikana.

Osallistava kuntoutusmuoto (yksilösuuntautunut kuntoutus, johon oli yhdistetty työyhteisökytkentä) vähensi tehokkaammin työuupumusoireilua verrattuna perinteiseen kuntoutukseen (yksilösuuntautunut kuntoutus). Työyhteisökytkennän lisääminen työuupumuskuntoutukseen on siten suositeltavaa. Työuupumuksen ennakoijista vähentyneet työn vaatimukset ja lisääntyneet työn voimavaratekijät (erityisesti vaikutusmahdollisuudet työhön) olivat yhteydessä työuupumuksen vähenemiseen. Työuupumuksen seurauksista vähentynyt masentuneisuus ja lisääntynyt työtyytyväisyys olivat yhteydessä työuupumuksen vähenemiseen kuntoutuksen myötä.

Osalla työuupuneista kuntoutus alkoi luultavasti liian myöhään. Tämä kuntoutujaryhmä koki vähäistä työtyytyväisyyttä, mikä yhdessä heikentyneen psyykkisen terveyden (korkea työuupumus ja masentuneisuus) myötä voi johdattaa työntekijöiden hakeutumiseen ennenaikaiselle eläkkeelle. Lisäksi mukana oli vähän työuupumusta kokevia, joiden osalta varhaiskuntoutus olisi ollut kenties sopivampi kuntoutusmuoto. Mikäli kuntoutuksen tavoitteena on työuupumuksen väheneminen, kuntoutuksen tarkempi kohdentuminen näyttäisi

olevan tarpeen. Olisi myös tärkeää, että pääsisimme yhteisymmärrykseen työuupumuksen käsitteestä ja mittarista sekä saisimme kliinisellä aineistolla validoidut raja-arvot, joiden avulla työuupumuksen tasoa voitaisiin arvioida.

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