

Krista Pahkin

Staying well in an unstable world of work – Prospective cohort study of the determinants of employee well-being



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Address Finnish Institute of Occupational Health
Arinatie 3
FI-00370 Helsinki
Tel. +358-30 4741
www.ttl.fi

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Staying well in an unstable world of work – Prospective cohort study of the determinants of employee well-being

Krista Pahkin

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Faculty of Social Sciences
Social Psychology
University of Helsinki, Finland

ABSTRACT

There is growing interest in factors that determine the development of employee well-being over time and, in particular, during turbulence in work life, which is an increasingly common situation in modern societies. The approach of this thesis was resource-oriented, with the overarching aim being to identify work-related and personal factors which support employee well-being.

Three specific objectives were set:

- (1) to examine long-term associations of work-related and personal factors with employee well-being;
- (2) to determine
 - (a) whether these factors also protect well-being during organizational restructuring (change) processes,
 - (b) whether employees' appraisal of organizational change and
 - (c) the type of restructuring (personnel dismissals vs. no dismissals) are also associated with employee well-being; and
- (3) to explore how organizations manage the restructuring process and employees reactions to it.

In the theoretical framework of this thesis, employee well-being was considered as a multidimensional concept which included aspects such as *health* (e.g. sickness absence) and *mental well-being*, as indicated by strain (e.g. feelings of stress and symptoms of burnout) and feeling well and motivated (e.g. indicated by job satisfaction and work enjoyment). Employee well-being was assessed by using both a person's own evaluations (subjective measures) and register-based data (objective measures).

ABSTRACT

A wide range of personal and work-related factors, including job characteristics, organizational factors, work environment, were considered as correlates of employee well-being. The instability of work life was operationalized as organizational restructuring situations.

The empirical part of this thesis was based on a prospective cohort study of employees in the Finnish forest industry. Data included responses to questionnaires (N up to 4279) and records from organizational and national registers, all collected between 1986 and 2009. Of the two datasets used, one was collected from a single company, whereas the other was from four forest industry companies. The data covered a period of stable growth, strong international expansion and organizational downsizing, illustrating the instability of work life that many employees are likely to face during their working career.

The findings first of all show that the level of employee well-being was relatively stable over time (Aim 1). Employees who reported feeling unwell at work at follow-up worked in considerably worse working conditions (compared to people with good well-being) already 10 years before the follow-up. Their personal resources were weaker both at the 10-year follow-up and at baseline. Those feeling less well had fewer personal and work-related resources, such as a weak sense of coherence (SOC) and non-supportive atmosphere. Furthermore, the resources seemed to increase among those feeling well, whereas the development trend was vice versa among those feeling less well.

Secondly, the findings showed that the same factors which helped individuals to stay well over the long run also helped them during the turbulence of work life (Aim 2a). Strong SOC and strong social support were also associated with indices of employee well-being during organizational restructuring as well as a more positive view of the restructuring and its consequences. However, pre-change social support from co-workers did not provide a buffer against the detrimental effect of negative change experience (change appraisal) on employee well-being.

There was an association between the change appraisal and employee well-being, both health and mental well-being, during organizational restructuring (Aim 2b): A negative appraisal of the restructuring process increased the risk of lower employee well-being. The association mostly remained when changes were and were not accompanied by personnel redundancies (Aim 2c). There was also an overall trend of decreasing

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mental well-being through the restructuring process, irrespective of the type of changes. Furthermore, the findings showed that also the positive, motivational aspects of mental well-being can be damaged if the change appraisal is negative.

Finally, the findings showed that by offering opportunities to participate in the planning of the changes related to one's own work and through the actions of top management and the immediate superior's organizations can support the development of positive change experience (Aim 3).

In conclusion, the findings of this thesis support the notion that several aspects of employee well-being are associated with personal and work-related resources and that favorable change appraisals may play an important role in maintaining employee well-being during organizational restructuring. Policies to evoke positive change appraisals, such as providing opportunities for employees to participate in the planning of changes and managerial support, in the form of communication, support and justice, may be particularly important in the unstable world of modern work.

YHTEENVETO

Kiinnostus tekijöihin, jotka vaikuttavat työntekijöiden työhyvinvointiin pitkän ajan kuluessa, on lisääntynyt. Tämä on ymmärrettävää, sillä erilaiset organisaatiomuutokset ovat yleistyneet huomattavasti, ja jatkuva muutospöörre koettelee yhä useamman työhyvinvointia. Tässä väitöskirjassa selvitetään niitä työhön liittyviä ja yksilöllisiä voimavaroja, jotka tukevat työntekijöiden työhyvinvointia läpi työuran ja organisaatiomuutosten.

Tämän väitöskirjan päämääränä oli

- (1) tunnistaa työhön liittyvät ja yksilölliset voimavarat, jotka ovat yhteydessä työntekijöiden työssä jaksamiseen pitkällä aikavälillä (10 vuoden aikana);
- (2) selvittää,
 - (a) suojaavatko tunnistetut työhön liittyvät ja yksilölliset voimavarat työntekijöiden työhyvinvointia myös organisaatiomuutoksen aikana,
 - (b) ovatko yksilön muutkokokemus eli oma arvio organisaatiomuutoksen merkityksestä ja
 - (c) organisaatiomuutoksen tyyppi ja merkittävyys (sisälsikö muutosprosessi henkilöstön irtisanomisia vai ei) yhteydessä työntekijän työhyvinvointiin; ja
- (3) selvittää muutosjohtamiskäytäntöjen yhteyttä muutkokokemuksen muodostumiseen.

Tässä väitöstyössä työhyvinvointia tarkastellaan ja mitataan sekä *terveytenä* (mm. sairauspoissaoloina) että *henkisenä hyvinvointina*, jota kuvaavat niin kuormittuneisuus (mm. stressi, työuupumus) kuin jaksaminen

(työtyytyväisyys, työn ilo). Työhyvinvoinnin mittareina käytettiin sekä vastaajan subjektiivista arvioita tilanteestaan että objektiivista tietoa tarjoavia rekisteritietoja. Työhyvinvointiin yhteydessä olevina tekijöinä tarkasteltiin niin yksilöllisiä kuin työhön liittyviä tekijöitä (työn piirteet, organisaation toiminta, työympäristö). Työelämän häilyvyys huomioitiin tarkastelemalla erityyppisiä organisaatiomuutoksia.

Työn empiriisen aineiston muodostaa suomalaisen metsäteollisuuden työntekijöiden kohorttitutkimus. Tutkimusaineisto koostuu vuosina 1986–2009 kerätyistä kyselyaineistoista (N enimmillään 4 279) sekä organisaatiokohtaisista ja kansallisista rekisteriaineistoista. Kahdesta tutkimuksessa käytetystä osa-aineistosta ensimmäisessä kaikki aineisto on kerätty yhdestä yrityksestä (osa-aineisto I) ja toisessa aineisto on kerätty neljästä keskeisestä metsäteollisuusyrityksestä (osa-aineisto II). Tutkimusaineisto kattaa ajan, johon sisältyi niin taloudellisesti vakaan kasvun, voimakkaan kansainvälistymisen kuin taloudellisen taantuman kausi. Nämä eri vaiheet heijastavat työelämän vakauden puutetta, erilaisia tilanteita, joita työntekijät mahdollisesti kohtaavat työuransa aikana.

Tulokset ensinnäkin osoittivat, että työntekijöiden työhyvinvointi pysyi samalla tasolla pitkällä aikavälillä (ks. tavoite 1). Ne työntekijät, jotka seurantatutkimuksessa voivat huonosti, olivat työskennelleet huonommissa työolosuhteissa kuin hyvinvoivat työntekijät jo 10 vuotta aikaisemmin, ja heidän yksilölliset voimavaransa olivat heikompia jo lähtötilanteessa. Työntekijöillä, joiden työhyvinvointi oli heikompi, oli vähemmän sekä yksilöllisiä että työhön liittyviä voimavaroja kuin hyvinvoivilla työntekijöillä. Heidän elämänhallinnan tunteensa (koherenssin tunne) oli heikompi, ja heidän työssään kokemansa sosiaalinen tuki oli vähäisempää kuin hyvinvoivilla työntekijöillä. Lisäksi resursseissa tapahtunut muutos vuosien aikana vaikutti menevän eri suuntiin: resurssit lisääntyivät niillä työntekijöillä, jotka voivat hyvin, kun ne vastaavasti heikkenivät niillä, joiden työhyvinvointi oli alkuaan heikompi.

Tulokset myös osoittivat, että samat tekijät, jotka auttoivat työntekijää jaksamaan pitkällä aikavälillä, tukivat heitä myös muutoksen pyörteissä (ks. tavoite 2a). Vahva elämänhallinnan tunne ja sosiaalinen tuki olivat yhteydessä sekä työhyvinvointiin että myönteiseen muutuskokemukseen organisaatiomuutoksessa. Hyvä sosiaalinen tuki työtovereilta ennen organisaatiomuutosta ei kuitenkaan suojannut kielteisen muutuskokemuksen työhyvinvointia heikentävältä vaikutukselta.

Yksilön oma arvio muutoksen merkityksestä (muutoskokemus) oli yhteydessä hänen terveyteensä ja henkiseen hyvinvointiinsa (ks. tavoite 2b). Kielteinen muutoskokemus oli yhteydessä heikentyneeseen työhyvinvointiin. Yhteys pääosin säilyi, sisältyipä muutokseen henkilöstön irtisanomisia tai ei (ks. tavoite 2c). Riippumatta organisaatiomuutoksen tyypistä työntekijöiden henkinen hyvinvointi yleisesti ottaen heikkeni. Tulokset myös osoittivat, että kielteinen muutoskokemus heikentää myös myönteistä, motivationaalista hyvinvointia, eli se ei ainoastaan lisää kuormittuneisuutta.

Lopuksi tulokset osoittivat, että organisaatio voi vaikuttaa muutoskokemukseen. Se voi tarjota työntekijälle mahdollisuuksia vaikuttaa omaa työtään koskeviin muutoksiin. Yritysjohto ja esimiehet voivat toimillaan tukea muutosprosessin läpikäymistä (ks. tavoite 3).

Tutkimuksen tulokset tukevat käsitystä, jonka mukaan niin yksilölliset kuin työhön liittyvät voimavaratekijät vaikuttavat terveyteen ja henkiseen hyvinvointiin. Lisäksi muutoskokemus, eli yksilön oma kokemus muutoksesta ja sen vaikutuksista, osoittautui työhyvinvoinnin kannalta merkittäväksi tekijäksi. Henkilöstön osallistumismahdollisuudet omaa työtä koskevien muutoksien suunnitteluun luovat pohjaa myönteiselle muutoskokemukselle. Siihen tarvitaan myös johdon ja esimiesten hyväksi koettua muutosjohtamista, eli riittävää vuorovaikutusta, tukea ja oikeudenmukaista toimintaa.

LIST OF ORIGINAL PUBLICATIONS

- I *Kalimo R, Pahkin K and Mutanen P*: Work and personal resources as long-term predictors of well-being. *Stress and Health* 2002; 18, 227–234.
- II *Kalimo R, Pahkin K, Mutanen P, and Toppinen-Tanner S*: Staying well or burning out at work: Work characteristics and personal resources as long-term predictors. *Work & Stress*, April-June 2003, vol. 17, 2, 109–122.
- III *Väänänen A, Pahkin K, Kalimo R and Buunk B*: Maintenance of subjective health during a merger: The role of experienced change and pre-merger social support at work in white- and blue-collar workers. *Social Science & Medicine* 2004; 58, 1903–1915.
- IV *Pahkin K, Väänänen A, Koskinen A, Bergbom, B*: Organizational change and employees' mental health: the protective role of Sense of Coherence. *Journal of Occupational and Environmental Medicine* 2011; vol. 53 (2), 118–123.
- V *Pahkin K, Mattila-Holappa M, Väänänen A, Koskinen A, Nielsen K*: Dismissals – a major concern but only one among others? *Industrial Health* 2013; 51, 134–141.
- VI *Pahkin K, Nielsen K, Väänänen A, Mattila-Holappa P, Leppänen A, and Koskinen A*: Importance of change appraisal for employee well-being during organizational restructuring – Findings from the Finnish paper industry's extensive transition. *Industrial Health* 2014; 52, 445–555.

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Finally, my most loving thanks goes to my family. This book is dedicated to them.

Hämeenlinna, 1.12.2014

Krista Pakkin

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1 INTRODUCTION

According to the Finnish Centre of Pensions, the average duration of working life is 32.5 years, and 40% of those in retirement pension worked for more than 40 years (Järnefelt, Kautto, Nurminen & Salonen, 2013). A working career takes up a major share of an individual's life. During these years the world of work continues to change. For example, over the last five decades the Finnish economic structure has moved from a society based on agriculture to a society which is based on paid work (Keinänen, 2009), where, for example, the number of female employees as well as the level of education has increased (Myrskylä, 2009). The content of work has also changed as a consequence of technological development, such as automation in the Finnish forest industry (Liukkonen & Korhonen, 2000), the target group of this thesis. The technological development in the sector has resulted in an increase in the number of production even though the amount of employees has decreased over the years (Figure 1, page 14).

In addition to these structural and technological changes, several qualitative changes have occurred in work life. One is an increase in job insecurity as a consequence of flexible forms of employment, such as temporary work (Pärnänen & Sutela, 2009), and the large amount of organizational restructuring that has taken place. According to the European Restructuring Monitor (ERM) database, approximately 17 000 large-scale restructuring (organizational change) events have occurred in Europe in the period from 2002 to 2013, and the number of restructuring cases continues to increase. However, this number includes only cases in which at least 100 jobs have been lost or created or employment effects affecting at least 10% of a workforce of more than 250 people. The total number of restructuring cases is even higher.

1 INTRODUCTION

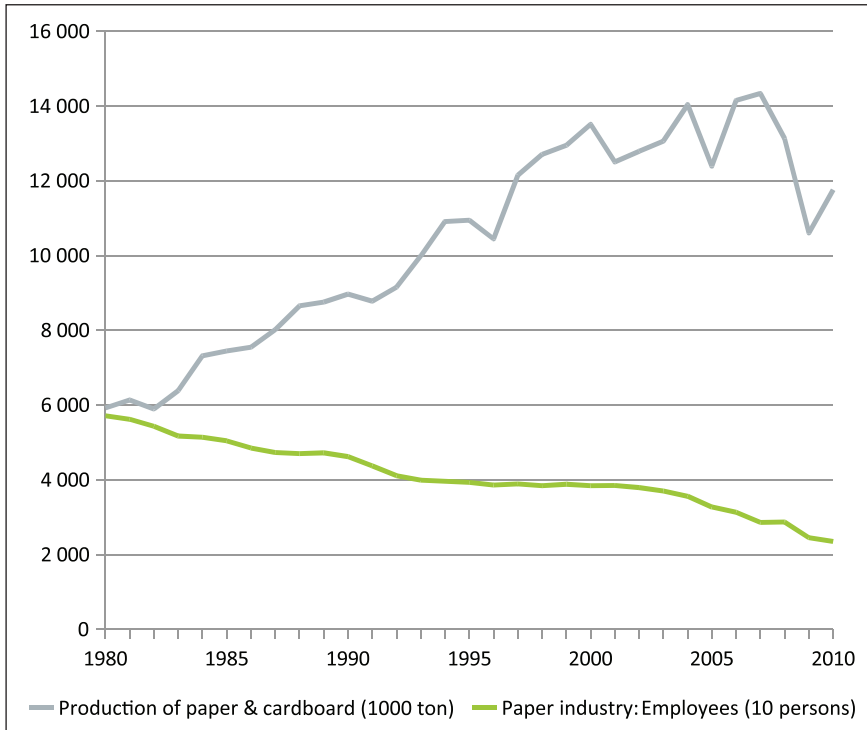


Figure 1. The amount of paper and cardboard production (1000 ton) and the number of employees in the paper industry from 1980 to 2010 (Official Statistics of Finland (OSF): a-b).

According to Eurofound (2012a), 62% of Finnish respondents reported that there had been considerable changes in their workplace during the past three years. Also, according to the barometer carried out every third year by the Finnish Ministry of Employment and the Economy (Lyly-Yrjänäinen, 2013), approximately 50% of respondents repeatedly reports that restructuring activities are carried out in their workplaces (53% in 2009; 46% in 2012). It is evident that different kinds of restructuring activities (organizational changes) are part of current work life, and it is quite likely that most employees will face some sort of restructuring at some point in their working career.

Considering the time spent at work and the instability of work life, paying attention to employee well-being and its determinants over the long run and during the turbulence of work is a highly relevant. It is

particularly important at a time when prolonging working career is a socio-political aim in Finland (Valtioneuvoston kanslia, 2011). The aim of this thesis is to shed light on factors which help employees to stay well in an unstable world of work.

This chapter starts by introducing different definitions of what is meant by employee well-being: is it only the absence of illnesses or something else? This is followed by a brief review of the evidence on factors affecting employee well-being. Instead of reviewing each factor independently, an overview of the theoretical models used to explain the associations between work-related and personal factors with employee well-being is shared. Instability of working life is covered by a review of the evidence of the consequences of organizational restructuring (organizational changes) on employees' well-being. Possible explanations as to why organizational restructuring can be such an important factor in employee well-being are presented. Finally, different change management activities carried out in the workplace during restructuring are discussed.

1.1 The multifactorial nature of the concept of well-being

The concept of “well-being” is multifactorial, partially overlapping with the concept “health”. Definitions of well-being may be context-free or be linked to particular settings, such as work. Furthermore, studies of well-being vary in terms of breadth, ranging from focused to holistic approaches (Figure 2).

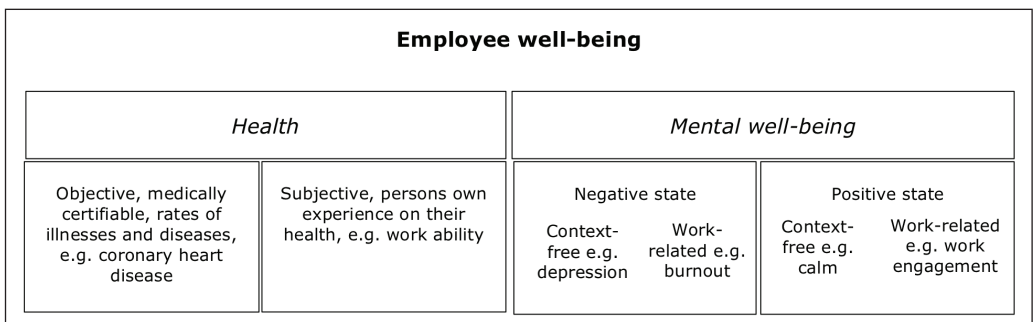


Figure 2. The multifactorial nature of the employee well-being concept.

Well-being vs. health

Staying well, employee well-being, is the core of this thesis. However, well-being is a broad concept and its relation to the concept of health is somewhat unclear. During the past decades, researchers have used well-being and health as distinct concepts to characterise the overall “state” of an individual: sometimes well-being is seen as a broader concept including health (Danna & Griffin, 1999) and sometimes it has been defined the other way around – well-being (mental health) as a part of health (WHOa). Here, the framework introduced by Danna and Griffin (1999) is used as a starting point to provide an overview of what is meant by employee well-being in workplace settings.

Danna and Griffin (1999) have suggested that the term *health* is applied when specific physiological or psychological indicators or indexes are of research interest. Thus, the diagnosis of illness or disease or reported symptomatology can be used to describe employee health. The research literature on the health of employees is enormous. Different kinds of indicators, such as coronary heart disease (Virtanen, Nyber, Batty, Jokela, Heikkilä et al., 2013), hypertension status (blood pressure, Frone, Russell & Cooper, 1997), musculoskeletal disorders (Westgaard & Winkel, 2011), myocardial infarction (Hammar, Alfredsson & Johnson, 1998; Väänänen, Koskinen, Joensuu, Kivimäki, Vahtera et al., 2008), sickness absence (Kivimäki, Head, Ferrie, Shipley, Vahtera et al., 2003a; Michie & Williams, 2003; Vahtera, Kivimäki & Pentti, 1997) and work ability (Tuomi, Ilmarinen, Jahkola, Katajarinne & Tulkki, 1998; Kujala, Tammelin, Remes, Vammavaara, Ek et al., 2006) have been used to describe employee health. Some of the measures used are objective, medically certifiable, defined by physical symptomatology, biomarker levels and epidemiological rates of illnesses and diseases (e.g. hypertension status), while others are more subjective, depending on a person’s own experience of their health (e.g. work ability). However, the approach is predominantly disorder-oriented: Health is seen as the absence of diseases/disorders (Emmet, 1991) and an employee is healthy when s/he is not ill.

In contrast, *well-being* is, according to Danna and Griffin (1999), a concept which takes into consideration the “whole person”. It is beyond any specific physical and/or psychological symptoms or diagnoses described above, seen as an experience, both generalized, such as job

satisfaction, and facet-specific, such as satisfaction with pay (Danna & Griffin, 1999). In the occupational health psychology literature, the term *subjective* (Diener, 1984) is often used to describe this kind of well-being. The term subjective emphasizes the employee's own evaluation of his/her experience, compared to (ill-)health which is the "diagnosed" state of well-being. Concepts used to describe employee well-being include, for example: anxiety (Andrea, Bültmann, Beurskens, Swaen, van Schayck et al., 2004), burnout (Maslach & Jackson, 1981; Schaufeli, Leiter, Maslach & Jackson, 1996), depression (Gruenberg & Goldstein, 2003), job boredom (Reijseger, Schaufeli, Peeters, Taris, van Beek et al., 2012), job satisfaction (Wanous, Reicher & Hudy, 1997), stress (Elo, Leppänen, Lindström & Ropponen, 1992), work engagement (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002).

Also, *affective* well-being, a term introduced by Warr (1987, 1990), emphasizes the experience size of being well. In his model, Warr included both positive (calm, contented, relaxed, cheerful, enthusiastic, and optimistic) and negative (tense, uneasy, worried, depressed, gloomy, and miserable) feelings. (Warr 1987, 1990.) The advantages of this model are that it enables a flexible use of measures based on the research needs and that it is context-specific unlike, for example, Ryff's model of general well-being (Ryff, 1989; Ryff & Keyes, 1995). The affective states illustrated in Warr's model, such as being depressed (fatigue) vs. enthusiastic (full of energy), have been widely studied, for example, by using measures of burnout (Maslach & Jackson, 1981; Schaufeli et al., 1996) and work engagement (Hakanen, 2002; Schaufeli et al., 2002). Researchers have, however, challenged Warr's view that the indicators of well-being would be diagonally opposite quadrants. For example, in line with Warr's view, burnout has been seen as a direct opposition of engagement (Maslach, Schaufeli & Leiter, 2001), but according to an alternative view, burnout and engagement are independent states, which are inversely related to each other (Hakanen & Schaufeli, 2012; Halbesleden, 2010; Schaufeli & Salanova, 2006).

Given the broad content of the concept of well-being and its overlap with the concept of health, an overview of employee well-being needs to cover various measures, both objective and subjective.

Context-free vs. work-related well-being

In addition to different measures of well-being and health, researchers have also used context-free measures to examine employee well-being as well as context-specific (work-related) measures. For example, burnout is seen to be a work-related phenomenon, whereas depression is context-free (Freudenberger & Richelson, 1980; Warr, 1987). Even though it has been questioned whether the two terms can be conceptually distinguished from each other (Taris, 2006), research has mainly supported the distinction between burnout and depression, although they are inter-related moods (Ahola, Honkonen, Isometsä, Kalimo, Nykyri et al., 2005; Bakker, Schaufeli, Demerouti, Janssen, van der Hulst et al., 2000; Hakanen & Schaufeli, 2012). In addition, it has been found that work-related well-being (burnout, work engagement) predicts general well-being (depressive symptoms, life-satisfaction), not vice-versa (Hakanen & Schaufeli, 2012). Therefore using context-specific, namely work-related, measures when examining employee well-being seems relevant in the light of the aim of the thesis.

Focused vs. holistic view of well-being

In addition to the above mentioned aspects of employee well-being, an even more complex view of it has been introduced in the research literature. For example, according to Warr (e.g. 1987, 1994) the overall “state” of an individual (mental health), is exhibited through behaviour (aspiration, autonomy, and competence), in transaction with the environment, in addition to the affective well-being described earlier. How these factors are integrated with each individual creates the overall, holistic view of a person and his/her well-being.

Also, the definition of Van Horn and colleagues seeks to capture the behavioural, personal and social aspects of well-being (van Horn, Taris, Schaufeli & Schreurs, 2004). They have developed a five-dimensional concept, labelled *occupational* well-being, to gain insight into the structure of work-related well-being (van Horn et al., 2004). Their model is based on the work carried out by Warr (1987, 1994) and Ryff (1989; Ryff & Keyes, 1995), but it merges these two approaches. Thus, according to this model, occupational well-being includes affective, professional, social, cognitive and psychosomatic dimensions. Their findings support a multidimensional structure of employee well-being and that many

of the outcome measures (e.g. exhaustion, work commitment, lack of concentration) used in occupational health psychology can be construed as tapping aspects of employee well-being. The findings, however, also support the view of Warr's (1987) and Maslach's (1993) that the essence of employee well-being is in its emotional and affective aspect (van Horn et al., 2004). Therefore concentrating more on affective states of well-being and measures of it seems more relevant for the aim of the thesis, so that the core of it could be captured.

1.2 Review of evidence on factors affecting employee well-being

During the past four decades, a large number of studies have shown that work-related and personal factors are associated with employee well-being. There are different approaches which have been used to explain why they may impact employee well-being. Major conceptual models include the job demand-control model, the effort-reward imbalance model, and the job demands-resources model. In addition, the role of personal as well as work environment factors in employee well-being research is discussed.

Demand-control model

The most widely studied approach is the job demand-control model (JD-C) by Karasek (1979). According to the JD-C model psychological job demands are psychological stressors, such as time pressure, unexpected tasks or emotional demands, involved in accomplishing work. Job control (decision latitude), refers to an individual's potential control over his/her tasks (decision authority) and his/her conduct during the working process, use of skills (skill discretion). Psychological strains are consequences of the joint effects (interaction effects) of the high demands of a job and the low range of control available to the employee. Social support, the helpful social interaction with co-workers and superiors, is included as a third dimension in the extension of the model (JD-CS, Johnson & Hall, 1988; Karasek & Theorell, 1990).

The majority of the research on the JD-C model has focused on the "strain" diagonal of the model. The findings (for a review see Häusser,

Mojzisch, Niesel & Schulz-Hardt, 2010; de Lange, Taris, Kompier, Houtman & Bongers, 2003) support the main (strain) hypothesis that high job demands and low job control are at least separately associated with job strain (lower/weaker psychological well-being) and these so-called high strain jobs seem also to predict lower general psychological well-being. However, longitudinal findings are not so consistent (Bosma, Marmot, Hemingway, Nicholson, Brunner et al., 1997; Joensuu, Kivimäki, Koskinen, Kouvonen, Pulkki-Räback et al., 2012).

Similarly, some support for the iso-strain hypothesis (the expanded version of the model, the JDCS model), which postulates that employees working in high demands – low control – low support jobs will experience the lowest psychological well-being, has been found. In addition to the “strain” hypothesis, the “buffer” hypothesis in which job control moderates the effect of job demands on well-being has been studied. The findings, however, have indicated mixed results (Häusser et al., 2010; van der Doef & Maes, 1999).

Effort-reward imbalance model

Another influential model is the effort-reward imbalance (ERI) model which was originally developed to predict and explain cardiovascular-related outcomes (Siegrist, Siegrist & Weber, 1986). Later it was applied to other psychological and behavioural outcomes as well (Appels & Schouten, 1991; Appels, Siegrist & Vos, 1997; Gaillard & Wientjes, 1994; Blum, Cull, Braverman & Comings, 1996). The ERI model (Siegrist, 1996) proposes that poor health (or job strain) is the result of imbalance between effort (cost) and reward (gain). Efforts can be both extrinsic (demands, obligations) or intrinsic (personal coping pattern). Rewards are distributed by three transmitter systems (occupational gratifications): money (adequate salary), esteem (e.g. respect and support from superiors and/or co-workers) and status control (e.g. job security, career opportunities). High-cost/low-gain conditions are seen to elicit recurrent feelings of threat, anger, and depression or demoralization, which in turn evoke sustained autonomic arousal and associated strain reactions.

The main assumptions of the ERI model (Siegrist, 2002) are that (a) high efforts, but low rewards, increase the risk of low health (the extrinsic ERI hypothesis); (b) a high level of over-commitment (need for control, developed from Type A construct), may increase the risk of

low health (the intrinsic overcommitment, OVC, hypothesis); and (c) employees reporting an extrinsic ERI and a high level of OVC have the highest risk of poor health (the interaction hypothesis). There are research findings supporting these assumptions. For example, the combination of high effort and low reward has been found to be a risk factor for coronary heart disease morbidity, physical health (mainly cardiovascular), psychosomatic health symptoms and job-related well-being (Bosma, Peter, Siegrist & Marmot, 1998; for a review see van Vegchel, de Jonge, Bosma & Schaufeli, 2005). Support for the intrinsic OVC hypothesis has also been found, but the results concerning the interaction hypothesis are weaker (van Vegchel et al., 2005).

Job demand-resources model

During the last decade the more recent job demand-resources (JD-R) model (Demerouti, Bakker, Nachreiner & Schaufeli, 2001) has acquired increasing amounts of attention. According to the JD-R model, there are two different underlying psychological processes, health impairment and motivational process, which play a role in the development of employee well-being (both job strain and motivation). The basic assumption in the JD-R model is that job demands, such as emotional demands or changes in the job task, evoke energy depletion processes in cases where they exceed the employee's adaptive capacity. Whereas job resources, such as time control, performance feedback, or a supportive leader, induce a motivational process by reducing the negative effects of job demands or by supporting the achievement work goals or stimulating growth. Several studies have supported the dual pathways to employee well-being (Bakker, Demerouti & Schaufeli, 2003a; Bakker, Demerouti, de Boer & Schaufeli, 2003b; Bakker, Demerouti & Verbeke, 2004; Hakanen, Bakker & Schaufeli, 2006). Support for the buffer effect of job resources on the relationship between job demands and well-being has also been found (Bakker, Demerouti & Euwema, 2005; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2007; Hakanen, Bakker & Demerouti, 2005).

According to the JD-R model, the resources can be located at the organizational level (e.g. salary, career opportunities, job security), in interpersonal and social relations (e.g. support from superiors, team climate) and at task level (e.g. skill variety, task identity) (Demerouti et al., 2001; Bakker et al., 2003b). Also, the personal resources, such

as self-efficacy, organizational based self-esteem and optimism, are seen as motivational potential similar to job resources (Xanthopoulou et al., 2007).

Comparison of the models

Research on the JD-C model and ERI model has provided evidence on independent cumulative effects on poor health and weak well-being (Bosma et al., 1998; de Jonge, Bosma, Peter & Siegrist, 2000a). With the use of the DCS and ERI models, longitudinal research has also shown that low social support and effort–reward imbalance were related to persistence of insomnia (Ota, Maseu, Yasuda, Tsutsumi, Mino et al., 2009). The comparison of the models suggests that the ERI model is better at predicting employee well-being than the JD-C model (de Jonge et al., 2000a). However, both models have been criticized for using a given and limited set of predictor variables and focusing on negative well-being measures (Bakker & Demerouti, 2007). For example, the other “learning” diagonal of the JD-C model has been less studied, even though the hypothesis that when the demands and the control are both high (so-called active jobs) work motivation, learning and growth will occur has been supported (de Jonge, Dollard, Dormann, Le Blanc & Houtman 2000b). It has also been suggested that the JD-C model could benefit from also taking into account the importance of personality characteristics, such as individual coping style (van der Doef & Maes, 1999).

A novel element of the ERI model adding to the discussion of issues related to employee well-being is the notion of status control (one of the rewards elements). The view of status control takes into consideration the macroeconomic labour market aspects, such as job security (fragmented job careers, job instability, and unemployment) in relation to employee well-being. According to Siegrist’s view (1996) occupational life is related to a person’s self-regulatory functions, such as sense of efficacy and esteem, and low security in occupational life, such as forced occupational change, may threaten it and evoke strong recurrent negative emotions. As with the ERI model, the JD-R model considers wider macroeconomic labour market aspects as possible resources. However, for example, the role of job security has been mainly ignored even though in cross-sectional settings it has been found to be negatively connected to work engagement (Bosman, Rothmann & Buitendach, 2005).

Personal and work environment factors

What is problematic in the research carried out in the field of employee well-being is that some of the personal factors associated with well-being, such as self-esteem (Rosenberg, 1965), ability to handle conflicts (Bradburn, 1969), a sense of competence (Wagner & Morse, 1975), self-efficacy (Bandura, 1977) and sense of coherence (Antonovsky, 1979), are concepts which are close to Warr's behavioural aspect of well-being. However, in occupational health research these concepts are often used as individual stress resistance resources associated with well-being, not as a dimension of it. Personal factors, i.e. employees' personality traits, are interpreted to play a role in the association between work-related factors and well-being, as, for example, in the JD-R model (Xanthopoulou et al., 2007). This is understandable since personal factors influence the way people experience the same work conditions and how they react to them (Kahn & Boysiére, 1992).

In stress literature, personal factors have been considered to affect the stress process in five different ways (Cox & Ferguson, 1991; Kivimäki, 1996): They may influence stress reactions by modifying the appraisal of stressors; they may affect stress reactions independently of (work) stressors; stress reactions may modify them; work stressors may also cause differences in personal factors, which may mediate the quantity and the quality of stress reactions; or they may influence stress reactions by moderating the relationship between stressors and stress reactions. Support for all of these ways has been found in the research, even though the findings are sometimes contradictory (Mäkikangas & Kinnunen, 2003).

For example, of personal factors global self-esteem (Rosenberg, 1965) has been found to be an important resource in workplace setting (for a review see Baumeister, Campbell, Krueger & Vohs, 2003), even though high self-esteem is sometimes found to moderate the effects of poor organizational climate on well-being in the manner opposite to what it had been expected (Mäkikangas & Kinnunen, 2003). A recent study has found that self-esteem is also an important factor contributing to work engagement and via engagement to work ability too (Airila, Hakanen, Schaufeli, Luukkonen, Punakallio et al., 2014). Studies have shown that sense of coherence (SOC), a context-free concept introduced by Antonovsky (1979, 1987a), has a direct and positive contribution to well-being and health, also based on register data (Kalimo & Vuori,

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1991; Feldt, 1997; Eriksson, 2007; for a review see Eriksson & Lindström, 2006; Suominen, Helenius, Blomber, Uutela & Koskenvuo, 2001; Surtees, Wainwright, Luben, Khaw & Day, 2003; Poppius, Virkkunen, Hakama & Tenkanen, 2006). Sense of competence is assumed to be strengthened by feelings of confidence and feedback coming from the job (Steel, Mento, Davis & Wilson, 1989). However, in occupational health research it has been ignored and the closely related, but context-free, concept of self-efficacy (Bandura, 1977) has been used (Brouwers & Tomic, 2000; Cherian & Jacob, 2013).

Irrespective of whether personal factors are interpreted as independent components, or as dimensions of context-specific (work-related) or general well-being, it is important to recognise that they are associated. It has been found, for example, that burnout is related to weakened general self-efficacy (Leiter, 1992) and poorer coping strategies (Sears, Urizar & Evans, 2000). In a similar way, work engagement has been found to be positively related to self-efficacy and optimism (Xanthopoulou, Bakker, Demerouti & Schaufeli, 2009). The findings support spill-over and overlap across these concepts (Hobfoll, 1998). Since employee well-being is addressed in the thesis mainly as an affective state, as an experienced feeling, not from a holistic view, personal factors are seen as independent components related to the individual's experience of his/her well-being.

Finally, the research carried out in the field of psychosocial working environment and its potential effect on employee well-being, has been criticized for neglecting the demands of the physical working environment (de Jonge et al., 2000b; Siegrist, Starke, Chandola, Godin, Marmot et al., 2004). The research carried out in work settings on the impact of work environment and its hazards on employee well-being, especially the health aspect, is vast, as, for example, the OSH WIKI articles on lighting (Krüger & Görner), noise (Maue), radiation (Hietanen), vibration (Martin, Budavölgyi, Lászlóffy & Kudász), nanomaterials (Stepa & Kuhl), dust and aerosols (Taxell) show. It has been pointed out, that the different physical hazards (physical job demands, loads) should be when the context of the work requires it, for example, in specific occupations (de Jonge et al., 2000b). Therefore, this thesis recognizes the importance of physical demands as the target group of the study is employees working in an industrial sector where the work environment includes several physical exposures.

As the brief summary of the research and theoretical development done on employee well-being and factors affecting to it shows a lot is already known. At least three broad sets of antecedent factors are suggested in the research literature on employee well-being: personality traits (personal factors), the work setting itself and its hazards (work environment factors), and psychosocial factors (job characteristics and organizational factors). There are, however, issues which needs more research, such as the role of these recognized factors on employee well-being, especially on the positive state of it, in the course of a working career and during the turbulence of work life.

1.3 Organizational restructuring as a situational factor related to employee well-being

In the theoretical models discussed above, macroeconomic labour aspects (the fragmented job careers, job instability, and unemployment) are seen as factors associated with employee well-being. Instability of the work is one macroeconomic labour aspects characterized by organizational restructuring. Organizational restructuring can be considered distinct from other psychosocial factors associated with employee well-being for two reasons. An organizational restructuring situation can affect *simultaneously* a large number of employees (and their work), an entire organization or a whole sector and sometimes even the surrounding society (Kieselbach, Armgarth, Bagnara, Elo, Jefferys, et al. 2009) during a *specific identifiable period of time*. The restructuring process starts when a majority of employees receive information about the forthcoming changes and at some point a new organizational structure is put into operation (Pahkin, Mattila-Holappa, Nielsen, Wiezer, Widerszal-Bazyl, et al., 2011).

In the literature the concepts *organizational change* and *restructuring* are typically used as synonyms. Restructuring is often linked with downsizing activities, the risk of losing jobs. However, restructuring covers a wide variety of activities aimed at downsizing or increasing production (services) and/or the size of the organization, that is, the number of employees. Thus, organizational restructuring can mean a

business expansion (extending business activities), bankruptcy/closure, offshoring/delocalisation, merger/acquisition, relocation, outsourcing, or other internal restructuring within the sector, company, or establishment level (ERM; Storrie, 2006).

Consequences of restructuring on employee well-being

The driving force for organizational restructuring is the need of organizations to cope with issues such as international competition, the opening up of markets, which are important challenges in modern business life (Alasoini, Lifländer, Rouhiainen & Salmenperä, 2002). While the primary goals of organizational restructuring are often economic, they have a considerable impact on employee health and well-being and psychosocial working conditions. Studies, reviews and meta-analyses have shown that the consequences on the health and mental well-being of those who have been made redundant, become unemployed (Paul & Moser, 2009), or those who have experienced downsizing, but kept on working in the same organization (see review by Ferrie, Westerlund, Virtanen, Vahtera & Kivimäki, 2008) can be significant, but unfortunately often in a negative way. The consequences of mergers on employee health and mental well-being have also been found to be predominantly negative (Haruyama, Muto, Ichimura, Yan & Fukuda, 2008; Kjekshus, Bernstrøm, Dahl & Lorentzen, 2014; Scheck & Kinicki, 2000; Wang, Patten, Currie, Sareen & Schmitz, 2012). Similarly, increasing knowledge of the detrimental effects of job insecurity, a concept which is associated with organizational restructuring situations, and on health and well-being is available (see reviews by De Witte, 2005; Sverke, Hellgren & Naswall, 2002; Virtanen et al., 2013).

In the light of the research literature, the reasons why organizational restructuring has such a significant role in employee well-being can be numerous. The previously presented theoretical models (JD-C, ERI, JD-R) suggest weak employee well-being (job strain, stress, burnout, etc.) is a result of the imbalance between the job demands and the resources employees have in order to meet the demands and of the wider macroeconomic labour market aspects affecting this balance. Thus, it might be that organisational restructuring leads to increased job demands (e.g. time pressure), which in turn increases strain at work (see JD-C and JD-R models) and reduces employees' status control (see the ERI model).

It might also be that job resources, such as support from co-workers or job security, decreases as a consequence of restructuring which, in turn, affects the psychological process, work engagement and commitment, at the workplace (see JD-R model). However, it has been found that employee autonomy tends to be higher in restructured workplaces and this holds true across different occupational groups (Eurofound, 2012b). Increased autonomy after the restructuring, in turn, has been associated with less cynicism and exhaustion and to better work ability (Wiezer, Nielsen, Pahkin, Widerszal-Bazyl, de Jong et al., 2011).

Possible explanatory factors

The magnitude of the changes seems to be a relevant aspect in terms of employee well-being, although it is less studied. For example, Ferrie and colleagues (Ferrie, Westerlund, Oxenstierna & Theorell, 2007) compared the impact of moderate and major workplace expansion and downsizing on psychosocial work characteristics. Based on their findings it seems that the magnitude of the changes is actually more relevant than the type of the change (i.e., downsizing or expansion). They found that major change (more than 18% change in the workforce), both in case of downsizing and expansion, was associated with a greater risk of physical hazards, and this finding was evident across gender and sector. A moderate change (from 8% to 18% change in the workforce) had a similar effect only in the private sector. (Ferrie et al., 2007.) However, for example, skill variety has been found to be evaluated more positively in workplaces where major changes have been conducted compared to those with minor changes (Hakanen, Harju, Seppälä, Laaksonen & Pahkin, 2012).

In addition, there is some evidence to suggest that more attention should be paid to the appraisal of the restructuring as it seems to be associated with employee well-being (Hakanen et al., 2012; Väänänen, Ahola, Koskinen, Pahkin & Kouvonen, 2011; Wiezer et al., 2011). The findings are in line with the cognitive appraisal theory (Lazarus & Folkman, 1984) according to which organizational restructuring can be a potentially stressful situation for employees since, for example, they may be unsure of the effects of the restructuring on themselves, whether or not they will lose their jobs or if they are able to handle the possible changes to their job tasks (Wiezer et al., 2011). The way in which people assess

the situations influences how they react to these situations, do they see it as a threat or as a challenge (Lazarus & Folkman, 1984). Their reaction to the restructuring situation is thus crucial to their well-being. The view does suggest that changes may have positive consequences for an employee, and furthermore to her/his well-being, if appraised as a challenge, in a more positive way. Also the challenge-hindrance framework (Cavanaugh, Boswell, Roehling & Bourdeau, 2000) postulates that the so-called challenge stressors may have negative and positive consequences simultaneously, even though the mechanisms involved in the process are not clear yet (Widmer, Semmer, Kälin, Jacobshagen & Meier, 2012). Research has focused more on negative appraisal and negative outcomes in the context of organizational restructuring (Fugate, Kinicki & Prussia, 2008) whereas research on the positive outcomes of restructuring has been sparse.

What also remains poorly understood is the question of what could be done in organizations to improve employees appraisal of the restructuring. More specifically, what are the situational (external) resources (Scheck & Kinicki, 2000; Shaw, Fields, Thacker & Fisher, 1993) which would help the employees to cope with the changes? There have already been several attempts to form recommendations on how to carry out organizational restructuring processes. For example, the Health in Restructuring, the so called HIREs-group (Kieselbach et al., 2009), which included experts from several EU countries, derived a set of 12 recommendations for the development of healthier ways of organizational restructuring. Some of the recommendations are at the macro level, such as collecting empirical data on the health effects of restructuring; whereas some are targeted at the organizational level, such as emphasizing the role of middle managers during the restructuring process, the importance of ensuring justice and trust and the need for a communication plan. Elsewhere, researchers have highlighted, for example, the role of employee participation, information and communication, organizational and social support, and trust (Sørensen & Hasle, 2009; Westgaard & Winkel, 2011; Wiezer et al., 2011). However, more attention should be paid to the actual role of different organizational activities recommended to be carried out during organizational restructuring in ascertaining that employees will stay well in the unstable world of work.

2 THE PRESENT STUDY

2.1 Conceptual framework

In this thesis, employee well-being is considered to cover two separate aspects: work-related health and mental well-being. These aspects were selected since health can be seen as an objective state of a person's wellness (Danna & Griffin, 1999) and mental well-being as a person's subjective view of his/her feelings of wellness or illness (Warr, 1987). Together they cover the essence of employee well-being, including both its negative and positive states.

According to the general framework of this thesis (Figure 3), both work-related (work environment, job characteristics and organizational factors) and personal factors (personality traits) are hypothesized to affect employee well-being. Organizational restructuring is considered as an additional situational factor which reflects the instability of work life. Organizational restructuring (changes) can be any type of structural changes with an intent to change the amount of production and/or services offered and the number of employees working in the organization. Restructuring therefore refers to different activities targeted at either expanding or downsizing production and/or personnel, and it may or may not include personnel dismissals. The restructuring process itself is viewed to be either a challenging or threatening situation to employees. Therefore the way employees appraise the restructuring process and its possible consequences are assumed to be one of the factors affecting well-being. With change management actions, an organization is assumed to be able to influence the way change is appraised and hence the level of employee well-being.

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Taken together, employee well-being is viewed as a result of an interactive relationship between personal and work-related factors (Figure 3).

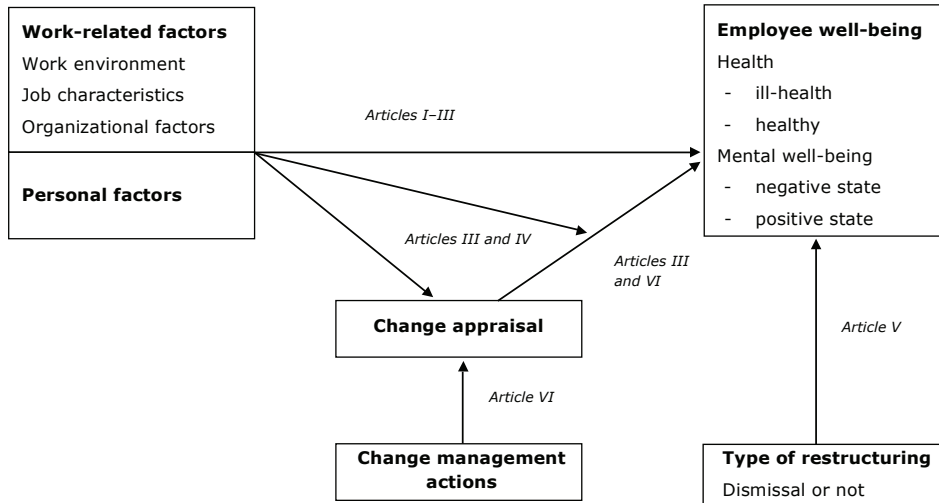


Figure 3. The overall conceptual framework of the thesis.

2.2 Aims

Although the associations between work-related and personal factors and employee well-being have been studied extensively, relatively little is known about the persistence of these associations over a longer period of time (e.g. 10 years) and whether the associations remain in the context of organizational restructuring, such as organizational expansion or downsizing, or what can be done within the organizations to manage the change process and employees reactions to it. This thesis addresses these neglected issues. Thus, the overarching aim of this thesis is to shed light on factors which help employees to stay well in an unstable world of work.

Consistent with the conceptual framework (Figure 3), the first objective of this thesis is to determine the long-term associations of different work-related and personal factors with employees' well-being (Articles I and II). To cover multiple determinants and various aspects

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of well-being, the thesis focuses on several factors (work environment, job characteristics, organizational and personal factors) and indicators of employee well-being (psychological strain, physiological strain and burnout symptoms). The specific study questions to be addressed are:

1. How stable are the associations of work-related and personal factors with employee well-being over time?
2. How stable are employee well-being, work-related and personal factors over time?

The second major objective is to incorporate an organizational restructuring context into the study. First the expansion of the organization, its operations, (Articles III and IV) was considered. The role of previously recognized work and personal factors were explored as risk and protective factors of employee well-being and as determinants of change appraisal (i.e., on the consequences for own standing and for different organizational levels). The specific study questions addressed are:

3. To what extent is a change appraisal of a past organizational expansion associated with employee well-being?
4. How are social support (work-related factor) and a sense of coherence (SOC), personal factor associated with the change appraisal and do they act as a protective factor against a decline of employee well-being after the restructuring?

Then the context of organizational restructuring was turned into a downsizing situation, and the consequences of the restructuring activities with and without redundancies to employee well-being was studied. Attention is also turned again to change appraisal; this time, the overall change experience of employees (in the direction, negative or positive, of the changes). The specific questions are:

5. Are downsizing activities which include personnel dismissals, more strongly associated with employee well-being than restructuring activities without dismissals? (Article V)
6. How are change appraisals associated with positive and negative states of mental well-being? (Article VI)

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The third major objective of the thesis is to shed light on how organizations can manage a restructuring process to enhance positive change appraisal among employees (Article VI). The main question is:

7. Are change management actions (top management, immediate superior and employees' own participation) associated with the way the restructuring process is appraised?

3 METHODS

3.1 Study procedure

All the data were collected among Finnish employees working at forest industry companies between 1986 and 2009. Two different datasets were used.

3.1.1 Dataset I: Study period 1986–2005

The first study period is from 1986 to 2005. During this period all the data were collected from the same forest industry company (Figure 4) using questionnaire surveys and linkage to additional register-based information: sickness absence data and records of hospital admissions for psychiatric disorders, drug prescriptions, suicide or suicide attempts.

The data in Articles I and II were collected at a time (during the 1980s and 1990s) which can be characterised as a period of stable national level growth, corresponding also growth at international level. During this period, the target company was for a while the biggest Finnish forestry company. (Wikipedia: <http://fi.wikipedia.org/wiki/Enso-Gutzeit>; Ahvenainen, 1992.) In Articles I and II, the participants were those workers in the home country of the company who responded to both company-wide questionnaire surveys in 1986 and 1996.

In December 1998, the company in question merged with a Swedish company equal in size. Both enterprises were stable and traditional employers in Finland and in Sweden. The merger did not lead to any dramatic changes, such as major downsizing, during the study period. When the merger was announced, it was speculated that approximately 500 employees out of 40 000 would have to leave their jobs during the

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next four years (STT, 5.6.1998). Some considerable changes took place mainly in the job content and the organization of work mainly among upper level white-collar workers (Tiedon silta, 2002).

The data in Articles III and IV were collected at a time of strong international growth in the industry: the traditional Finnish paper company became one of the biggest forestry industry companies in the world. After the end of the study period, in 2007, the company was the biggest in Europe and the third biggest forest industry company in the world, and the biggest paper and cardboard company in the world (Wikipedia: http://fi.wikipedia.org/wiki/Stora_Enso).

For Article III, the participants of the study were those Finnish employees who responded to both questionnaires and whose sickness absence records from two years prior to the merger were available. The first questionnaire survey was conducted two years before the merger, in 1996, and the follow-up was conducted two years after the merger in the new, globally operating company. The data from sick leave records of the employer were collected with the consent of the employees and combined with the survey data on anonymous basis.

For Article IV, the same questionnaire survey data was used but this time the data was linked with the register information on hospital admissions for psychiatric disorders, drug prescriptions and suicide. The register data were used as a source of baseline data and follow-up data of employees' mental health. The register information was collected after the second survey was conducted and information was collected for the following five years.

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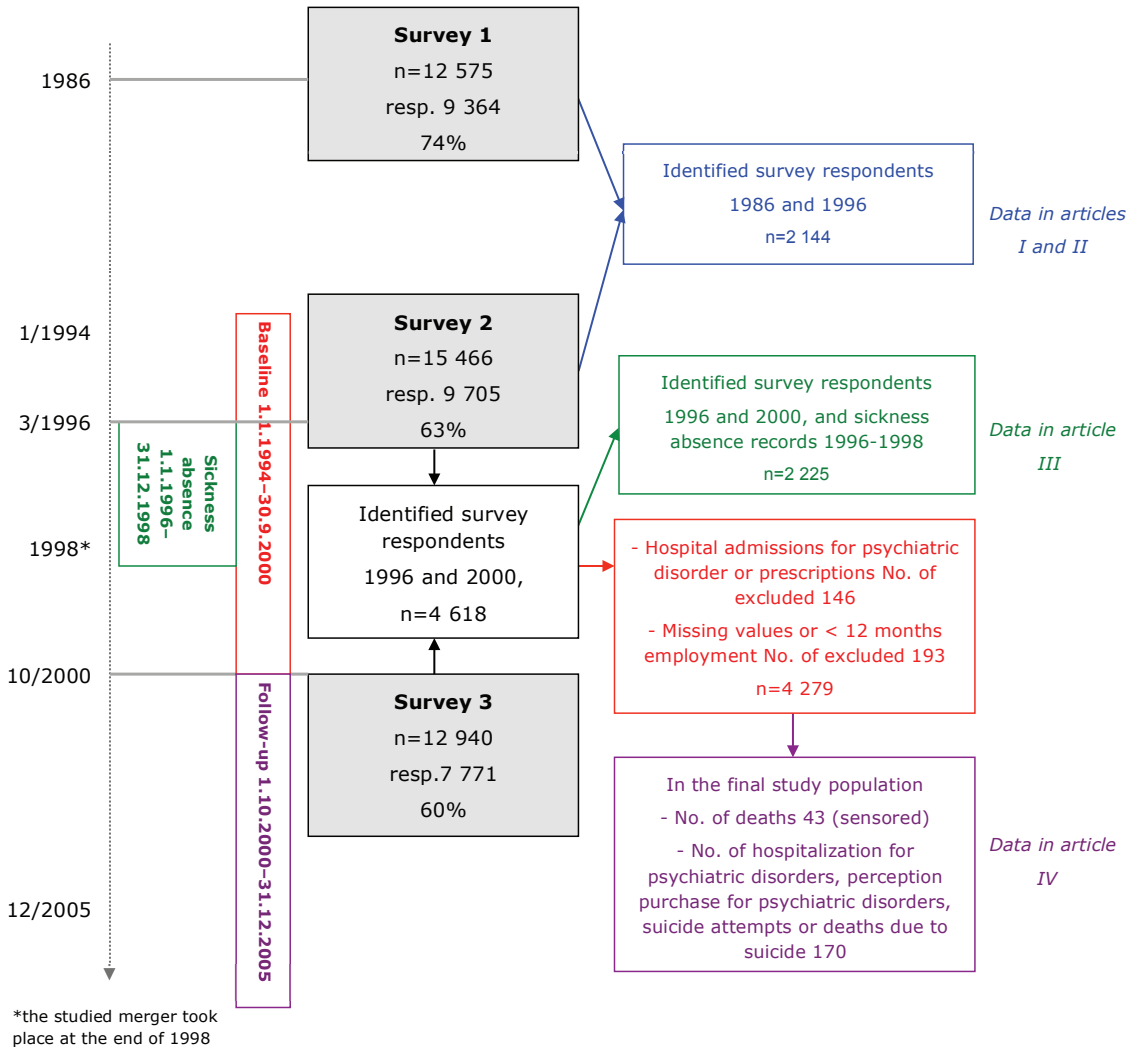


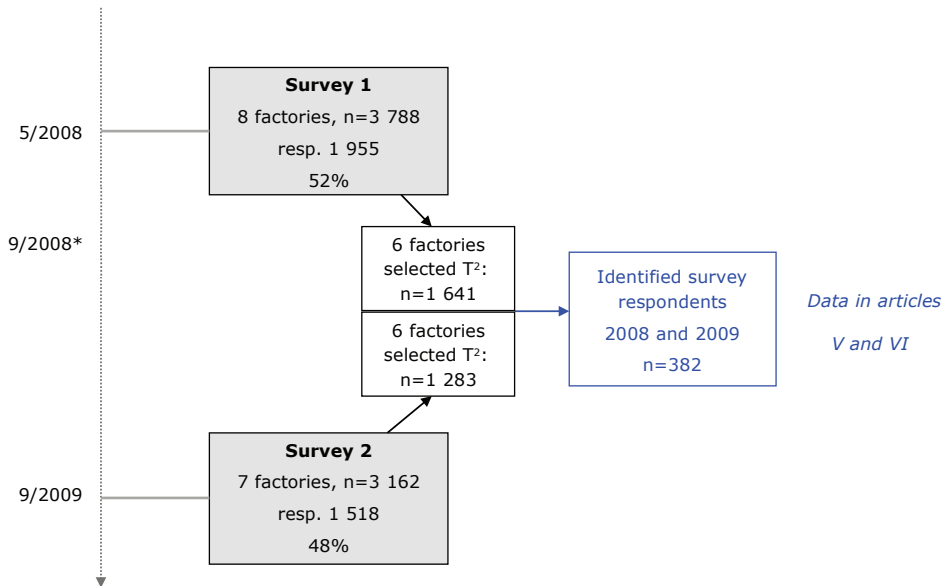
Figure 4. The sample procedure in dataset I.

3.1.2 Dataset II: Study period 2008–2009

The second dataset was collected between 2008 and 2009. The data was collected from four different forest industry companies (Figure 5) using questionnaire surveys. The data in Articles V and VI were collected at a time which can be described as a period of massive downsizing, either in the number of employees or in the amount of production (see Figure 1). As a consequence of different restructuring activities, the number of blue-collar employees decreased by 28% in the participating production facilities in a two-year time period (Paperiliitto, 2009).

In Articles V and VI, six production facilities (from four companies) of the original participating companies were selected for a detailed study. Two facilities were excluded because one was closed down during the study period and follow-up information was thus not available, and, in the other facility, downsizing activities were on-going during the first survey, so baseline information was not available. In the participating companies, the questionnaire was sent to all blue-collar employees at their workplace before the downsizing activities started and a year after. Responding to the questionnaire was voluntary and anonymity was assured. However, together with the questionnaire, written permission from the participants was requested to obtain their sickness absence records. This permission, when obtained, made it possible to identify the respondents, but confidentiality was guaranteed and explained in detail the procedure for safeguarding anonymity to employees. For the longitudinal design of the study this meant that longitudinal data could only be collected from those employees who completed both surveys and who at both times gave written permission to access their sickness absence records.

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*Companies announced about restructuring activities

Note: One factory was closed down at the end of 2008; one factory was going through changes already at the baseline

Figure 5. The sample procedure in dataset II.

3.2 Participants

The basic population of the study consists of the entire domestic personnel of the company. However, in the studies carried out, different kinds of samples were selected according to the aims of the study.

In Article I the participants were divided into three groups on the basis of their psychological and physiological strain at T²: Group 1: low strain, Group 2: some strain, and Group 3: high strain. The grouping was done so that the groups were about equal in size. Only groups 1 and 3 were studied, because the aim was to find differences between the extreme strain groups. In Article II the participants were again divided into three groups this time on the basis of burnout at T²: Group 1: No burnout, Group 2:

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Some burnout symptoms, and Group 3: Serious burnout. Again, only the extreme strain groups were selected for further analyses. In order to render the groups about equal in size for further analyses, approximately 10% of the no-burnout group cases were selected randomly.

In Article III the participants were divided into two broad occupational categories according to company practice: white-collar (managers, office personnel, foremen and technical staff) and blue-collar workers (industrial workers, maintenance staff). In Article IV only those participants with no hospital admissions for psychiatric disorders or prescription purchases due to psychiatric disorders prior to October 1, 2000 (time before the follow-up survey) were included in the analysis. A median split was used to categorize the participants into two groups: Group 1: weaker sense of coherence (SOC; 0.00-70.19 points) and Group 2: stronger SOC (70.20-91.00 points) at T¹.

In Article V the information on the reduction of the personnel (dismissals) between baseline and the follow-up survey (T²) was used to classify participating production facilities into two groups: (1) no dismissals and (2) dismissals. The grouping of the participating production facilities into these two groups was done based on the organizational material. Whether or not personnel was reduced was also related to the number of other restructuring activities carried out in the production facilities. In Group 2, more changes were made. Both groups included three production facilities (factories). The participants of Articles V and VI were those employees of selected production facilities who remained working in the organization after the restructuring process, who at both times had given their permission to use their sickness absence records, and who had answered the follow-up survey. However, in Article V also cross-sectional dataset (all participants) was used to verify the results of smaller longitudinal sample.

The samples were in each case representative and did not differ from the original sample. However, the relative portion of white-collar workers was greater among the study population (50%) than among the participants of the two surveys (38%). The blue-collar workers did not participate in the two surveys as actively as the white-collar workers and did not give their consent to use their sickness absence data so frequently (Article III). The detailed description of the background factors and the characteristics of the study groups is presented in Table 1.

Table 1. Descriptive statistics of the study samples.

Characteristics	Study I	Study II	Study III	Study IV	Study V	Study VI
Base population (n)	2144	2144	2225	4618	1283	1283
Study population (n)	600–800	174	2225	4279	382	369
Study groups (n)	Group 1: low strain	no burnout (n=87)	white-collar worker (n=1107)	weaker SOC ¹ (n=2189)	no dismissals (n=102)	negative change appraisal (n=160)
	Group 2: high strain	serious burnout (n=87)	blue-collar worker (n=1118)	stronger SOC (n=2090)	dismissals (n=280)	medium/positive change appraisal (n=209)
Men (%)	77%	77%	76%	75%	84%	89%
Mean age (sd.) at T ²	48.7 (6.2)	48.7 (6.2)	48.0 (8.3)	42.3 (8.1)	42.7 (12.8)	43.0 (9.3)
Data source: Questionnaire (Response rate, %)	1986 (74%) 1996 (63%)	1986 (74%) 1996 (63%)	1996 (63%) 2000 (61%)	1996 (63%) 2000 (61%)	2008 (52%) 2009 (48%)	2008 (52%) 2009 (48%)
Register	–	–	Sick leave records (1996–1998)	Hospital admissions for psychiatric disorders, drug prescriptions or suicide/attempts (1.1.1994–30.9.2000)	–	–

¹SOC = Sense of Coherence

3.3 Measures

All the questionnaires in the surveys conducted included as many as possible of the same variables. However, some new variables were included in later surveys and as a consequence meant that some older variables had to be removed from the new questionnaires. A summary of the variables, number of items and the internal consistency (alpha) of the sum scales formed are presented in Table 2 (page 45).

3.3.1 Employee well-being

Employee well-being was conceptualized as consisting of different aspects of health and mental well-being. In the studies, different measures of these aspects, including both negative and positive as well as self-reported (subjective) and diagnosed (objective) measures were used.

Firstly (Article I), employee well-being was determined in terms of physiological (measure of health) and psychological symptoms of strain (measure of mental well-being). The persons are asked whether they experience various symptoms (1=never to 5=very often). All the items were from the Occupational Stress Questionnaire (OSQ, Elo et al., 1992). Then (Article II) the focus was on mental well-being measured in terms of burnout (Schaufeli et al., 1996), an indicator of severe consequence of prolonged stress at work. The MBI-GS includes 16 items for measuring the three dimensions of burnout: Emotional exhaustion, Depersonalisation and reduced Personal accomplishment. The response scale of each item is a 7-point Likert scale indicating the frequency of experiencing each symptom (0=never, 6=daily). Sum scales were formed for each dimension of burnout, and a weighted sum score was calculated ($0.40 \times \text{exhaustion} + 0.30 \times \text{cynicism} + 0.30 \times \text{reduced professional efficacy}$) (Kalimo & Toppinen, 1997).

In Articles III and IV objective measures of employee well-being were also used. In Article III the data on the rate of sickness absences during a 21-month period prior the merger was used as a covariate in addition to subjective well-being measures. Subjective well-being comprised both as health and mental well-being. Emotional exhaustion, the first and most important sign of burnout (Schaufeli & Enzmann, 1998; Toppinen-Tanner, 2011), was used as a measure of mental well-being. Exhaustion

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was measured with MBI-GS scale (Article II). The functional incapacity was used as a measure of health and it was based on the measure of work ability index (Tuomi et al., 1998) a measure of reported symptomatology, and thus an indicator of health. A Likert-type scale ranging from 1 (very good) to 5 (very poor) was used.

In Article IV employee well-being was addressed from a health aspect by using register data on psychiatric events (hospital admissions for psychiatric disorders, psychotropic drug prescriptions, and data on suicides) as objective indicators of mental health. The data on baseline mental health (psychiatric events) was collected from 1 January 1994 to 30 September 2000, when the survey was conducted. The follow-up of psychiatric events was collected from 1 October 2000 to 31 December 2005. Baseline and follow-up data on all persons who were hospitalized for psychiatric disorders for any period of time (ICD9 codes: 291-319, ICD10: F04-F99) were obtained from the Hospital Discharge Register of the National Institute for Welfare and Health. Similar data were also collected on persons who had been prescribed a psychotropic drug (ATC codes N05A, N05B, N06A). These data were obtained from the National Drug Imbursement Register of the Social Insurance Institution of Finland.

In Article V both the health and mental well-being of employees were studied, using also positive measures of well-being. Again functional (in)capacity based on work ability (Tuomi et al., 1998) was used as an indicator of health. The same Likert-type scale ranging from 1 (very good) to 5 (very poor) was used. Mental well-being was measured using three different single-item variables: feelings of stress (Elo et al., 1992), job satisfaction (Wanous et al., 1997), and trust in the future of work (Mykletun, Mykletun & Solem, 2000; Pahkin, Björklund, Mykletun, Furunes, Gard et al., 2008). Again a Likert-type scale, ranging from 1 (very rarely/ very dissatisfied/ not at all) to 5 (very often/ very satisfied/ very much) was used. Feeling of stress was an indicator of psychological strain, job satisfaction reflected a more positive state of well-being at work and trust in the future of work reflected job security and a positive view of the future.

The final article (VI) focused only on mental well-being. Both the negative (strain) and the positive (motivational) aspects of mental well-being were measured. Feeling of stress was again used as an indicator of

psychological strain, whereas work enjoyment was employed an overall indicator of positive well-being at work. Work enjoyment sum scale was constituted from three variables: job satisfaction (Wanous et al., 1997), enthusiasm and absorption (modified from Schaufeli, et al., 2002). Participants were asked to indicate their answer on a five-point scale (1 very unsatisfied/ rarely to 5 very satisfied/often).

3.3.2 Personal factors

Both general and context-specific measures of personal factors were included in the studies: Sense of coherence (SOC) (Antonovsky, 1987b) a measure of global orientation towards one's inner and outer environment; self-esteem (Rosenberg, 1965), a measure of global self-worth; and sense of competence at work (Wagner & Morse, 1975), a measure used to assess how well the worker can perform his/her work and cope with the working conditions.

SOC and self-esteem were measured by using the same scale on both occasions (1986 and 1996). SOC was measured with the 13-item scale of Antonovsky (1987b) such as *“Do you have the feeling that you don't really care about what goes around you?”* The response scale is a seven-point semantic differential scale. Self-esteem was measured with the Rosenberg (1965) self-esteem scale. The scale consists of 10 four-option items such as *“I feel that I have a number of good qualities”*. Sense of competence was only used once (1996). Sense of competence was measured with the scale of Wagner and Morse (1975). The scale consists of 15 five-option items such as *“I meet my own personal expectations for expertise in doing this job”*. All the measures used have found to be valid and have been widely used (Antonovsky, 1993; Wylie, 1974; Wayment & Taylor, 1995). The measures of SOC, self-esteem and sense of competence were used in Articles I and II, and SOC also in Article IV.

3.3.3 Work-related factors

Work-related factors included work environment hazards (10 hazards); job characteristics (job complexity, autonomy, role clarity, time pressure); and organisational factors (organizational climate, support from superior, co-operation, work appreciation, feedback).

In Articles I and II all the items concerning work-related factors were the same in both surveys carried out in 1986 and 1996. The questionnaire consisted of items on work characteristics, of which the following sum scales were formed: Job complexity, e.g. *“Can you use your knowledge and skills in your work?”*, Autonomy, e.g. *“Can you plan your work yourself?”*, Role clarity, e.g. *“How well are you aware of what you have to accomplish in your work?”*, and Support from a superior, e.g. *“Does your superior provide support and help when needed?”*, were measured by a 5-item scale.

Organizational climate was measured by an 8-item scale, e.g. *“Are you informed of important matters concerning your work?”*, Co-operation by a 4-item scale, e.g. *“What is cooperation like in your close working environment?”*, Work appreciation by a 3-item scale, e.g. *“Is your work appreciated outside the workplace?”*, and Work hazards by a 10-item scale which covered different elements of work environment, such as noise.

Feedback *“Are you informed how you have succeeded in your work?”* and Time pressure *“Do you feel that you can’t achieve good enough quality in your work within the allotted time?”* were measured by a single item. The format for answering most of the individual items was a Likert-type scale, ranging from 1 (rarely or never) to 5 (very often).

In Article III (survey in 2000) the sum scales support from superior, organizational climate and co-operation were also used with some slight modification. Support from co-workers (co-operation earlier) was measured in the same way in both surveys. However, Support from a superior was measured with three items and support from the organization (organizational climate earlier) was measured with four items in 1996 and 5 items in 2000.

Most of the items used were identical to or slightly modified from the Occupational Stress Questionnaire (OSQ) (Elo et al., 1992). The OSQ is used to assess the perceived work environment and its effects on well-being. The items use a scoring system that is similar to other health questionnaires (e.g. GHQ, Goldberg, 1978). The reliability, the face validity and the predictive validity of the OSQ has been found to be satisfactory among a wide range of occupational groups in a wide range of Finnish studies (e.g. Elo et al., 1992; Kalimo, Olkkonen & Toppinen, 1993).

3.3.4 Organizational restructuring variables

The change appraisal, i.e. employees' own, subjective evaluation of the consequences of the restructuring (the changes) for them, was addressed from several perspectives. In Article III the focus was on how the employees perceived the changes to their own standing in the workplace as a consequence of the restructuring: *"In your opinion, how has your own standing at work changed in the past two years?"* The format for answering was: negatively (1), remained the same (2), and positively (3). In Article IV a broader approach was taken and the focus was on the consequences for different organizational levels (to individual, work unit, and the whole company). In addition to the change in one's own standing at work, the development within the unit and the trends in the whole company was asked to be evaluated with a scale from 1 (very positive) to 5 (very negative). A summary scale of organizational change experience was calculated and three categories indicating the experienced change were formulated: (1) situation improved (range 3.68–5.00), (2) no change (range 2.68–3.67), and (3) situation deteriorated (range 1.00–2.67).

In Article VI the focus was again on the individual's own subjective perspective and in the view of the direction (negative or positive) of the changes which occurred at the workplace. The participants were asked: *"When you think of all the changes that have taken place in your work during the last year, how would you describe the situation from your own standpoint?"* Participants were asked to indicate their answer on a five-point scale (1=completely insufficiently to 5=completely sufficiently). The types of restructuring activities carried out were introduced separately before this question.

The type of organizational changes was included in the datasets. The data in Articles III and IV was collected at a time of expansion (merger) and in Articles V and VI at the time when different kind of restructuring activities were carried out, most of them targeting downsizing of production and/or employees. In Article V, the participating companies were classified into two groups of no dismissals and dismissals, so that the magnitude of the changes to employees could be addressed. The reason for this categorization was that if there had been dismissals, the restructuring activities had been more severe compared to a situation where these kinds of solutions were not needed.

Table 2. Variables, number of items and internal consistency (Cronbach alpha).

Study variables	Study I	Study II	Study III	Study IV	Study V	Study VI
Employee well-being <i>Health</i>	Physiological strain (5-items, $\alpha_{11}=0.71$, $\alpha_{12}=0.77$)		Functional incapacity (3-items, $\alpha_{12}=0.76$)	Lack of mental health problems (psychiatric events)	Work ability (4-items, $\alpha_{11}=0.81$, $\alpha_{12}=0.86$)	
<i>Mental well-being</i>	Psychological strain (10-items, $\alpha_{11}=0.88$, $\alpha_{12}=0.92$)	Burnout (16-items, $\alpha_{12}=0.95$)	Exhaustion (5-items, $\alpha_{12}=0.91$)		Feelings of stress (1-item, α_{11} , α_{12})	Feelings of stress (1-item, α_{11} , α_{12})
					Job satisfaction (1-item, α_{11} , α_{12})	Feeling of work enjoyment (3-items, $\alpha_{11}=0.81$, $\alpha_{12}=0.89$)
					Trust in the future of work (1-item, α_{11} , α_{12})	
Change appraisal	–	–	Change of own standing (1-item, α_{12})	Perception of change (3-items, $\alpha_{12}=0.68$)	(Type of change)	Change appraisal (1-item, α_{12})
Change management actions	–	–	–	–	–	Perceived actions of top management (6-items, $\alpha_{12}=0.91$) Perceived actions of the immediate superior (5-items, $\alpha_{12}=0.93$) Employee's own participation
Type of restructuring	–	–	merger	merger	mixed (inc. dismissals)	mixed (inc. dismissals)

Table 2. continues...

Table 2. continues...

Study variables	Study I	Study II	Study III	Study IV	Study V	Study VI
Personal resources:						
Sense of coherence (SOC)	13-items ($\alpha_{11}=0.86, \alpha_{12}=0.91$)	13-items ($\alpha_{11}=0.86, \alpha_{12}=0.91$)	-	13-items ($\alpha_{11}=0.86$)	-	-
Self-esteem	10-items ($\alpha_{11}=0.85, \alpha_{12}=0.90$)	10-items ($\alpha_{11}=0.85, \alpha_{12}=0.90$)	-	-	-	-
Sense of competence	15-items ($\alpha_{12}=0.85$)	15-items ($\alpha_{12}=0.85$)	-	-	-	-
Work-related factors:						
<i>Job characteristics:</i>						
Job complexity	5-items ($\alpha_{11}=0.83, \alpha_{12}=0.86$)	5-items ($\alpha_{11}=0.83, \alpha_{12}=0.86$)	-	-	-	-
Autonomy	5-items ($\alpha_{11}=0.78, \alpha_{12}=0.83$)	5-items ($\alpha_{11}=0.78, \alpha_{12}=0.83$)	-	-	-	-
Role clarity	5-items ($\alpha_{11}=0.67, \alpha_{12}=0.83$)	5-items ($\alpha_{11}=0.67, \alpha_{12}=0.83$)	-	-	-	-
Time pressure	1-item	1-item	-	-	-	-
<i>Organizational factors:</i>						
Support from superior	5-items ($\alpha_{11}=0.78, \alpha_{12}=0.86$)	5-items ($\alpha_{11}=0.78, \alpha_{12}=0.86$)	3-items ($\alpha_{11}=0.76, \alpha_{12}=0.78$)	-	-	-
Support from organization	8-items ($\alpha_{11}=0.72, \alpha_{12}=0.82$)	8-items ($\alpha_{11}=0.72, \alpha_{12}=0.82$)	4-items ($\alpha_{11}=0.66$) 5-items ($\alpha_{12}=0.73$)	-	-	-
Support from co-workers	4-items ($\alpha_{11}=0.76, \alpha_{12}=0.80$)	4-items ($\alpha_{11}=0.76, \alpha_{12}=0.80$)	4-items ($\alpha_{11}=0.74, \alpha_{12}=0.76$)	-	-	-
Work appreciation	3-items ($\alpha_{11}=0.83, \alpha_{12}=0.86$)	3-items ($\alpha_{11}=0.83, \alpha_{12}=0.86$)	-	-	-	-
Feedback	1-item	1-item	-	-	-	-
<i>Work environment:</i>						
Work setting and its hazards	10-items ($\alpha_{11}=0.91, \alpha_{12}=0.91$)	10-items ($\alpha_{11}=0.91, \alpha_{12}=0.91$)	-	-	-	-

The final Article (VI) addressed the change management actions carried out in the workplace during the restructuring process. The quality of different actors' (top management, immediate superior, and employee themselves) actions was evaluated. When evaluating the role of *top management* or *immediate superiors*, participants were asked to separately estimate how these two groups had acted when planning and implementing the changes. The questions were targeted at evaluating communication, support and the fairness of the decisions made. When evaluating employees own actions, the employees' were asked about their opportunities to participate in the planning of restructuring from their own viewpoint. The quality of actions was evaluated on a five-point scale (1=very poorly to 5 very well). The questions were developed for the study based on the interviews carried out in the project and the existing literature available (Moyle, 1998).

3.4 Statistical analysis

The statistical methods used in the thesis are summarised in Table 3. The analyses varied depending on the aim, measures available, and the sample size of each study.

In Articles I and II, the main method was discriminant analysis, which was used to identify a linear combination or different combinations of quantitative predictor variables that best characterized the differences between the study groups (those feeling well vs. not feeling well). It provides a means to classify any case into the group which it most closely resembles (Klecka, 1980). In the analysis, both the stepwise and hierarchical selection methods were used. In the stepwise method the program selected the first strongest predictor variable and then added more variables if they were statistically important. Each explanatory variable was also studied as a single-variable and the result was used to enter the variables in a hierarchical order to the model. Classification results, indicating to what extent the participants could be correctly classified into the two groups on the basis of the analysis, are reported as cross-validated percentages of those correctly classified. Generally, these cross-validated percentage results are not over-optimistic (see SPSS 1998).

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Based on the results of Article I and II the main predictor variables (different forms of social support and SOC) were selected to be used in further studies in the context of organizational restructuring.

In Article III binary, logistic regression analysis was used to predict the change in job position and decline in well-being (ORs) and the general linear model (GLM) to test the moderating effects of social support on the associations between experienced change and well-being. For the analyses the dependent employee well-being variables were classified into two categories: 0 (good) and 1 (moderate/poor). When change of own standing was used as a dependent variable, it was classified into two categories: 0 (improved/unaltered) and 1 (declined). When it was used as an independent variable, original categories were used. All the independent social support variables were used as trichotomous measures and the tertile having the highest support level was used as the reference group (high, moderate, low). The tertiles were done on the basis of the original scale by combining very or quite low/high answers.

In Article IV binary logistic regression analysis was again used to predict the negative change appraisal and the Cox proportional hazard model (HRs) was used to analyse the associations between baseline characteristics and psychiatric events. The aim was to predict the risk of the first registered psychiatric event after the merger. For the analyses perception of the change was dichotomized in a similar principle as change in own standing in Article III: 0 (improved/unaltered) and 1 (declined).

In Article V *t*-tests were carried out to find differences between the change groups: dismissals vs. no dismissals. ANCOVA was carried out to find out if there were differences in the level of employee well-being before and after restructuring.

In Article VI the majority of the analyses were conducted again by using binary logistic regression analyses to analyse the longitudinal association between the change appraisal and well-being. The same method was also applied to analyse cross-sectional associations between different actors (top management, immediate superior and employees' themselves) and negative change appraisals. For the analyses the outcome measure was dichotomized (not at all + some vs. a lot). Again change appraisal was dichotomized in a similar principle as earlier: positive or medium appraisal formed one group and negative change appraisal formed the other group.

Table 3. Statistical analysis and confounding factors used.

	Study I	Study II	Study III	Study IV	Study V	Study VI
Statistical analysis	Multivariate analysis of variance (MANOVA), Independent samples <i>t</i> -test, Discriminant analysis	Multivariate analysis of variance (MANOVA), Independent samples <i>t</i> -test, Discriminant analysis	Paired <i>t</i> -test, Binary logistic regression analyses	Logistic regression analysis, Cox proportional-hazards models	Independent samples <i>t</i> -test, Paired <i>t</i> -test, ANCOVA	χ^2 -tests, Logistic regression analysis
Confounding factors	–	–	Age and gender	Age, gender, marital and occupational status + job complexity, autonomy	Age, gender, education and outcome at baseline	Age, gender and outcome at baseline

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In this chapter the results from the research questions are presented in brief. The results are described in more detail in the published articles.

4.1 Long-term associations between work-related and personal factors and employee well-being

The first main aim of the thesis was to explore the associations between different work-related and personal factors on employees' well-being in the long run and their stability. The importance of 10 different work-related factors (work environment, job characteristics and organizational factors) and three personal factors to health and mental well-being of employees in 10 years' time was explored.

The findings (Articles I and II) are:

- The state of employee well-being was relatively stable over a period of approximately 10 years: (a) approximately 60% of the participants belonged to the same extreme strain category at both time points; and (b) the earlier well-being predicted later well-being. The predictive power of the corresponding T¹ well-being measure was better (Psychological strain, PsyS, 74.1%; Physiological strain, PhyS, 73.9%) than the discriminating power of any of the T² work-related factors (at best discriminated 71.5% of PsyS; 66.9% PhyS).

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- Employees who were feeling unwell in their work had worked in worse working conditions and their personal resources were already weaker 10 years ago compared to people with better well-being. All the means of these resources among those feeling well (low PsyS – low PhyS – no-burnout groups, i.e. Low strain group, few or no strain symptoms) were statistically significantly lower ($p < .01$) compared to those who were feeling less well (high PsyS – high PhyS – serious burnout groups, i.e. High strain group, a lot of strain symptoms). The Low strain groups experienced work-related and personal factors more positively, on average, than the High strain groups at both measurement times.
- Work-related and personal factors were also relatively stable over a long period of time and, if there were changes, the resources seemed to increase among those who were feeling well but decrease among those not feeling well. The low and the high PsyS or PhyS groups experienced different kinds of changes during the preceding 10 years. Those with low strain had experienced more improvements in their job complexity, work appreciation, role clarity and feedback. Their Sense of coherence (SOC) and self-esteem had also become stronger. Those with high strain, in turn, experienced less support from their superior and co-workers at T^2 than at T^1 , and Time pressure in their work had increased. The changes ($p < .001$) were in most cases greater in the PsyS groups than in the PhyS groups.
- Similarly, in the no-burnout group the statistically significant ($p < .001$) changes in job characteristics (Job complexity, Role clarity, Feedback and Work appreciation) were all in a positive direction. Whereas in the serious burnout group all the statistically significant ($p < .01$) changes were in a negative direction and among organizational factors, i.e. support from co-workers, superiors and the management had decreased, as well as Autonomy. However, SOC changed in both groups, but in different directions: increased among no-burnout group, decreased among serious burnout group.

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- Compared to work-related factors studied, personal factors, especially SOC, seemed to be better predictors of well-being in the long run. As regards work-related factors, organizational factors, such as social support and appreciation by workmates and closest superior, acted also as primary work-related resources. The role of other work-related factors varied more according to the type of symptom (psychological or physiological strain), and depending on whether they were used to discriminate or predict the symptom groups. (Table 4, page 53.)

Based on these findings, organizational factors (social support) and SOC were selected to be studied in the context of organizational restructuring.

Table 4. The overall rate (%) of successfully classified cases at T² (single-variable model) and the rank of the variables measured at T¹ and T² in stepwise model.

	Study I						Study II			
	Psychological strain group at T ²			Physiological strain group at T ²			Burnout group at T ²		Stepwise model for T ² -T ¹ variables	
	Single-variable model	Stepwise model	Stepwise model	Single-variable model	Stepwise model	Stepwise model	Stepwise model	Stepwise model	Stepwise model	
	T ¹	T ²	T ¹	T ²	T ¹	T ²	T ¹	T ²	T ¹	T ²
Personal factors										
SOC	75.8	77.1	1.	1.	68.9	67.5	1.	1.	1.	1.
Self-esteem	68.7	71.3	2.	2.	62.6	67.2	2.	2.	2.	2.
Sense of competence ^a	–	66.6	–	–	–	64.5	–	–	–	2.
<i>Total %</i>	–	–	76.9	78.0	–	–	67.6	70.4	77.0	89.7
Work-related factors										
Job complexity	54.3	54.6	–	–	57.6	58.4	5.	–	3.	–
Autonomy	55.0	53.4	–	–	56.7	56.7	–	–	–	–
Role clarity	60.2	62.6	3.	4.	59.3	62.0	4.	1.	–	2.
Time pressure	62.3	63.7	2.	2.	54.5	56.1	3.	3.	2.	–
Support from organization	62.4	61.5	–	–	58.8	60.4	–	–	1.	–
Support from superior	62.5	63.1	–	–	59.3	59.8	–	–	–	1.
Support from co-workers	65.7	65.9	1.	1.	59.4	62.8	1.	5.	–	3.
Work appreciation	57.3	61.6	–	3.	57.4	61.1	–	2.	–	1.
Feedback	54.3	57.4	–	–	54.7	55.5	–	–	–	2.
Work hazards	55.3	53.1	4.	–	58.1	57.9	2.	4.	–	–
<i>Total %</i>	–	–	70.9	70.7	–	–	66.3	65.7	68.4	78.3
										56.6

^a Sense of competence was measured only at T²

4.2 Associations between long-term resources, the change appraisal and post-change well-being

The second main objective was to investigate whether the same factors which enabled individuals to stay well in the long run, also protected their well-being during an organizational restructuring process (Articles III and IV). In addition, the change appraisal, the individual view (experience, appraisal) of the restructuring, both during times of expansion and of downsizing, was considered as one of the factors affecting well-being (Articles III, IV and VI). Also the meaning of type of the restructuring (personnel dismissals vs. no dismissals) to employee well-being was explored (Article V).

First of all, the findings of Article III showed that the problems in well-being before and after restructuring (merger) varied according to employee status (t-test results): White-collar workers suffered more from psychological strain, indicated by the level of exhaustion (at T¹ M=1.57, sd=1.12 vs. M=1.42, sd=1.01; at T³ M=1.28, sd=1.13 vs. M=1.11, sd=1.04), whereas blue-collar workers were more prone to impairment of health, indicated by functional incapacity (at T¹ M=2.11, sd=0.65 vs. M=1.92, sd=0.63; at T³ M=2.22, sd=0.70 vs. M=2.00, sd=0.64).

White-collar workers more often saw the change in their position positively (23%) than blue-collar workers (13%), but they also experienced a decline in their position (16% vs. 10%) more often. However, the employee status in most cases did not moderate the relationship between the experienced change in job position and post-change well-being. The findings (Table 5) showed that experiencing a decline in job position increased strongly the risk of poorer well-being after the merger. Experiencing no change in job position also increases the risk for poorer well-being compared to those who had experienced an improvement in job position.

Pre-change social support from the organization, superiors and also from co-workers were associated with the change appraisal: weak support increased the risk of experiencing a decline in job position. Pre-change social support was also slightly associated with well-being: weak support increased risk of impairment of health (Table 5). However, if the

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support from co-workers had been strong before the restructuring, but the person experienced a decline in one's own job position, it intensified the negative effect on her/his post-change well-being, so social support from co-workers did not act as a buffer (test of interaction $p=0.037$ to exhaustion; $p=0.031$ to functional incapacity). (Article III)

Employees with a weaker SOC prior to the change had a higher risk of perceiving the change as negative (OR 1.83, 95% CI 1.57–2.14) and to have lower mental health (the HR for psychiatric events was 1.42, 95% CI 1.04–1.94). Employees with a weaker pre-merger SOC and with a negative general appraisal of the restructuring, viewing that it had had negative consequences at different organizational levels, were at a higher risk of having diagnosed mental health problems after the merger period (the HR for psychiatric events was 2.20, 95% CI 1.38–3.49) compared to those with a stronger SOC and a view that the consequences of the restructuring had been positive or neutral (no change) (Article IV).

The findings showed that those work-related and personal factors which were important for well-being over a long period of time were also important resources during the time of changes. In addition to their direct effects on well-being, they also affected the way change was perceived which in turn affected post-change well-being. However, strong organizational resources were not able to alter the detrimental effects of negative change experience on employees' well-being.

Table 5. Risk of lower well-being after the restructuring (merger) by change appraisal (experience of change of own position) and by social support among white-collar and blue-collar workers.

	White-collar workers						Blue-collar workers					
	Risk of exhaustion		Risk of functional incapacity		Risk of declined position		Risk of exhaustion		Risk of functional incapacity		Risk of declined position	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Change experience												
Improved	1		1		-		1		1		-	
Unaltered	1.39	0.92-2.10	2.45	1.46-4.10			2.24	1.16-4.33	2.22	1.27-3.86		
Declined	3.09	1.87-5.11	4.62	2.57-8.30			3.90	1.72-8.40	4.27	2.14-8.49		
Organizational support												
Strong	1		1		1		1		1		1	
Moderate	1.21	0.85-1.72	1.34	0.92-1.96	1.88	1.30-2.72	1.20	0.78-1.87	1.09	0.77-1.57	1.10	0.66-1.85
Weak	1.15	0.72-1.83	1.71	1.06-2.77	2.33	1.46-3.70	1.77	1.11-2.81	1.72	1.16-2.55	2.40	1.44-3.97
Superior support												
Strong	1		1		1		1		1		1	
Moderate	1.01	0.69-1.48	1.61	1.05-2.47	1.62	1.07-2.44	1.21	0.77-1.91	1.19	0.82-1.74	1.19	0.68-2.10
Weak	1.21	0.82-1.79	2.13	1.38-3.30	2.34	1.53-3.55	1.36	0.88-2.10	1.19	0.82-1.72	2.52	1.53-4.14
Co-workers support												
Strong	1		1		1		1		1		1	
Moderate	1.26	0.85-1.85	1.35	0.88-2.07	1.26	0.82-1.93	0.96	0.62-1.49	0.87	0.60-1.26	1.02	0.59-1.76
Weak	1.36	0.92-2.02	1.37	0.89-2.11	2.03	1.34-3.06	1.10	0.72-1.69	1.24	0.85-1.80	2.10	1.29-3.43

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Since organizational restructuring can mean different restructuring activities, with different consequences to employees, i.e. to the security of their work, the consequences of restructuring to employee well-being, both to their health and mental well-being, was also explored in downsizing (personnel dismissals vs. no dismissals) context.

The findings (Article V) showed the associations with employee well-being were similar in both types of changes (including dismissals or not) carried out in the organization (Table 6). The effect was generally somewhat stronger among those employees who faced the possibility of being dismissed. The level of mental well-being decreased equally in both change groups: Feelings of stress increased and job satisfaction decreased during the year. Only trust in the future decreased more strongly among employees who faced personnel reductions in their organization. However, employees evaluated their own health (work ability) to be better after the restructuring in both change groups.

The association of change appraisal was also explored during organizational downsizing (Article VI). The findings showed that the change appraisal (the direction of changes) affects employee mental well-being: A negative appraisal of restructuring process increased the risk of experiencing higher levels of feelings of stress (OR 3.44, 95% CI 1.71-6.92, adjusted for gender, age and feelings of stress at T¹) but also the risk of experiencing less work enjoyment (OR 5.14, 95% CI 3.17-8.35, adjusted for gender, age and work enjoyment at T¹). The findings highlight the importance of an employee's change appraisal in terms of his/her mental well-being, both from a negative and positive perspective, also during organizational downsizing.

Table 6. The level of well-being in T¹ and T² according to the type of the restructuring.

Type of change	n ^{1MAX}	Feelings of stress			Job satisfaction			Future of work			Work ability		
		T ¹	T ²	Sig. ²	T ¹	T ²	Sig. ²	T ¹	T ²	Sig. ²	T ¹	T ²	Sig. ²
No dismissals	493/429	2.13	2.29	**	3.83	3.67	**	3.12	2.97	*	3.80	3.90	*
Dismissals	1147/854	2.14	2.31	***	3.89	3.77	**	3.13	2.87	***	3.67	3.90	***
Type of change	n ¹	T ¹	T ²	Sig. ³	T ¹	T ²	Sig. ³	T ¹	T ²	Sig. ³	T ¹	T ²	Sig. ³
No dismissals	102	2.13	2.25	ns	3.93	3.80	ns	3.08	2.96	ns	3.79	3.80	ns
Dismissals	280	2.13	2.20	ns	3.97	3.83	*	3.32	2.94	***	3.76	3.83	*

¹⁾ n = Number of participants

²⁾ Cross-sectional data, organizational level: Independent samples t-test for equality of means. The test result of equality of variance was used to select either the separate-variance t-test or pooled-variance t-test for means. The pooled-variance t-test was used when the p value for the variance equality test is >.05, p-values *** p<0.001, ** p<0.01, * p<0.05

³⁾ Longitudinal data, individual level: Paired samples t-test, p-values *** p<0.001, ** p<0.01, * p<0.05

Table 7. Role of different actors in the change appraisal.

		Change appraisal					
		Model 1 OR (95% CI)	Model 1 OR (95% CI)	Model 1 OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 2 OR (95% CI)
Top management	Good Medium Bad	1.00 1.95 (1.13–3.35) 5.26 (3.03–9.15)					
Immediate superior	Good Medium Bad		1.00 1.54 (0.93–2.53) 2.72 (1.59–4.65)			1.00 0.69 (0.38–1.28) 0.73 (0.36–1.48)	1.00 1.65 (0.89–3.05) 3.94 (2.03–7.67)
Own participation	Good Medium Bad			1.00 1.72 (0.90–3.29) 4.93 (2.71–8.97)		1.00 1.56 (0.79–3.09) 3.76 (1.92–7.36)	1.00 1.56 (0.79–3.09) 3.76 (1.92–7.36)
R-Square		0.09	0.04	0.09	0.09	0.14	0.14

OR indicates Odds ratio, CI indicates confidence interval
Adjusted for gender and age

4.3 Associations between change management actions and change appraisal

As the previous results had shown the change appraisal (experience itself) is important, and that even strong organizational resources cannot alter the detrimental effects of a negative change appraisal, also the practical activities carried out during the restructuring process and their associations to change appraisal was studied. The third main objective of the thesis was to find out what can be done in the organizations to manage the change process and employees reactions to it. What kind of activities, by whom, should be carried out in organization to support employee well-being during the organizational restructuring? (Article VI)

An employee's own opportunities to participate in the planning of restructuring were most strongly associated with his/her change appraisal: the more extensively an employee had been able to participate in the planning of changes related to his/her work during the restructuring process, the more positively he/she viewed the change. The role of top management and its actions was an important factor affecting the change appraisal, too (Table 7). Furthermore, the employee's opportunities to participate and top management actions were found to be connected to each other ($r=.42$, $p<.01$), as well as the actions of top management and immediate superiors ($r=.60$, $p<.01$). The findings show that with change management activities it is possible to affect the way employees view changes.

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5.1 Synopsis of main findings

The general goal of the thesis was to identify work-related and personal factors that may help employees to stay well in an unstable world of work. The studies were carried out over a long period, from 1986 to 2009, in the same industrial sector covering a range of economic trends, both the ups and downs illustrating the varying course of working life and the different phases which employees may face during their working career.

The first objective of this thesis was to determine the long-term associations of different work-related and personal factors with employees' well-being. On the basis of the findings (Articles I and II), employees who feel stressed, unwell, differed from those feeling well in terms of their work-related and personal resources. The path to well-being was based on strong personal resources and was guided by a supportive atmosphere, i.e. social support from co-workers, appreciation, at work. Weaknesses in organizational factors contributed to not feeling well, which was rooted also in a person's lack of feelings of worth and competence. Work-related and personal resources seem to be important factors in protecting against strain at work, and in maintaining well-being.

The second objective was to incorporate the organizational restructuring context, expansion or downsizing of operations and/or personnel, into the study. At first, the focus was on a situation where the organization was expanding its operations via a merger. The role of previously recognized work and personal resources was explored as risk and protective factors of employee well-being and as determinants of change appraisal (both to individual him-/herself and generally). The findings (Articles III and IV) showed that the same factors which helped individuals to

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stay well in the long run also helped them during a merger. Strong pre-change social support and a strong sense of coherence (SOC) were associated with better well-being as well as a more positive view of the restructuring and its consequences. However, even strong pre-change social support could not alter the detrimental effect of negative change experience (change appraisal) on well-being, instead strong support from co-workers intensified it.

Attention was then turned to the situation where the organization was downsizing its operations and/or personnel. The findings highlighted the importance of the restructuring situation in terms of health and mental well-being, both when the changes are major (including personnel dismissals, Article V) and when the changes are more minor (no dismissals, also Articles III–IV). Major and minor referring to the risk of losing one's job, a factor related to employee job security. Furthermore, the findings showed that also the positive, motivational aspect of mental well-being can be damaged if the change appraisal is negative, when the restructuring situation is perhaps viewed more as a threat than as a challenge (Article VI).

The third and the final objective was to explore how organizations may manage the restructuring process to enhance the positive change appraisal among employees. The findings (Article VI) shed light on the importance of change management activities carried out during the restructuring process. The path to positive change appraisal was based on sufficient opportunities to participate in the planning of the changes related to one's own work and was supported by top management and the immediate superior's actions.

Adapting the World Health Organization (WHO) description of mental health, employee well-being is seen not just as the absence of health problems or mental disorders, but rather a state in which every individual realises her or his own potential, can cope with the stresses of work, can work productively, fruitfully and with a feeling of engagement, and is able to make a contribution to her or his organization. In agreement with this view, the overall conclusion of the thesis is that employee well-being in unstable world of work is based on

Strong personal resources
+
Good social atmosphere at work
+
Opportunities to participate in organizational restructuring
+
Good managerial actions during organizational restructuring.

These resources seemed to be crucial in order to stay well in an unstable world of work.

5.2 Findings in relation to conceptual models and other studies in the field

The first objective of the thesis was to explore the associations of different work-related and personal factors in employee well-being over a long period of time (10 years), which covers approximately one third of the average duration of a working career (Articles I and II). In line with the other longitudinal research findings (e.g. Kivimäki, Feldt, Vahtera & Nurmi, 2000), sense of coherence (SOC) was strongly associated with employee well-being. The findings thus supported Antonovsky's (1987a) view that SOC is key to successful coping, an essential resource for employee well-being. The findings also raised the importance of a good social atmosphere, i.e. social support in the workplace as a foundation to employee well-being from a wide set of different work-related factors which also included physical demands as has been suggested (de Jonge et al., 2000b; Siegrist et al., 2004). The finding is not surprising, since research during the past three decades has shown that leader behaviours, the relationship between leaders and their employees is associated with employee stress and affective well-being (review of Skakon, Nielsen, Borg & Guzman, 2010). The meaning of social support at work is also noted in the theoretical models, as the JD-CS (Johnson & Hall, 1988; Karasek & Theorell, 1990), ERI (Siegrist et al., 1986) and JD-R- (Demerouti et al., 2001) models described in the introduction of the thesis.

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In addition to recognizing the main resources, the thesis tackled the issue of the stability of resources. According to Antonovsky SOC should be relatively stable, especially after age 30, and longitudinal studies have supported this view (e.g. Kivimäki et al., 2000; Feldt, Lintula, Suominen, Koskenvuo, Vahtera et al., 2007). However, SOC proved to be somewhat unstable over time in a study sample where the average age of the respondents was over 38 already at the first study occasion. The findings showed that SOC became stronger during the 10 years among those employees who were feeling well and it got weaker especially among those with serious burnout. The level of SOC was also higher among those feeling well at the beginning. Antonovsky (1987a, 1991) has, however, hypothesized that SOC is more stable among high SOC individuals than among those with a low SOC, and empirical evidence (Hakanen, Feldt & Leskinen, 2007) has supported this view, since SOC was found to be unstable in the low-SOC group.

The findings also showed that the state of well-being, as well as some of the work-related factors, was relatively stable: those who were feeling well at the beginning reported a higher level of resources available and the situation remained the same whereas the opposite was true for those feeling unwell. This stability can be explained in several ways, for example, based on the studies which have tackled the issue of reciprocal and reversed causal relationship between work characteristics and well-being. In addition to actual changes in the work, one explanation could be that there is a “gloomy perception mechanism” as well as a “rosy perception mechanism” which explains how an employee perceives and evaluates the same work environment over time (de Lange, Taris, Kompier, Houtman & Bongers, 2004). This means that employees who are not feeling well may perceive their work environment more negatively over time, and the situation is the opposite among those feeling well. However, another explanation is offered in the theory of Conservation of Resources (COR) (Hobfoll, 1998, 2001; Westman, Hobfoll, Chen, Davidson & Lasky, 2004) according to which resources, such as social support, are things that people value and therefore strive to obtain, retain, and protect. In addition, those with fewer resources are more vulnerable to resource loss, whereas those with better resources are less vulnerable to resource loss, and are more capable of resource gain (Hobfoll, 2001). An approach

applied in the work context by the JD-R model (Demerouti et al., 2001) and also in line with the findings of the thesis.

The second objective was to explore the associations between the main recognized long-term resources (Articles III–IV) and well-being (also Articles V–VI) during organizational restructuring, during the ups and downs of an organization's life. One of the main resource recognized in the thesis, social support in the workplace, was also a significant factor during organizational restructuring (Article III). The findings showed that if the support of superiors and colleagues decreases during the restructuring process, it may lead to poor employee health and mental well-being. This is in line with the other longitudinal studies (e.g. Moyle, 1998; Wiezer et al., 2011), which have showed that social support, especially managerial, influences employee well-being and that employees' perception of managerial support seems to decline during organizational restructuring. The findings of the thesis support the recommendations (e.g. Moyle, 1998; Swanson & Power, 2001; Kieslbach et al., 2009) that more attention should be paid to managerial support and the actions carried out during the restructuring process to maintain employee well-being.

Furthermore, the findings (Article IV) showed that strong SOC is also an important personal resource when an employee encounters organizational restructuring in his/her working career. Other studies (e.g. Kouvonen, Väänänen, Vahtera, Heponiemi, Koskinen et al., 2009) support this finding. The finding is in line with the Antonovsky's (1987a) view that a strong SOC may enable the employee to evaluate potential stressors at work, such as a situation of organizational restructuring, as benign or irrelevant, thus supporting problem-solving in stressful situations and protecting mental well-being. Strong SOC is interpreted as a resource that enables people to manage tension, to reflect on their external and internal resources, and resolve tension in a health-promoting way (Eriksson & Lindström, 2006).

In addition, the change appraisal, the individual view (experience) of the restructuring, both during the time of expansion and of downsizing, was considered as one of the factors affecting well-being (Articles III, IV and VI). The change appraisal, the employee's own evaluation of the consequences of the restructuring (the changes) for them, was addressed from different perspectives: how employees view that a) their own standing

at the workplace had changed (Article III), b) in which direction the work community in general had changed (Article IV) and c) the overall direction of the changes (Article VI). The results showed that when employees viewed the changes negatively, no matter what the main focus of the evaluation was, their perception of their well-being was also at a weaker level compared to those who viewed the restructuring and its consequences positively. The findings of Article III also highlighted the importance of a positive appraisal compared to a neutral one. The thesis does not, however, approach the reasons behind the appraisal; why the situation is actually viewed as a challenge or hindrance (Lazarus & Folkman, 1984) or how this personal response is determined: what role do psychological factors, such as personality traits (i.e. SOC), expectations, outlook of life or resilience (Weinberg & Cooper, 2012) play.

The final objective of the thesis was to find out which change management activities are associated with a positive change appraisal, which in turn was earlier found to be associated with the well-being of employees. The attention was turned to the different change management activities which are viewed as important during organizational restructuring processes (Kieselbach et al., 2009; Sørensen & Hasle, 2009; Tvedt, Saksvik & Nytrø, 2009; Westgaard & Winkel, 2011): actions of top management, immediate superiors, and employees' themselves. The findings (Article VI) emphasized the role of the employee's own participation: the more extensively the employee has been able to participate in the planning of changes related to his/her work during the restructuring process, the more positive view he/she has on the change. This is in line with the Lazarus view (1993) that it is the appraisal of whether there is anything that a person can do to change the given situation which affects the way people cope with the situation. Also in intervention research the importance of the employee's own activity, participation (participatory action approach), in implementing organizational development programme has been emphasized (Nielsen, Randall, Holten, & Rial González, 2010; Nielsen & Randall, 2012). Thus, as recommendations of how to handle organizational restructuring process have stated, employees should be involved in the planning and carrying out the restructuring process (Kieselbach et al., 2009; Wiezer et al., 2011). However, in building employees' commitment to organizational restructuring, the role of top management and superiors (Neves & Caetano, 2009; Neves, 2011) has

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been highlighted, and perceived support from superiors is seen as a way to shape employees' reactions to change (Neves, 2011). As the findings of this thesis have shown, the extent to which employees feel that they can participate in planning and implementing the restructuring process was associated with top management actions. Top management actions were also associated with the actions of immediate superiors. Managerial actions, at least in the form of communication, support and justice, are thus important during the organizational restructuring process to evoke a positive change appraisal.

Throughout the thesis (Articles I to VI), the focus was on employees' well-being and factors related to it. The situation in which different type of restructuring activities are carried out was considered separately, and in Articles III to VI the focus was on the well-being of those employees who stay in the organization after different restructuring activities were carried out; the so called lucky "survivors" (Noer, 1993) of restructuring. In the light of the findings of the thesis and other research on the consequences of organizational restructuring to their health and mental well-being (see review of Ferrie et al., 2008; Haruyama et al., 2008; Scheck & Kinicki, 2000; Wang et al., 2012), it is perhaps questionable, whether, they can be called "survivors". Furthermore, the findings of Kivimäki and colleagues (Kivimäki, Vahtera, Elovainio, Pentti & Virtanen, 2003b) have shown that among employees who kept their jobs (including employees exposed to minor or no downsizing) after the downsizing, the risk of increased health problems was higher than in groups of re-employed leavers. It has also been found that when employees change jobs (moving to other organizations) their work engagement can improve (de Lange, De Witte, & Notelaers, 2008). The "survivors", or perhaps "stayers" (Wiezer et al., 2011), are, however, those employees who undergo the entire restructuring process and who have to learn to work in the new, reshaped organization. They are thus an important target group and factors associated with their post-change well-being and ways to support their well-being during the process of organizational restructuring need to be considered.

In addition to the general finding that restructuring can damage the health and mental well-being of employees, two addition findings need consideration. Firstly, a surprising finding (Article V) was that employees evaluated their health, i.e. their work ability, to be better after the organizational restructuring process, especially when the process had included

personnel dismissals. Usually the Work Ability Index (WAI) has been considered a practical tool for predicting health, at least in terms of long-term sickness absence (Alavinia, van den Berg, van Duivenbooden, Elders & Burdorf, 2009; Kujala et al., 2006). This finding of the thesis challenges the use of the employee's own evaluation of their health, at least during an uncertain organizational situation. Based on qualitative research employees want to make sure that they are not evaluated as being weak and may come to work even when sick (Wiezer et al., 2011). This may affect also the way they see their health if work ability is used as an indicator of it, since one of the questions is; *'How is your health compared to others at your age?'* This improvement of health is, however, contrary to other findings when, for example, sickness absence is used as an indicator of health in the context of downsizing or job insecurity (Vahtera, Kivimäki, Pentti, Linna, Virtanen et al., 2004; Virtanen, Kivimäki, Elovainio, Vahtera & Ferrie, 2003). Since the improvement of health, noted in the thesis, during restructuring may only be temporary, it does emphasize the importance of following employees' well-being during restructuring as has been recommended (Kieselbach et al., 2009).

The second finding (Article VI) was that a negative change appraisal damaged positive, motivational aspects of employees' well-being, thus it did not only increase strain or ill-health at work as earlier studies indicated. The negative and positive states of mental well-being were considered, since the aim was to find out if anything good could result from organizational restructuring to counterbalance the very ill-health oriented research on the consequences of restructuring. The approach was based on the view of positive psychology (Seligman & Csikszentmihalyi, 2000) that work-related well-being is more than only absence of strain; it is also a positive state. Since work engagement, as an indicator of positive well-being, has been found to be associated with productivity (Hakanen & Koivumäki, 2014), and since the focus of the thesis was on those employees who continue working in the organization after the changes and are in the end responsible for the attainment of the primary, production-related goals of restructuring, this decline of motivational well-being may also be crucial for the future of the organization. Without motivation or a feeling of engagement and commitment, it is unlikely that employees will "give their best" for the organization and the goals of restructuring may not be reached.

5.3 Methodological limitations and strengths

The thesis has several strengths, but also some important limitations which should be taken into account when interpreting the results. First, the studies relied mainly on self-reports (subjective measures) which is typical when surveys are used to collect the data so the results may have been contaminated by common method bias. This means that those employees who were not feeling well, may have underestimated the support from the superiors or any other resources available to them, for example. Subjective appraisals, however, play a crucial role in determining the health and well-being of employees (Daniels, Boocock, Glover, Hartley & Holland, 2009). However, in Articles III and IV more objective measures of well-being were also used. In Article III by using sickness absence records in addition to pre-change subjective well-being, it was possible to control the impact of pre-change well-being problems rather reliably and show that even after adjusting both subjective and objective measures of well-being, the restructuring appraisal and support resources can have an effect on employee well-being. In Article IV, by using register data on psychiatric events, consequences of pre-change SOC and a negative restructuring appraisal on employees' mental health was found. Thus one of the strengths of the thesis is that well-being was addressed from both the physical health and mental well-being aspects and by using different subjective and objective measures. This means at least the core work-related well-being was considered, including both the negative and positive states.

Secondly, there were limitations related to the measurement instruments used. Sometimes single variables, such as feelings of stress, were used. However, most of the single variables have been widely used in other studies, and have proven to be reliable and acceptable for use (Elo, 1994; Elo, Leppänen & Jahkola, 2003; Wanous et al., 1997). In addition, in Article II the weighted burnout sum score was used, even though use of the combined score had been criticized (Koeske & Koeske, 1989). In the study burnout was considered to be a syndrome with three components and the idea was to develop a syndrome indicator. Other studies have, however, proved that it is a valid alternative to operationalize burnout syndrome (Toppinen-Tanner, 2011). Sometimes also longer scales, such as the original measurement of work engagement (Schaufeli et al.,

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2002), were shorter. However, when any modifications and new scales were used, their internal consistency was evaluated before the decision to use them was made. It is also a researcher obligation to consider what is absolutely necessary, even though not ideal, to be able to study the desired phenomenon, and how to make answering the questionnaire as attractive as possible to get a reasonable response rate. This is important when the study is carried out during a perhaps demanding time of organizational restructuring.

Thirdly, a very limited number of background factors were available in the studies, in most cases only age and gender (Table 3). Only in Article III was employee status (the occupation) taken into consideration, as the analyses were carried out separately for blue- and white-collar employees. In fact the target group of dataset II (Articles V and VI) was only at the employee level, in blue-collar employees, and no information on white-collar employees was even possible to collect. All in all, the samples were strongly male-dominated and restricted mainly to so-called blue-collar employees in the forest industry. Although there are undisputed benefits in using a homogeneous sample, such as the intensive study of a specific target group, the results of this thesis do not therefore necessarily apply, for example, to female-dominated fields of working life. However, the focus in the studies was in general effects of studied factors on employees' well-being. The thesis started by looking at a wide range of independent variables to find out those most relevant for the job positions studied (see view of Bakker & Demerouti, 2007). The results highlighted the role of a supportive atmosphere at work and personal resources which can be seen as quite general resources, not specific only to some occupations.

Although the longitudinal study design is a strength of this study, the fourth limitation concerns other aspects of the study design, which were not optimal. For example, in Article II the study groups were formed at the end of the study period at Time 2 (1996), because burnout was measured then for the first time in the study context. Also in Article VI the questions aimed to find out how well the restructuring process was managed were only measured at Time 2, a year after the restructuring activities started. Employees' perception of the change management actions during the different phases of organizational restructuring process (van den Heuvel, Demerouti, Bakker & Schaufeli, 2013; Wiezer et al., 2011) is thus lacking. Also in Articles III and IV respondents were asked

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to evaluate the consequences of the restructuring after two years of the actual change. Even though this interval has been recommended as an optimal measurement period for assessing the consequences of a restructuring from the workers' perspective (Buono & Bowditch, 1989), the reliance on retrospective recall might not reflect the experience during the whole restructuring period, since both the recent nature and importance of the change may have affected recall (Brown, Rips & Shevell, 1985). It is possible that some participants may have recalled the past events over-optimistically (Swanson & Power, 2001) or some of the worst effects of the restructuring may have been over by the time the post-change data collection was carried out. However, it is most likely that participants can give a fairly accurate appraisal of their overall experience of the restructuring, since the consequences of the restructuring to their task for example was likely to be realized at the time of the data collection.

The fifth limitation is the relatively small sample size of the datasets in Articles V and VI. The reason for this was that data could only be collected from those employees who remained working in the organization after the restructuring process was carried out, who at both times had given their permission to use their sickness absence records, and who had answered to the follow-up survey after a difficult period. All this may indicate that they represent a group of employees whose personal and social resources may be relatively good (e.g. the healthy worker effect, Checkoway, Pearce & Dement, 1989). This healthy worker effect may have also been in the other studies, since answering a long questionnaire demands a lot from the respondent. If a person is for example experiencing a lot of strain he/she may not be motivated to participate in a survey study which is voluntary. However, the samples were always representative and respondents well-being was also clearly affected. It is, however, possible that the consequences of restructuring on the well-being of employees are more severe than the results show.

Finally, when the consequences of the organizational restructuring are considered, it is important to remember that the majority of the participants worked at industrial plants in small and often remote communities, where their employer was one of the major employers in that area. Therefore, the possibility of finding a similar kind of new job, if being dismissed, may have been fairly low for the majority of the employees. This may have heightened the impact of any organizational

restructuring on their well-being. Also, the image of the forest industry had changed during recent years. Traditionally, the sector had been seen as an employer which guaranteed a job for life for its employees, as it had offered work for generations earlier. Now it was closing down units or whole factories which made profits (see case study in Kieselbach et al., 2009), with employee layoffs. Finally, when the dataset II (2008-2009) was collected, the whole Finnish forest industry sector was facing economic difficulties at the same time, which might have caused stronger reactions among employees' than in a situation in which the future of the whole sector was not threatened.

5.4 Conclusions and avenues for future research

The findings of the thesis showed that both the level of well-being and the factors associated with it are on two different paths which seems to develop in different directions: those who are feeling well, have the necessary work-related and personal resources, will stay well and their resources get stronger in the long run, whereas the same was true, but in the opposite direction, for those feeling unwell. Even though there are different explanations offered (e.g. de Lange et al., 2004; Demerouti et al., 2001; Hobfoll, 1998, 2001; Westman et al., 2004) to explain this process, the way individuals perhaps view their well-being and the resources, the time period in the studies has usually been fairly short, 12-months up to some years (de Lange et al., 2004; Mäkikangas, Feldt & Kinnunen, 2007), compared to the time period of the thesis. Unfortunately, only one-way (normal) causality was studied in the thesis thus more longitudinal studies, which cover a considerable proportion the working career are needed to have a better understanding of the factors behind employee well-being in the long run. In the research settings, the level of resources, such as SOC, should be taken into account, since the findings showed that these resources develop over the course of time and are not as stable as previously assumed (Kivimäki et al., 2000; Feldt, et al., 2007).

The findings also highlighted the importance of the change appraisal in post-change well-being. Surprisingly few studies have focused on how

the appraisal of restructuring influences the well-being of employees experiencing organizational upheaval, and how positive appraisals could be enhanced. Since it is increasingly likely, in the light of the amount of organizational restructuring taking place, at least in Europe nowadays (ERM), that employees do not experience an organizational restructuring process only once during their working career, but perhaps several times and even during a very short time-period, it would be important to study the consequences of the change appraisal in relation to the way the next restructuring and its effects are viewed and what kinds of longitudinal consequences it may have on employee well-being. Also the severity of organizational restructuring on individuals should be better taken into account. One approach would be to take a closer look at the concrete consequences of restructuring on the employee. There is already some indication that, in addition to change appraisal, the amount of changes to own work is important (see e.g. Wiezer et al., 2011).

In addition to issues studied in the thesis, van den Heuvel and colleagues (2013) have distinguished, by applying Lewin's theory, three phases of organizational change (pre-change actions, implementation phase and post-change phase) and different employee-level constructs (e.g. unfreeze, transition, re-freeze) during the phases. This implementation phase can also be seen as the phase where there are different sub-phases (information about becoming changes, decision making, information on decisions and carrying them out) and where employees' feelings also differ (Pahkin, Mattila-Holappa, Nielsen, Widerszal-Bazyl & Wiezer, 2014). Since organizational restructuring is carried out and experienced in different phases it would be important to study how the process itself affects employee well-being and which phases are crucial and why. In most studies the follow-up is conducted only once, and the time interval differs from some months to several years. Therefore more research is needed on the different phases of the organizational restructuring process to reveal temporary and long-term effects of organizational restructuring on employees' health and mental well-being. In future research it would also be important to use positive indicators of well-being, to examine whether something good could result from organizational restructuring: if not during the process, at least when some time has passed.

It would also be important to try to evaluate the impact of different activities carried out during the restructuring process, such as confidential discussions or coaching (see e.g. Pahkin et al., 2014). Do they actually work, are they useful interventions or not, what are their long term effects? However, even though intervention studies would be useful, their criteria should be discussed. Knowing the consequences of organizational restructuring on employees' health and mental well-being, it does not seem ethical to give support to only a certain group of employees in the implementation of the restructuring phase, and leave others without support, so that the control group design for scientific research would be possible.

Furthermore, resilience is a concept which has recently received increasing amounts of attention as the research interest has turned into what kinds of organizations and individuals are not only healthy, but also resilient in the face of turbulence in working life. In the business environment resilience has been used to describe how organizations respond to rapid changes of economics (Hamel & Välikangas, 2003). Organizational resilience is now seen as part of healthy organizations (Cooper & Cartwright 1994), organizations that will have healthy practices for structuring and managing the work processes that influence the development of healthy employees, and healthy organizational outcomes (Salanova, Llorens, Cifre & Martínez, 2012). According to Salanova and colleagues, a healthy and resilient organization (HERO) is an organization that develops systematic, planned and proactive efforts in improving the employee and the financial health of the organization. This kind of organization carries out healthy organizational practices and resources are aimed at improving the work environment at the task, social and organizational levels, especially during turbulence and changing times. However, more research is needed to find out if HERO companies are better at supporting the well-being of employees during turbulent times and what are the key activities that they employ during the restructuring process.

5.5 Practical implications

Paying attention to the well-being of employees, to assess and manage all types of risk to employees' health is, also during organizational restructuring, the legal responsibility of the employer in all EU countries (e.g. Directive (89/391 EEC, Directive 2002/14/EC). In practice, it is a task of management and superiors who represent the employer at a workplace. This obligation highlights the importance of leadership skills of management and superiors. It is not enough that they take care of the task management; they should also be able to manage people and take care of their well-being. The findings of the thesis showed that a good social atmosphere and employees' resources should always be in the focus of the management activities, so that there would be a good foundation to develop work or carry out organizational restructuring when the future of the organization demands it. This means that awareness of factors and ways affecting employee well-being in the course of the organization's life should be raised among management and superiors, but also among those involved in carrying out the restructuring process, such as human resources experts and employee representatives.

Based on the findings, it seems that the indicators of strain at work should always be taken seriously. The symptoms of strain proved to be relatively stable over time and thus "good" predictors of future ill health, especially of physiological strain. Therefore, more attention should be paid to relieving the strain in time, for example by using employee well-being surveys, confidential discussions with superiors or occupational health services, so that the long-term effects could be avoided. This is not important only for the individual employee, but also for the organization, since the employees' poor health has far-reaching consequences through, for example, the cost of absenteeism and the use of medical services, and in efforts in reducing them (Fries & McShane, 1998; Vahtera & Kivimäki, 2008).

In the workplace attention should be paid especially to those employees whose resources are low, and who are thus at risk of being worn-out at work or the risk of becoming unemployable. More effort should be put on the enhancement of the opportunities for developing the employees' personal resilience. Employees should be supported by taking care of their professional skills, by, for example, offering training,

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opportunities to challenge their knowledge and skills, so that they can cope better with the demands of work, but also with the challenges aroused by organizational restructuring processes. Supporting personal resources is important since they refer to an individual's sense of ability to successfully control and impact on his/her environment, thus they are linked to resilience (Hobfoll, Johnson, Ennis & Jackson, 2003).

Attention should also be paid to the way the organizational restructuring process is carried out, the role of different actors, from top management to the employee level. Employees should be engaged in the restructuring process and they should have opportunities to participate in planning the changes and carrying them out. When any types of activities are carried out in organizations, the goal should be that in spite of the challenges of every day work or organizational restructuring processes, employees feel well, can use their potential, skills and motivation also to the advantage of the organization.

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Considering the time spent at work and the instability of work life, paying attention to employee well-being and its determinants over the long run and during the turbulence of work is a highly relevant. Although the associations between work-related and personal factors and employee well-being have been studied extensively, relatively little is known about the persistence of these associations over a longer period of time and whether the associations remain in the context of organizational restructuring, such as organizational expansion or downsizing, or what can be done within the organizations to manage the change process and employees reactions to it. The overarching aim of this thesis is to shed light on factors which help employees to stay well in an unstable world of work.

Orders:

Finnish Institute of Occupational Health
Arinatie 3
FI-00370 Helsinki
Finland

E-mail kirjakauppa@ttl.fi

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