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Health at Work

The Relationship between Organizational Justice, Behavioural Responses, and Health

Mats Liljegren

National Centre for Work and Rehabilitation Department of Medicine and Health Sciences Linköping University Sweden

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ABSTRACT

Introduction:

Employee health, individual behaviours in an organizational context and perceived organizational justice are theoretically united by social exchange theory, the cognitive appraisal model, and social inequality and relative deprivation theories. Empirically, the relationship is more indistinct. The few studies that hitherto have examined the relationship between organizational justice and behavioural responses indicate an association between high organizational justice and constructive organizational behaviours (voice and loyalty), and between low organizational justice and destructive organizational behaviours (neglect and exit). Several studies have reported a strong association between organizational justice and good health, and a low degree of burnout. However, there are hardly any studies of the relation between behavioural responses, especially job mobility, and health.

Aim:

The main aim of the present dissertation was to study the relationship between organizational justice, behavioural responses, and health.

Methods:

The present study was designed as a longitudinal, three-wave, panel study. A questionnaire was sent to all employees, including those who had terminated their employment or who had left the organization due to retirement, in three regional organizations of the Swedish National Labour Market Administration in 2001 (N=1010, response rate: 78%), 2002 (N=1078, response rate: 75%) and 2003 (N=1122, response rate: 74%).

In **study I** (a cross-sectional and longitudinal validation study), was analyses of variance, multi-trait/multi-item analyses, logistic regression analyses and different forms of factor analyses were used to validate and evaluate the Hagedoorn et al. EVLN instrument. In **study II** (a longitudinal panel study), correlation and Structural Equation Modeling (SEM) analyses were used to elucidate the reciprocal relationship between behavioural responses and health. In **study III** (a longitudinal panel study), factor, correlation and SEM analyses were used to investigate the association between organizational justice, health and burnout. In **study IV** (a longitudinal panel study), variance and General Linear Modeling (GLM) repeated measures analyses were used to examine the relationship between turnover intentions, job mobility and health and burnout. In **study V** (a longitudinal panel study), variance used to shed light on the reciprocal relationship between health, burnout and job mobility with turnover intentions, organizational justice and age as affecting factors.

Results:

Study I showed that the Hagedoorn et al. EVLN instrument was a valid instrument with the exception of the aggressive voice subscale that presents some obvious and distinct deficiencies. The results of **study II** indicate that the relation between behavioural responses versus health is mainly one-sided: behavioural responses predict psychosocial health. The behavioural response exit at baseline was associated with worse psychosocial health at the two-year follow-up, while considerate voice predicted good psychosocial health at the two-year follow-up. Good baseline physical health predicted a high degree of exit behaviour after two years. **Study III** showed that organizational justice is cross-sectionally and longitudinally associated with physical, psychosocial health, and burnout. The two approaches to study organizational justice, as a global or threefold construct, should be regarded as complementary rather than exclusive. The results of **study IV** showed that external mobility had a positive effect on personal and work-related burnout compared with non-mobility, and that the combined effects of **study V** showed that job mobility is a more distinct predictor of health and burnout than health and burnout is

of job mobility. Turnover intentions, but not organizational justice, proved to have an effect on job mobility.

Conclusion:

The present dissertation has elucidated the social-psychological relationship between organizational justice, behavioural responses and health. The results show that perceived organizational justice predicted good health and low degree of burnout. The results also show that active behavioural responses predict psychosocial health: pro-organizational behaviour (considerate voice) was associated with high psychosocial health and a contraorganizational behaviour (exit) was associated with low psychosocial health. External job mobility showed a positive effect on burnout and job mobility is a more distinct predictor of psychosocial health and burnout than health and burnout is of job mobility.

SVENSK SAMMANFATTNING

Bakgrund

Anställdas hälsa, individuella beteenden i ett organisatoriskt sammanhang och upplevd organisatorisk rättvisa är teoretiskt förenade av social utbytesteori, copingteori och teorier som beskriver konsekvenserna av social ojämlikhet. Empiriskt är förhållandet mer oklart. De få studier som hitintills har granskat relationen mellan organisatoriskt beteende och rättvisa visar på ett samband mellan hög grad av upplevd rättvisa och konstruktiva beteenden och mellan låg grad av upplevd rättvisa och destruktiva beteenden. Flera tidigare studier har visat på ett samband mellan organisatorisk beteende, särskilt rörlighet mellan olika arbetsplatser, och hälsa är överhuvudtaget inte studerat i någon större omfattning och denna relation är i stort sett okänd.

Syfte

Det övergripande syftet med föreliggande avhandling är att studera sambandet mellan organisatorisk rättvisa, individuellt organisatorisk beteende och hälsa.

Metod

De ingående delstudierna i föreliggande avhandling ingår i en longitudinell panelstudie med tre olika datainsamlingstillfällen. Ett frågeformulär sändes ut till samtliga anställda, även de som hade slutat eller gått i pension under studietiden, i Arbetsmarknadsverket, AMV, i tre mellan svenska län 2001 (*N*=1010, svarsfrekvens: 78%), 2002 (*N*=1078, svarsfrekvens 75%) samt 2003 (*N*=1122, svarsfrekvens 74%).

I **delstudie I**, en tvärsnitts och longitudinell valideringsstudie, användes variansanalys, "multi-trait/multi-item", logistisk regressionsanalys samt olika former av faktoranalys för att validera och utvärdera ett instrument (Hagedoorn m fl., 1999) avsett för att skatta individuella beteenden i ett organisatoriskt sammanhang. I **delstudie II**, en longitudinell panelstudie, användes korrelationsanalys och strukturell ekvationsmodellering, SEM, för att studera den reciproka relationen mellan individuella organisatoriska beteenden och hälsa. I **delstudie III**, en longitudinell panelstudie, användes faktor-, korrelations- och SEM-analyser för att belysa sambandet mellan upplevd organisatorisk rättvisa, hälsa och utbrändhet. I **delstudie IV**, en longitudinell panelstudie, användes varians och generell linjär modellering, GLM, "repeated measures" analyser för att belysa sambandet mellan önskan att byta arbetsplats, faktiskt byte av arbetsplats, hälsa och utbrändhet. I **delstudie V**, en longitudinel panelstudie, byte av arbetsplats, hälsa och utbrändhet. I **delstudie V**, en longitudinell panelstudie, användes varians- och SEM-analyser för att studera det reciproka sambandet mellan hälsa, utbrändhet och byte av arbetsplats.

Resultat

Resultatet av delstudie I visade att Hagedoorn m.fl. (1999) instrument kan anses ha godkända psykometriska egenskaper, bortsett från delskalan "aggressive voice" som uppvisade flera uppenbara svagheter. Delstudie II visade att relationen mellan individuella organisatoriska beteenden och hälsa framförallt är ensidigt: beteendet predicerar hälsan. Typbeteendet "exit" predicerade sämre hälsa efter två år, medan typbeteendet "considerate voice" predicerade bättre hälsa efter två år. Slutligen predicerade god fysisk hälsa typbeteendet "exit" efter två år. Resultatet av Delstudie III visade att upplevd organisatorisk rättvisa är relaterat till god hälsa och låg grad av utbrändhet, både vid en tvärsnitts- och longitudinell jämförelse. De två olika sätten att studera organisatorisk rättvisa, antingen som ett globalt eller tredelat begrepp, bör betraktas som komplementära. I **delstudie IV** visade sig extern rörlighet, d.v.s. mellan olika arbetsplatser, i jämförelse med icke-rörlighet, har en gynnsam effekt på personlig och arbetsrelaterad utbrändhet. Resultatet visade också att samspelet mellan en önskan att byta arbetsplats och att faktiskt genomföra ett byte snarare är additiv snarare än interaktiv. Slutligen visade resultatet i delstudie V att rörlighet mellan olika arbetsplatser är en mer distinkt prediktor till hälsa och utbrändhet än hälsa och utbrändhet som prediktor till extern rörlighet. Önskan att byta arbetsplats, men inte upplevd organisatorisk rättvisa, visade sig ha effekt på faktiskt byte av arbetsplats.

Slutsatser

Föreliggande avhandling har belyst det socialpsykologiska förhållandet mellan organisatorisk rättvisa, beteende och hälsa. Resultatet visar att upplevd organisatorisk rättvisa predicerar hälsa och låg grad av utbrändhet. Resultatet visar också att aktiva individuella organisatoriska beteenden predicerar psykosocial hälsa: ett proorganisatoriskt beteende predicerar psykosocial hälsa medan ett anti-organistoriskt beteende predicerar psykosocial ohälsa. Extern rörlighet har en positiv effekt på utbrändhet och rörlighet är en tydligare prediktor till psykosocial hälsa och utbrändhet än vad hälsa och utbrändhet är till rörlighet.

PREFACE

A number of years ago I started this journey. The road has not been straight and the detours have been numerous and lengthy. There have been many troublesome problems to deal with the long way but also many memorable occasions when there was a reason for rejoicing! Finally this protracted expedition has come to an end. Many people have supported, encouraged, and guided me during these years. I wish to express my sincere gratitude to all who have contributed to this dissertation; without your help I would never reached my destination.

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INCLUDED EMPIRICAL STUDIES

The present dissertation is based on the following studies:

- I Liljegren, M., Nordlund, A., & Ekberg, K. (2008). Psychometric evaluation and further validation of the Hagedoorn et al. modified EVLN measure. *Scandinavian Journal of Psychology*, 49, 169-177.
- II. Liljegren, M., & Ekberg, K. The relationship between self-rated health and employee behavioural responses: a two-year follow-up study. (submitted, pending revision).
- III. Liljegren, M., & Ekberg, K. (in press). The Associations between Perceived Distributive, Procedural, and Interactional Organizational Justice, Self-rated Health and Burnout. WORK: A Journal of Prevention, Assessment & Rehabilitation.
- IV. Liljegren, M., & Ekberg, K. (in press). Job Mobility as Predictor of Health and Burnout. *Journal of Occupational and Organizational Psychology*.
- V. Liljegren, M., & Ekberg, K. (in press). The longitudinal relationship between job mobility, perceived organizational justice and health. *BMC Public Health*.

ABBREVIATIONS

AF	Arbetsförmedlingen (The Swedish National Employment Agency)	
AMOS	Analysis of Moment Structures	
AMV	Arbetsmarknadsverket (The Swedish National Labour Market	
	Administration)	
AMS	Arbetsmarknadsstyrelsen (The National Labour Market Board)	
ANOVA	Analysis of Variance	
CBI	Copenhagen Burnout Inventory	
CFA	Confirmatory Factor Analysis	
CFI	Comparative Fit Index	
CI	Confidence Interval	
DJI	Distributive Justice Instrument	
et al.	et alii (Latin): and others	
EVL	Exit, Voice, and Loyalty	
EVLN	Exit, Voice, Loyalty, and Neglect	
EQ5D	EuroQol 5 Dimensions	
F	Fisher's F ratio	
g	Gram	
GLM	General Linear Model	
h	Hour	
HRQoL	Health Related Quality of Life	
IFI	Incremental Fit Index	
IJI	Interactional Justice Instrument	
IQOLA	International Quality of Life Assessment	
LAN	Länsarbetsnämnd (regional department of the AMV)	
М	Mean	
MBI	Maslach Burnout Inventory	
mle	Maximum Likelihood Estimate	
MOS	Medical Outcomes Study	
N	Total number in a sample	

n	Number in a subsample
n.s.	Non Significant
NNFI	Non-Normed Fit Index
OCB	Organizational Citizenship Behaviour
р	P-value
PCA	Principal Component Analysis
PFI	Procedural Fairness Instrument
PUMA	Projekt Udbrændthed, Motivation og Arbejdsglæde (Project on Burnout,
	Motivation and Job Satisfaction),
r	Correlation Coefficient, Pearson
r _s	Correlation Coefficient, Spearman
RAND	RAND Corporation (RAND is derived from the term Research and
	Development)
RMSEA	Root Mean Square of Approximation
SD	Standard Deviation
SE	Standard Error
SEK	Swedish Krona
SEM	Structural Equation Modeling
SET	Social Exchange Theory
SF-36	Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey
SPSS	Statistical Package for Social Sciences
T1	Baseline
T2	One-year follow-up
Т3	Two-year follow-up
VAS	Visual Analogue Scale
VS.	Versus
χ^2	Chi Square

DEFINITIONS

Behavioural response	Individual action due to organizational events
Burnout	State of physical and psychological exhaustion caused by long-term involvement in work-related situations that are emotionally demanding
Health	Individual subjective mental and physical well-being and function
Job mobility	Individual transition from and/or to a place of work, within or between different organizations
Organizational justice	Degree of individual perceived fairness within an organization

The terms "justice" and "fairness" are used synonymously in the present dissertation

INTRODUCTION

Work is of significant importance for the individuals' health. Work is generally the single most important way of obtaining financial resources which are essential for material wellbeing, but also of gaining social roles and status, important prerequisites for mental wellbeing (Nordenmark & Strandh, 1999). Work could also have a health promoting effect on people with mental illness (Thomas, Benzeval, & Stansfeld, 2005), different musculoskeletal conditions (Abenhaim, Rossignol, Valat, Nordin, Avouac, Blotman et al., 2000) and cardio-respiratory conditions (Brezinka & Kittel, 1995). But, at the same time, various aspects of work may constitute hazards to health. With modern ways of organizing work, the nature of work has been radically transformed and new risks regarding employee well-being have appeared (Sparks, Faragher & Cooper, 2001).

One factor, in today's rapidly changing working life that has been become increasingly important is organizational justice (Elovainio, Kivimäki, & Vahtera, 2002) and during recent years, several studies have found a strong association between perceived justice and health (for example: Ferrie, Head, Shipley, Vahtera, Marmot, & Kivimäki, 2006). But employees do not suffer from unjust treatment or other organizational events in silence; they react in a number of ways: by participation, by protesting against the state of things, by quitting their job or by silently enduring the problems (Hagedoorn, van Yperen, van de Vliert, & Buunk, 1999). As employees, the way to handle organizational events could affect our health, but the way we handle problematic situations could also be affected by our health.

The main purpose of the present dissertation is to shed light on the relationship between health, the employee behaviour in an organizational context and perceived organizational justice.

THEORETICAL FRAMEWORK

Organizational Justice

The philosophical idea of justice has occupied mankind for centuries. The concept has ancient roots, and has since then interested scholars as different as Aristotle, Thomas Hobbes, Adam Smith, and Peter Kropotkin (Raphael, 2001). However, it was not until the early 1960s that the concept of justice was applied in the organizational sciences by George C. Homans and his conceptualization of distributive justice (Homans, 1961). Since that time the scientific field of organizational justice has evolved and today it is an extensive and vigorous discipline within the organizational sciences. In 2001 approximately 400 empirical studies focused on fairness and justice in organizations, the majority published since 1990 (Cohen-Charash & Spector, 2001), and in the last years the field has extended even more.

Justice, in the organizational sciences, is considered to be socially constructed. An act is considered as fair or just if most individuals perceive it to be so (Colquitt, Conlon, Wesson, Porter, & Yee Ng, 2001). From this perspective, organizational justice could be defined as people's perceptions of fairness in organizations (Greenberg, 1987).

Organizational justice could be described as focusing on the antecedents and consequences of two types of individual perceptions of organizational justice: the fairness of outcome distribution or allocations (distributive justice) and the fairness of the procedures used to determine outcome distributions or allocations (procedural justice) (Colquitt et al., 2001).

The first theoretical and empirical studies on organizational justice focused on the distributive aspects of justice. It was not before the mid-1970s that John Thibaut and Laurens Walker (1975) found that the distribution of rewards is not always as important as the process by which they are allocated and, based on this finding, made the distinction between distributive and procedural justice. This distinction is well accepted in the

literature and empirically supported in a number of different studies (for example: Ambrose & Arnaud, 2005; Brockner & Siegel 1995; Colquitt et al., 2001).

Until the mid-1980s research into organizational justice was primarily focused on the structural characteristics of formal decision-making procedures and paid little, if any, attention to the interpersonal aspects of procedural justice (Colquitt, Greenberg, & Zapata-Phelan, 2005). It was not until Bies and Moag (1986) reported on the importance of the fairness of interpersonal communication that the interactional aspects of organizational justice were studied. The term 'interactional justice' has since then been used to capture the relational aspects of procedural justice.

The idea of a threefold division of organizational justice, between distributive, procedural and interactional organizational justice, gained support by Yochi Cohen-Charash and Paul E. Spector (2001). They performed an extensive meta-analysis, using 190 studies, totalling not quite 65,000 participants, to test the distinction between the three different forms of justice. The results of this study showed that distributive, procedural, and interactional justice are strongly related, yet they are distinct constructs. This conclusion was based on (1) the level of correlations between the three types of justice and (2) the relationships between the three types of justice and other aspects as organizational commitment, trust and behaviour.

The threefold distinction of justice is not consensual, and arguments have been put forward for a division of the interactional into two separate sub-concepts: 'interpersonal justice' and 'informational justice'. This evolution of the concept of interactional justice has received some empirical support (Colquitt 2001; Colquitt & Shaw, 2005) but has yet to be tested to any extensive degree.

Behavioural responses

The Exit, Voice, Loyalty, and Neglect theory of organizational behavioural responses

In the early 1970s the American economist Albert Hirschman (Hirschman, 1970) proposed a general theory to explain individual behavioural responses to different events in social systems such as companies, organizations and countries. The theory has been applied in a wide range of different scientific settings; for example, to explain behavioural responses to dissatisfaction in romantic involvements (Rusbult, Zembrodt, & Gunn, 1982), the return of Chinese political exiles (Ma, 1993) and reactions to job insecurity (Sverke & Hellgren, 2001). One of the most frequent applications of the theory has been to study individual behaviour in organizations.

According to Hirschman (1970), employees respond to organizational decline with two different behaviours: either with an 'exit' or 'voice' behavioural response. The exit response occurs when employees terminate their relationship with the organization by quitting their job. The voice response, on the other hand, occurs when they try to actively affect the system; for example, by complaining to the management or discussing the problems they experience with colleagues or the trade union. The decision to react with either an exit or a voice response is determined by the individual's loyalty to the organization; if an employee has a high degree of loyalty to his or her organization, the reaction is more likely to be a voice response than an exit response, but if the employee feels less loyal to the organization, he or she will probably quit, i.e. carry out an exit behaviour.

In recent research (for example: Lee & Jablin, 1992; Turnley & Feldman, 1999), loyalty is considered not only as a prerequisite for voice; it is regarded as an independent behavioural type together with exit and voice. The EVL (Exit, Voice and Loyalty) model has been developed and expanded by several theorists. One of the major theoretical contributions to this field of science has been made by Rusbult et al. (1982). Firstly, they propose a further behavioural reaction to the EVL model: the neglect behavioural

response. Neglect is characterized by a disregarding and lax behaviour, expressed in employee behaviours such as lateness, absenteeism and high error rates (Farrell, 1983). Secondly, Rusbult et al. (1982) have theoretically arranged the three original reactions and neglect into a two-dimensional model: a constructive/destructive dimension and an active/passive dimension. The behavioural responses 'voice' and 'loyalty' are considered constructive behaviours, as their purpose is to revive satisfactory working conditions or organizational relations. Exit and neglect are considered to be more destructive behaviours, as their purpose is to reven terminate the relationship between the organization and the employee. Exit and voice are categorized as active behaviours, as they imply active actions; neglect and loyalty are relatively more passive.

Figure 1.

The four different behavioural responses in the modified EVLN typology proposed by Farrell & Rusbult (1985) categorized in the two dimensions: 'active/passive' and 'destructive/ constructive'.



In the last three decades, the Hirschman Exit-Voice theory, and the elaborated Exit, Voice, Loyalty and Neglect (EVLN) theory and model, have been used in various fields of organizational science: for example, to investigate organizational loyalty and dispute-resolution strategies (Hoffman, 2006) and organizational cynicism (Naus, van Iterson, & Roe, 2007). The EVLN-typology has gained both theoretical and empirical support in

different studies (for example: Farrell, 1983; Farrell & Rusbult, 1985; Rusbult, Farrell, Rogers, & Mainous, 1988; Withey & Cooper, 1989; and Hagedoorn, van Yperen, van de Vliert, & Buunk, 1999) but there are still some questions to be answered. One frequent question is whether the EVLN responses in general, and the loyalty response in particular, should be understood as behaviours or attitudes (Leck & Saunders, 1992). According to Hirschman (1970), exit and voice are distinct behavioural responses, but it is less clear whether the loyalty response is a behaviour in its own right, or if it is a precondition for the other two responses. Lovalty, according to Hirschman's model, could be interpreted, in at least two different ways: either as an attitudinal state that influences behavioural responses, or as an alternative behaviour to voice and exit (Leck & Saunders, 1992). In some studies the loyalty response is used entirely as an attitude (Mayes & Ganster, 1988), while other studies use the loyalty response solely as a behavioural response (Rusbult et al., 1988; and Hagedoorn et al. 1999). Some empirical findings underline the necessity of a theoretical and conceptual distinction between loyalty as an attitude and loyalty as a behaviour. One proposed way of making this distinction is to label loyalty behaviour as patience, and the loyalty attitude as loyalty (Leck & Saunders, 1992).

The EVLN typology has been further developed in the last decade. From theoretical and methodological perspectives, two suggestions for a plausible fifth behavioural response have been proposed: 'aggressive voice' by Hagedoorn et al. (1999) and 'organizational cynicism' by Naus et al. (2007). 'Organizational cynicism' is characterized by a belief that the organization lacks integrity, negative affect toward the organization, and critical behaviour towards the organization that is consistent with these beliefs and affects (Dean, Brandes, & Dharwadkar, 1998). Hagedoorn et al. (1999) make a distinction between 'aggressive voice' and 'considerate voice', where aggressive voice is a behavioural response that is neutral on the destructive/constructive axis in the two-dimensional EVLN-model, while considerate voice response is considered to be an active/constructive response.

Job mobility

Job mobility, in sense of individual transition from and/or to a place of work, is an important organizational factor for performance (van Vianen, Feij, Krausz, & Taris, 2003), competitiveness and human resource management (de Luis Carnicer, Sánchez, Pérez, & Jiménez, 2004), but it also has a major impact on the individual autonomy, task diversity, conflicts with supervisors, strain, job training opportunities and job security (Swaen, Kant, van Amelsvoort, & Beurskens, 2002).

The construct of job mobility is complex. Firstly, job mobility has frequently been defined as turnover, i.e. inter-organizational mobility, which results in our limited knowledge of the prerequisites and effects of intra-organizational mobility, i.e. mobility within an organization, are sparse (van Vianen et al., 2003). Secondly, the operationalization and measurement of job mobility is not unproblematic, as the construct of job mobility has some distinct features. The nature of the construct (an event, or a series of events, rather than an individual characteristic) implies a number of theoretical and methodological consequences. Firstly, it is hard, without the use of retrospective questions which is may be affected by memory recall errors (Ayhan & Işiksal, 2004), to investigate job mobility in a cross-sectional design. This problem is frequently handled by using turnover intentions as an indicator of job mobility (Mor Barak, Nissly, & Lewin, 2001). Even if the predictive associations between turnover intentions and actual turnover have been presented in a number of studies (for example: van Breukelen, van der Vliest, & Steensma, 2004; and Allen, Weeks, & Moffit, 2005) is the relationship between them is affected by: (1) the fact that turnover intention is an attitude while actual turnover is a behaviour, and (2) that the relation between attitudes and actual behaviour is, at very least, to be considered as complex (Armitage & Conner, 2001). This implies that turnover intentions and actual turnover behaviour should be considered as separate and distinctive constructs (Mor Barak et al., 2001).

The distinction between turnover intentions and actual turnover, i.e. internal and external job mobility, makes it possible to elucidate the main and interactive effects of the two

constructs on other factors. For example, Aronsson and Göransson (1999), report that employees who stated that they wanted to quit their jobs (i.e. high turnover intention) but did carry out their intentions (i.e. low job mobility) reported more symptoms such as headache, slight depression and fatigue, than other employees.

Health

Individual health

The concept of health is complex and controversial. Brülde and Tengland (2003) make a distinction between six different theoretical perspectives on health, each perspective with its own definition of health: (1) health as clinical status, (2) health as ability to act, (3) health as well-being, (4) health as equilibrium, (5) phenomenological conception of health and (6) different pluralistic approaches to health (i.e. health could, for example, be both clinical status and ability to act).

The complexity of the concept of health has not only theoretical and philosophical implications, but also problematizes the operationalization and measurement of health. Brülde and Tengland (2003) formulate two questions about the measurement of health: (1) is a person's health intra-personally measurable i.e. is it possible to compare health between two persons, and (2) is health inter-temporally measurable, i.e. is it possible to compare health compare a person's health between two points of time? Brülde and Tengland's answer is discouraging. Due to the complex, subjective and, above all, relative nature of health it is not possible, to any practical degree, to elucidate "the true nature of health" with a standardized measure.

One attempt to handle this theoretical and methodological problem, in a conceivable way, is to develop and use measures of self-rated, health-related quality of life (HRQoL) instead of standard measures of symptoms or health status (McDowell, 2006). This type of instrument tries to capture both physical and psychosocial aspects of health and, in some cases, also the contextual aspects of health. HRQoL provides information about the

discrepancy between the individual's experience of his or her current state and a hypothetical ideal state. This aspect makes it possible to study the individual's subjective perception of health in his or her present social context.

Burnout

According to Maslach (2003), job burnout is a psychological syndrome due to a prolonged response to stress at work, as a result of incongruence between the employee and the job. The dimensions of burnout are: overwhelming exhaustion, feelings of cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment. The major and most significant aspect of burnout is the feeling of exhaustion (Kristensen, Borritz, Villadsen, & Christensen, 2005), but burnout differs from the concept of individual stress, as it places the phenomena in a social context, by including interpersonal aspects such as cynicism and feelings of ineffectiveness (Maslach, 2003).

Kristensen et al. (2005) make no distinction between physical or psychosocial aspects of exhaustion in their operationalization of the concept of burnout, but they emphasize that individuals could attribute the exhaustion to different specific domains in their life such as work and client work.

The concept of burnout is relatively new and could be regarded, to some extent, as novel. Some uninvestigated aspects and empirical and theoretical obscurities remain to be researched, for example the relation between burnout and depression (Shirom, 2005), and the impact of aspects of non-work on work-related burnout (Sonnentag, 2005).

The relation between organizational justice and behavioural responses

Theoretical basis

A valid theoretical link between organizational justice and individual behaviour in an organizational context is provided by the social exchange theory, SET (Homans, 1961). One of the fundamental assumptions of SET is that human relationships evolve over time into loyal and mutual commitments and that these commitments are affected by a number of rules of exchange. One of the most fundamental and in organizational sciences influential, regulations is the principle of reciprocity. Cropanzano and Mitchell (2005) make a distinction between three different types of reciprocity: (1) reciprocity as interdependent exchanges (2) reciprocity as a folk belief ("people get what they deserve" i.e. all exchanges over time will reach a fair equilibrium) and (3) reciprocity as a cultural or organizational norm and individual orientation. Different resources can be exchanged in a reciprocal relationship, e.g. for money, status, information and services. According to Homans (1961), the social exchange and the reciprocity of this process are the nucleolus in social and organizational justice; if the individual experiences lack of balance in the exchange, he or she will perceive the situation as unfair.

The social exchange theory also constitutes the basis for the Organizational Citizenship Behaviour, OCB, theory. According to this theory social exchange between individuals evolves through an open-ended stream of reciprocal transactions over time. Each participant makes contributions and receives benefits, and the beliefs about what the other party expects determine the roles of the relationship members. These social roles, and self-inrole beliefs, have direct implications for behavioural intentions and actual behaviour (Kamdar, McAllister, & Turban, 2006).

According to the social exchange theory and OCB, an individual who perceives the reciprocity between contributions and benefits as balanced and fair will try to strengthen the relationship by acting with a pro-social or constructive behaviour: with a voice or loyal behavioural response according to the EVLN typology. If the individual

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experiences the relationship as unfair, the incitements for a pro-social behaviour will diminish and be replaced with an anti-social or destructive behaviour such as exit or neglect.

Earlier empirical findings

The empirical association between organizational justice and behavioural responses

Few earlier studies have used the EVLN typology to investigate the relationship between perceived organizational justice and health. The results presented by Daly and Geyer (1994) prove a cross-sectional association between outcome fairness (i.e. distributive justice), procedural fairness, and intention to remain (used as contrary to turnover intentions), voice and loyalty (i.e. patience).

Hagedoorn, Buunk and Van de Vliert (1998) used two different moderators when they studied the cross-sectional relationship between EVLN responses and organizational justice: concern about control (over the decision-making processes in the organization) and concern about standing (acceptance as an organization member). Overall, high distributive and procedural justice was associated with low negative, behavioural responses (i.e. exit, aggressive voice and neglect), particularly when employees value standing, control, or both. Distributive justice was associated with high considerate voice when employees value control. Similar results are reported by Van Yperen, Hagedoorn, Zweers, and Postma (2000). They found cross-sectional associations between the EVLN responses exit, neglect and aggressive voice, and organizational justice; low distributive, procedural, and interactional justice proved to be associated with exit, neglect, and aggressive voice.

Even if the relationship between the behavioural responses according to the EVLN typology have been used relatively sparsely, similar organizational behavioural concepts, such as turnover intentions and organizational commitment, have been used very frequently. Turnover intention is a concept very close to the EVLN response 'exit', and

the aspect of organizational commitment is strongly related to the EVLN responses 'patience' and 'considerate voice'.

A number of different studies have described a strong relation between organizational justice and turnover intentions. Begley, Lee and Hui (2006) report that distributive and procedural justice was cross-sectionally negatively associated with turnover intentions. Similar findings are reported by Paré and Tremblay (2007), Olkkonen and Lipponen (2006), and Chen, Lam, Naumann and Schaubroeck (2005).

Several studies have investigated the association between organizational justice and organizational commitment. Clay-Warner, Hegtvedt, and Roman (2005) and Begley et al. (2006) found cross-sectional associations between distributive and procedural organizational justice and high organizational commitment, and Simons and Roberson (2003) found a cross-sectional association between procedural and interactional organizational justice and high organizational commitment.

The empirical association between organizational justice and job mobility

Very few studies have analysed the relationship between organizational justice and actual turnover, i.e. job mobility, but in a recent study, Posthuma, Maertz and Dworkin (2007), a negative longitudinal association was found between distributive justice and actual turnover behaviour (during the following year). Procedural justice was differentiated into four sub-variables: advance notice, input opportunity, consistency, and representative views. Significant negative associations were found between turnover and advance notice and consistency, but not between turnover and representative views or input opportunity.

Summary

Earlier, mainly cross-sectional, studies provide a rather homogenously and unanimous picture of the relationship between organizational justice and behavioural responses. A high degree of perceived organizational justice, irrespective of type of justice, is

associated with constructive, pro-organizational behaviours such as voice and patience or organizational commitment where experiences of unfairness are related to responses such as neglect and exit (both as a high degree of turnover intentions and actual turnover, i.e. job mobility).

The relation between organizational justice and health

Theoretical basis

The social-psychological perspective on the relation between organizational justice and health

Two key concepts to understand the social-psychological relationship between organizational justice and health are inequality and relative deprivation.

Inequality could be considered as a function of the unequal distribution of goods (Stewart, 2006), but an unequal distribution is not by definition to be conceived as unjust. If the distribution process is accomplished according to common norms and agreements, an unequal allocation of resources could be perceived as fair by the affected individuals, irrespective of the result of the process. From this perspective, the concept of inequality sheds light on the importance of the social context (commonly accepted rules, norms and laws for the allocation process) for our understanding of organizational justice.

Relative deprivation emanates from individual frustration produced by a negative comparison within a reference group (Stewart, 2006). A reference group is, as defined by Merton and Kitt (1950) and cited by Stewart (2006), "...[a frame] of reference held in common by a proportion of individuals within a social category sufficiently large to give rise to definitions of the situation" (pp. 781). The concept of relative deprivation is relevant in our understanding of organizational justice from two perspectives. Firstly, it implies that relative deprivation is a subjective phenomenon; it is the individual's perception of the situation, not the situation per se, that is in focus for the analysis.
Secondly, relative deprivation is a social phenomenon; the frustration is derived from a comparison in a social situation or context, such as an organization.

The inequality and relative deprivation discourse could also contribute to a theoretical understanding of the distribution between distributive and procedural organizational justice. According to Brockner and Wisenfeld (1996), the level of procedural justice is more positively related to individuals' reactions (e.g. organizational commitment, job satisfaction and performance) when distributive justice is perceived as low. On the other hand, the level of distributive justice is more positively related to individuals' reactions when procedural justice is perceived as relatively low.

According to Oyserman, Uskul, Yoder, Nesse, and Williams (2007), unfair treatment, such as perceived discrimination due to social strata, race or sex, threatens the individual self-concept of the individual by implying a lack of regard for the individual's identity. This process is psychologically damaging because it give the individual a feeling that others do not care about his or her fate, and that he or she is deprived of their context. A number of studies have shown the importance of social support and interaction for health (see for example: Eng, Rimm, Fitzmaurice, & Kawachi, 2002; Lett et al., 2005), and social deprivation or perceived exclusion from a social context constitutes a serious risk for sickness and ill health. An individual's different social roles, as an employee for example, provide important opportunities for positive self-experience, especially self-efficacy and self-esteem, by belonging, acting and contributing to a social context. These psychosocial processes are crucial for human well-being and health (Siegrist, 2005). The experience of unfair treatment could also restrict the individual's opportunities for reaching personal goals (Link, Cullen, Frank, & Wonziak, 1987), which, from an action-oriented health perspective (Nordenfeldt, 1987), directly affects individual well-being.

The stress perspective on the relation between organizational justice and health

The cognitive appraisal model

According to the Cognitive Appraisal Model (Lazarus & Folkman, 1984) people will respond to an event by mentally imagining the impact on them and the event will cause stress only if the event is cognitively appraised as a stressor. This cognitive appraisal process will happen, according to Lazarus and Folkman (1984), in two different stages: one primary appraisal when the individual considers the extent to which he or she could be harmed by the event and a second appraisal when he or she considers different coping strategies to avoid or minimize harm. Organizational injustice could constitute a stressor according to the cognitive appraisal model; for example, a lower-than-expected pay could, and would, lead to feelings of distributive injustice which could be perceived as a potential financial risk for the future. Organizational injustice could also affect the secondary appraisal process. The possibilities for dealing with the stressful situation are largely dependent on the social situation and social support from colleagues and managers. If the employee is treated with lack of interest and condescension by his or her supervisor, the situation is most likely to be perceived as interactionally unfair (Greenberg, 2004).

The effort-reward imbalance model

According to Johannes Siegrist (1996), the basic human need for self-esteem and selfefficacy is satisfied by an opportunity to contribute, perform, and belong to a significant group and be rewarded or esteemed. Effort is spent as a part of a socially organized reciprocal change process between the individual's effort at work and the social systems contribution of rewards such as money, esteem and status control. From this theoretical perspective a high stress working situation is characterized by a high effort–low reward situation (Siegrist, 1996). The effort–reward theoretical model has strong and obvious relationships with the concept of organizational justice: both emanate from the idea of exchange and reciprocity in social systems, and the notion that imbalance in these processes has an impact on individual self-esteem and self-efficacy. The empirical relation between effort-reward imbalance and organizational injustice has not been studied to any great extent, but in recent studies (for example: Kivimäki, Vahtera, Elovainio, Virtanen, & Siegrist, 2007) moderate associations have been found between effort-reward imbalance and procedural and relational (i.e. interactional) injustice, with regard to their longitudinal effect on health. It has also been found that the two concepts are complementary rather than redundant risk factors for ill health.

The job-person fit model

A particular response to chronic emotional and interpersonal stressors at work is burnout. One of the key concepts in the underlying theoretical framework of burnout is the job– person fit model (Edwards, Caplan, & Van Harrison, 1998). A mismatch in the job– person relation could occur when the psychological contract between the employee and the organization is violated, or when working conditions change to something that the employee finds unacceptable. A better fit is assumed to predict less risk of burnout and better health and well-being (Maslach, Schaufeli, & Leiter, 2001). Two different forms of job–person mismatch are specified and described by Maslach et al. (2001): lack of appropriate rewards and unfairness. Lack of rewards devalues both the achieved work and the worker, and is closely related to feelings of inefficacy. Lack of fairness could cause burnout in two different ways: the experience of unfair treatment is emotionally upsetting and exhausting in itself, but could also create a deep sense of cynicism that is one symptom of burnout.

Earlier empirical findings

The relationship between organizational justice and health has not been studied to any great extent until the last decade, but this scientific field is growing fast and has developed during the last five years to comprise both physical and psychosocial health and burnout.

The empirical association between organizational justice and risk factors for ill health

Organizational justice is associated with different health-related risk factors such as smoking, alcohol consumption and sleeping problems. Kouvonen et al. (2007) showed that procedural and interactional organizational injustice was cross-sectionally associated with heavy smoking intensity (\geq 20 cigarettes/day). Similar findings are reported by Elovainio et al. (2005): procedural and interactional organizational justice is cross-sectionally associated with alcohol consumption. This result that is supported by the longitudinal findings of Kouvonen et al. (2008): after adjustment for sex, age, socio-economic and marital status, low perceived organizational justice (procedural and interactional) predicted, risk of heavy drinking (weekly consumption of 210g or more 100% alcohol) at the three-year follow-up. Elovainio, Kivimäki, Vahtera, Keltikangas-Järvinen and Virtanen (2003) have shown that low perceived organizational justice is longitudinally associated with sleeping problems at the two-year follow-up.

The empirical association between organizational justice and sickness absence

One of the most studied aspects of the relation between organizational justice and health is the relationship between justice and sickness absence. Several studies have shown an association between perceived organizational unfairness and sickness absence. The results of Head et al. (2007) show that, after adjustment for age, employment grade and baseline health, individuals with low relational (i.e. interactional) justice had increased risks of long spells of sickness absence (>7 days) in longitudinal comparisons with individuals experiencing high levels of relational justice. Similar results have been reported from other studies. Elovainio et al. (2005) found a cross-sectional negative association between procedural justice, interactional justice, and medically certified sickness absence (>3 days), and the results of Elovainio, Kivimäki, Vahtera, Virtanen and Keltikangas-Järvinen (2003) show that low procedural and relational organizational justice predicts (up to two years) self-certified spells of absence. Similar results are reported by Elovainio, Kivimäki, Steen and Vahtera (2004): low procedural and

relational justice at baseline predicted sickness spells of absence during the following two years.

The empirical association between organizational justice and coronary disease

Organizational injustice seems to have an impact on the risk of coronary diseases. Elovainio et al. (2006) have shown, in a cross-sectional study, that the risk for increased low-frequency band systolic arterial pressure variability, a known risk factor for cardiovascular mortality (Kikuya et al., 2000) was higher for the low procedural justice group than the high justice group and higher for the low relational (i.e. interactional) justice group than for the high justice group. In a longitudinal study (1991-93 to 2003-04) carried out by de Vogli, Ferrie, Chandola, Kivimäki and Marmot (2007), employees who reported low organizational fairness were more likely to experience a coronary event (clinically verified fatal myocardial infarction, non-fatal myocardial infarction and angina) than the high fairness group after adjustment for age, gender, employment grade, established coronary risk factors and other work-related psychosocial aspects. Similar results were found by Kivimäki et al. (2005). They found that employees who experienced a high level of relational (i.e. interactional) organizational justice had a lower risk of coronary heart disease after nine years, compared with employees who had a lower degree of perceived relational organizational justice. In line with the findings of the earlier studies, justice seems also to be a preventive factor for cardiovascular mortality. The results of Elovainio, Leino-Arjas, Vahtera and Kivimäki (2006) showed that employees reporting high justice at work have a lower risk (adjusted for occupational group, smoking, physical activity, systolic blood pressure, cholesterol, body mass, job strain, and effort-reward imbalance) of cardiovascular death after 27 years than their colleagues who experienced a lower degree of organizational justice.

The empirical association between organizational justice and self-rated health

A number of earlier studies have shown a relationship between organizational justice and global physical and mental health. Kivimäki et al. (2004) showed that for men who

perceived low relational justice there was a higher risk of poor self-rated health, after adjustment for age, grade, and self-rated health at baseline than for men who perceived high relational justice. The corresponding risk for women was equivalent. Similar results were found by Kivimäki et al. (2007) and Elovainio, Kivimäki and Vahtera (2002).

The empirical association between organizational justice and psychosocial health

A number of earlier empirical studies have elucidated the relationship between organizational justice and psychosocial health. Employees with high perceived organizational unfairness have poorer mental functioning (adjusted for age, gender, mental functioning at baseline, employment grade, established coronary risk factors and other psychosocial factors) after 10 to 13 years than employees who experience low work-related unfairness (de Vogli et al. 2007). The results of Brotheridge (2003) show that low distributive and procedural organizational justice are cross-sectionally associated with affective symptoms.

The results of Ferrie et al. (2006) showed that low relational (i.e. interactional) justice predicted (after 3 to 8 years) poor mental health (adjusted for age, grade, physical illness, job demands, job control, social support and effort–reward imbalance); and Sutinen, Kivimäki, Elovainio, and Virtanen (2002) proved that low procedural and relational (i.e. interactional) justice was cross-sectionally associated with psychological distress (anxiety, insomnia, social dysfunction, and depression) among men but not among women. The results of Elovainio, Kivimäki, Eccles and Sinervo (2002) showed that low procedural organizational justice was cross-sectionally associated with strain (difficulties in concentrating, nervousness, and depression). Similar findings are reported by Elovainio, Kivimäki and Helkama (2001).

Several studies have reported associations between organizational unfairness and different psychiatric disorders. Kivimäki, Elovainio, Vahtera, Virtanen, & Stansfeld (2003) report that low procedural and relational (i.e. interactional) justice predicted new doctor-diagnosed psychiatric disorders after two years, even after adjustment for mental

distress at baseline. Similar results were found in a cross-sectional study by Elovainio et al. (2002). Men, who perceived low procedural and relational (i.e. interactional) organizational justice proved to have more minor psychiatric disorders than men with high perceived organizational justice, after adjustment for age, income, smoking, alcohol consumption, sedentary lifestyle, body mass index, workload, job control and social support. Similar results were found for women.

Elovainio, Kivimäki, Eccles et al. (2002) found a cross-sectional association between low procedural justice and strain (difficulties in concentrating, nervousness, and depression). Riolli and Savicki (2006) found a longitudinal relationship between low procedural justice and strain (operationalized as a combination of somatization, depression, anxiety and hostility). Spell and Arnold (2007) report that low distributive, procedural, and interactional organizational justice was cross-sectionally associated with both depression and anxiety. Longitudinal associations between organizational unfairness and depression have been reported by Kivimäki et al. (2007) and Tepper (2001). Janssen (2004) reports that low distributive and procedural organizational justice are cross-sectionally associated with job-related anxiety.

The empirical association between organizational justice and burnout

As the results from earlier studies (see for example Judge & Colquitt, 2004) have shown a relationship between low organizational justice and work-related stress, it is hardly surprising that the relationship between perceived organizational justice and burnout has also been described. Janssen (2004) found a cross-sectional association between low distributive and procedural fairness and burnout, and Brotheridge (2003) found crosssectional negative associations between emotional exhaustion and distributive and procedural fairness. Tepper (2001) found both main and interactional longitudinal (6 months) negative effects of distributive and procedural justice on emotional exhaustion. Similar results were found in a study by Riolli and Savicki (2006). They found a longitudinal (6 months) effect of low procedural justice on emotional exhaustion and depersonalization. Moliner, Martínez-Tur, Peiró and Ramos (2005) found cross-sectional associations between low distributive justice and emotional exhaustion and cynicism, and between low procedural and interactional justice and emotional exhaustion, cynicism, and efficacy. These findings have, broadly speaking, been replicated in another study by the same research group (Moliner, Martínez-Tur, Peiró, Ramos, & Cropanzano, 2005). Emotional exhaustion, depersonalization (or cynicism), and lack of efficacy are all key symptoms of burnout according to Maslach et al. (2001).

Summary

The results of studies on associations between organizational justice and health are consensual, and hitherto has no contradictory results have been reported. Perceived organizational injustice is related to various risk factors for ill health, such as smoking, extensive alcohol consumption and sleeping problems, and to sickness absence. It is also clear that organizational justice is a predictor of self-rated health and that injustice could cause coronary heart disease, burnout and various psychiatric problems such as depression and anxiety.

The relation between behavioural responses and health

Theoretical basis

The theoretical relation between behavioral responses, job mobility and health

The relation between human behaviour at work and health is complex and dynamic. One theoretical framework that could help our understanding of these processes is the Cognitive Appraisal Model (Lazarus & Folkman, 1984). A key aspect in this theory is that, if the individual perceives the situation as potentially harmful, he or she will act using various coping strategies to handle the situation. Broadly speaking, coping strategies could be classified as: (1) active, problem solving; (2) mobilizing emotional support; and (3) becoming resigned (Heaney, House, Israel, & Mero, 1995). If they are relevant and suitable, these actions will help the individual to manage the situation and

prevent undesired effects and consequences, such as risk for injuries, stress or ill health. From this perspective, functional coping strategies could prevent ill health but also promote health by an increased individual capacity to master problematic events. Dysfunctional coping strategies could also adversely affect health by, for example, impeding adaptive behaviour by denial-like processes (Folkman, Lazarus, Gruen, & DeLongis, 1986).

Within this framework, the EVLN responses could be regarded as coping strategies, since their primary purpose is to let the individual handle the situation in a favourable way. A relevant and functional behavioural response could therefore provide the individual with an effective strategy for dealing with the situation. The 'voice' behavioural response could be regarded as an active, problem-solving or mobilizing coping strategy; the 'exit' response, as an active, problem-solving strategy; and 'patience' and 'neglect' as resigned strategies. Depending on the situation, an adequate behavioural response will help the individual to handle the situation in an effective way, preventing direct and immediate injuries, and in the long run this will promote individual well-being and health.

Earlier empirical findings

The empirical association between behavioural responses (EVLN) and health

No earlier study has studied the explicit EVLN typology, as an integrated model, and its relation to health or burnout, but certain EVLN-related aspects, such as distinct individual responses or behaviours that closely resemble the EVLN behavioural responses, have been studied comprehensively.

Two constructs of particular interest in this context are turnover intentions and organizational commitment. Turnover intentions are identical or very similar to the EVLN response 'exit', and these terms have been used synonymously (for example, Meyer, Allen, & Smith, 1993). Organizational commitment, i.e. employees' commitment to their organization, is strongly related to the constructive/destructive dimension in the

EVLN typology, as work commitment is a significant prerequisite for a proorganizational, i.e. constructive, behaviour. The results of Meyer et al. (1993) strongly support this assumption. In their study, the affective (affective commitment to the organization) and normative (obligation to remain in the organization) organizational commitment were cross-sectionally negatively associated with exit and neglect and positively with voice and loyalty (i.e. patience).

Turnover intentions are related to decreased health and increased degree of burnout. Spector and Jex (1991) showed that turnover intentions were cross-sectionally associated with frustration, anxiety, self-rated symptoms, and doctor-diagnosed symptoms. Turnover intentions are also related to burnout. Lee and Ashforth (1993) report a cross-sectional association between emotional exhaustion and turnover intentions and Blankertz and Robinson (1997) report a cross-sectional association between turnover intentions and emotional exhaustion, depersonalization, and personal accomplishment. Emotional exhaustion, depersonalization and personal accomplishment are all central aspects of burnout (Maslach et al., 2001). These results are supported by the results from a metaanalysis, performed by Mor Barak et al. (2001). The results from seven different studies, including Lee and Ashforth (1993) and Blankertz and Robinson (1997), showed that burnout has a predictive effect on turnover intentions. A more recent meta-analysis, performed by Podsakoff, LePine and LePine (2007), found an indirect association between strain (anxiety; burnout; depression; emotional exhaustion; fatigue; frustration; mental, psychological, and physical symptoms; and tension), with job satisfaction as mediating factor, and turnover intentions.

Organizational commitment is cross-sectionally positively associated with health-related behaviour (sleep, food, exercise, alcohol consumption, and use of tobacco) (Donaldson, Sussman, Dent, Severson, and Stoddard, 1999), and negatively with psychosomatic complaints (Richardsen, Burke, & Martinussen, 2006). Armstrong-Stassen (2004) reports a longitudinal (two-year) association between low organizational commitment and burnout.

To sum up, the relationship between the EVLN responses *per se* and health and burnout is rarely studied. On the other hand, a number of earlier studies have elucidated the associations between EVLN-related aspects such as turnover intentions and organizational commitment, and health and burnout. These studies have reported an association between turnover intentions, i.e. an 'exit' behavioural response, and decreased health and increased degree of burnout, and a relationship between organizational commitment, i.e. constructive behavioural responses, and health.

The empirical association between job mobility and health

Job mobility per se, and its effect on health, has not been studied to any great extent. Koeske and Kirk (1995) did not find any significant associations between job mobility and psychological well-being. Nor did Metcalfe et al. (2003) find any significant cross-sectional associations between retrospective job mobility and health (myocardial ischaemia and angina), but they found associations with other risk factors for health. It was shown that individuals who reported having experienced frequent job changes (>6) smoked more often, had a higher alcohol consumption (>22 units per week for men and >8 units per week for women) and exercised less (5h or less per week) than the individuals with less frequent job changes (<3). Swaen et al. (2002) found a longitudinal (three-year) difference between a job mobility group and a non-mobility group: the job mobility group reported increased self-perceived health and decreased fatigue and need for recovery, in comparison with the non-mobility group.

In a context of organizational downsizing, Kivimäki, Vahtera, Elovainio, Pentti and Virtanen (2003) found that decreased health was most frequent among employees who was still working in the organization and among the non-employed leavers. In the reemployed leaver group the risk of decreased health was lower than in other groups, including employees still working in the original organization. Different forms of work-related mobility, more or less conceptually related to job mobility, such as job insecurity and occupational mobility, have been associated with health in different studies.

A number of studies have reported a negative relationship between job insecurity, i.e. risk of future involuntary job mobility and health. In a comprehensive meta-analysis of 72 different studies, Sverke, Hellgren and Näswall (2002) found an association between job insecurity and low physical and mental health.

Occupational mobility, defined as either upward or downward hierarchical transitions or as out of or into employment, has been shown to have a dual-causal effect on health. Occupational hierarchical non-mobility, compared with hierarchical upward-mobility, has been proved to be a risk factor for smoking and excessive (\geq 48g/day) alcohol consumption after 7 years (adjusted for age and occupational category at baseline). Furthermore, smokers, excessive consumers of alcohol and individuals suffering from arterial hypertension were shown to have a higher risk of non-mobility than non-smokers, non-excessive alcohol drinkers and individuals with no reported hypertension (Ribet et al., 2003).

In an Italian study, the Turin longitudinal study, nearly 130.000 individuals were studied during 1981 to 1999 with respect to their mobility, comprising both mobility out of the labour market and job mobility between different jobs. The standardized mortality rates between 1991 and 1999 were lowest for individuals who were mobile (within the labour market), second lowest for non-mobile individuals and highest for the exit group (due to unemployment, early retirement or becoming a housewife) (Cardano, Costa, & Demaria, 2004). The reversed causal direction between occupational mobility and health has also been proved. Individuals with health-related problems have fewer opportunities to enter employment and a higher risk of leaving employment (van de Mheen, Stronks, Schrijvers, & Mackenbach, 1999).

Employees experiencing high work-related strain and stress have been shown to be more likely to change work than other employees. The results from the Maastricht Cohort Study (Swaen et al., 2002) showed that physical and emotional strain predicted job change during the three-year study period. Similar results are reported by Todd and Deery-Schmitt (1996): job stress was associated with turnover during the following two years. Fields, Dingman, Roman and Blum (2005) report that job stress predicted likelihood of moving to the same job but in a different company (i.e. job mobility), but not moving to a different job in the same company (i.e. occupational mobility) or to a different job in a different company (i.e. job and occupational mobility).

All in all, the earlier findings create an insufficient picture of the associations between job mobility and health. Aspects related to job mobility, such as occupational mobility and job insecurity, seem to have a rather clear association with health, but the relationship between job mobility and health has been less studied and is more indistinct.

The empirical association between job mobility and burnout

The results of Wright and Cropanzano (1998) showed that emotional exhaustion, one of the key aspects of burnout (Maslach et al., 2001), has a predictive (one-year) effect on turnover. Similar results from a cross-sectional study are reported by Drake and Yadama (1996). Mor Barak et al. (2001) report associations between burnout and actual turnover, from the results of a meta-analysis performed on the results of four earlier studies.

Summary

The relationship between organizational behaviour and health has not been comprehensively studied and some findings are, to some degree, contradictory. A complex picture with a dual-causal relationship between behaviour, such as organizational mobility, and health and burnout, emanates from the results of studies performed in adjacent scientific fields, for example on social mobility, occupational mobility and job insecurity. However, related aspects, such as turnover intentions and

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organizational commitment, give some indications of a positive relation between constructive EVLN responses and health and a low degree of burnout, but the relationship between job mobility and health is still to be considered as a scientific 'terra incognita'.

Conclusions

The three concepts of organizational justice, behavioural responses and health are still evolving. The concept of organizational justice, as a social phenomenon, has developed from a homogenous, one-dimensional construct to a complex, multi-dimensional construct, and both the theory of organizational behavioural responses and the practical application of this theory have undergone a similar process during the last 40 years. Health, as a theoretical construct, has been thoroughly discussed, problematized, and operationalized for, at least, two millennia. Even if the theoretical basis for these concepts is still under development, they should be considered as being on a theoretically and empirically well-founded.

By using social exchange theory it is possible to describe and interpret the relationships between organizational justice and behavioural responses. One key aspect of the social exchange theory is reciprocity. An organizational situation that is characterized by reciprocity will be considered as fair (i.e. a high level of organizational justice) and stimulate individual behaviours that strengthen the relation (i.e. constructive organizational responses). A situation that is distinguished by low organizational justice could also be perceived as unequal, socially exclusive, stressful and, in the long run, harmful to individual health. Various social theories, describing the mechanisms of social deprivation, have elucidated this process. In some respects, behavioural responses could be like coping strategies. The Cognitive Appraisal Model, and the application of this model, has shown that different behaviours have different impact, due to the situation, on the individual's opportunity to handle problematic organizational situations. These three different theoretical perspectives make it possible to interpret and understand the mutual relationship between organizational justice, behavioural responses and health. Earlier empirical studies that have investigated the relationships between organizational justice, behavioural responses and health present a complex picture of reciprocal associations. Few earlier studies have examined the relationship between behavioural responses and organizational justice, but these indicate that a high degree of perceived organizational justice is associated with constructive organizational behaviour (such as voice and patience) and a low degree of organizational justice is related to destructive organizational behaviour (neglect and exit). During the last 10 years, the relation between organizational justice and health has been extensively investigated and several studies describe a strong association between organizational justice and health, and between perceived organizational unfairness and different physical and psychosocial symptoms such as coronary heart disease, distress and burnout. The relation between behavioural responses, and especially job mobility, and health has not previously been studied to any great extent and these relationships are broadly still unknown.

To conclude, the relationship between organizational justice, behavioural responses and health is relatively well-founded and sharp on a theoretical level, but is still surprisingly indistinct on an empirical level, especially regarding the relation between behavioural responses and health, and between behavioural responses and organizational justice.

AIMS

General aim

The main aim of the present dissertation is to study the relationship between organizational justice, behavioural responses, and health.

Specific aims

- To further evaluate and validate the Hagedoorn et al. EVLN instrument.
- To examine the longitudinal and reciprocal relationships between behavioural responses and self-rated health.
- To examine the longitudinal relationship between organizational justice and selfrated health and burnout.
- To examine the main and interactional effects of turnover intentions and job mobility on self-rated health and burnout.
- To examine the longitudinal and reciprocal relationship between job mobility and self-rated health and burnout.

THE INCLUDED STUDIES

Five different studies were performed within the present dissertation.

I Study I was an evaluation and validation of an EVLN instrument, developed and preliminarily validated by Hagedoorn et al. (1999). A multi-trait/multi-item analysis was performed to test the scaling assumptions, the convergent and divergent validity of the instrument. Factor analyses were used to evaluate the factor structure. The concurrent validity and criterion related validity was evaluated by using the exit behavioural response as a predictor of actual turnover behaviour and the associations between organizational justice (distributive, procedural and interactionally perceived organizational justice) and the EVLN responses.

Figure 2

The investigated associations in study I



II. Study II was performed to investigate the longitudinal and reciprocal relationship between behavioural responses and self-rated health. Structural Equation Modeling (SEM) was used to analyse the data.

Figure 3

The investigated associations in study II



III. Study III was an investigation of the cross-sectional and longitudinal relationship between organizational justice, self-rated health and burnout, using one global measure (distributive, procedural and interactional justice combined) and one differentiated measure (separate organizational justice variables). Factor analysis was used to analyse the factor structure for the justice variables and SEM was used to analyse the relationship between organizational justice and health and burnout.

Figure 4

The investigated associations in study III



IV. The aim of study IV was to investigate the cross-sectional and longitudinal main, interactional and additive effects of turnover intentions and actual turnover, i.e. job mobility, on self-rated health and burnout. Analyses of variance, with Bonferroni post-hoc analyses, were used to analyse the cross-sectional and longitudinal associations, and General Linear Model (GLM) repeated measures was used to test the additive and interactional hypotheses.

Figure 5

The investigated associations in study IV



V. The purpose of study V was to explain the longitudinal and reciprocal relationship between job mobility and self-rated health and burnout, and to investigate the effects of organizational justice and turnover intentions on this relationship. SEM was used to study the relationship between the included variables.

Figure 6

The investigated associations in study V



METHOD

Material

Study sample

The data used in the present dissertation were collected as part of a research project called 'Organizational Transitions; Stress and Health'. The overall aim of the project was to study the individual consequences of organizational change and the ethics Committee at Linköping University approved the project.

The study sample consisted of employees within the Swedish National Labour Market Administration ('Arbetsmarknadsverket'), the AMV.

The Swedish National Labour Market Administration, the AMV

In 1948 was the National Commission for the Labour Market ('Statens Arbetsmarknadskommission'), founded in 1940, was reorganized and renamed the Swedish National Labour Market Administration, AMV.

The Swedish parliament ('Riksdagen') is responsible for decisions concerning public expenditure and appropriations for the implementation of national labour market politics, but direct control over the AMV is executed by the Government ('Regeringen') and the Ministry of Enterprise, Energy and Communications ('Näringsdepartementet'). In 2001 the AMV of the National Labour Market Board ('Arbetsmarknadsstyrelsen') consisted of: AMS, which is the central authority; 20 regional organizations ('länsarbetsnämnder'), LANs; and 334 local public employment offices ('arbetsförmedlingskontor'), AFs. Slightly more than 9200 individuals were employed at the AMV in 2001 (Riksdagens revisorer, 2002) and this had increased to about 10.200 in 2003 (Statskontoret, 2004). The total expenditure for the AMV, in financial year 2001, was approximately SEK 50

billion, most of which was funding for the unemployment compensation system (Riksdagens revisorer, 2002).

The AMV's main tasks in 2001 were: (a) to effectively match unemployed individuals with organizations looking for employees; (b) to promote employment and competence development among the unemployed in an effective and flexible labour market; (c) to help individuals with a weak position in the labour market to get a job and to prevent labour market exclusion; (d) to prevent long-term unemployment and; (e) to prevent a gender-segregrated labour market, promote gender equality and promote a heterogenic labour market (Riksdagens revisorer, 2002).

During the last decade, the AMV has undergone a number of major reactive reorganizations due to changes in society and their effects on the labour market (for example, the effects of increased globalization, the transition from labour-intensive to knowledge-intensive and service occupations, and increased competition and specialization between individuals, companies, organizations and states) and significant cuts in state subsidies. Even if the AMV tried to adjust the organization and its methods to the rapid changes in the surrounding society, the organization failed to fulfil its main objectives and received extensive criticism, above all for deficient financial control (Regeringen, 2000). As a reply to this criticism the AMS proposed a new organization of the AMV, which was implemented through a programme called 'The AMV in the 21st century' ('Arbetsmarknadsverket i 2000-talet') (AMS, 1999).

During the period 1999-2003 the 'AMV in the 21st century' project implied different changes: minor local offices and special units were merged together into larger units: the 'local labour market districts' ('lokala arbetsmarknadsområden') and the significance of the regional organizations, the LAN:s, was substantially reduced. Simultaneously, a new integrated and uniform way of organizing the local offices' work with the unemployed, the 'AF Sweden' ('AF Sverige') programme, was implemented. This programme confronted the employees with new work tasks. Before the 'AF Sweden' programme was

introduced the individual employment officer's main assignment was to act as an agent in supplying the unemployed with vacant jobs from employers. Due to increased use of the Internet for this purpose and new challenges in the labour market in the late 1990s (increased sickness absence and major restructuring of the public sector), the employment officers' new assignment was to support vulnerable groups of unemployed people with different consultative measures.

The present dissertation included three regional organizations (AMV Jönköpings län, AMV Örebro län and AMV Östergötlands län) with about 1000 employees at approximately 60 different offices. The descriptive data for these three organizations are presented in table 1.

Differences between the three organizations with regard to sex (T1: χ^2 (2, *N*=1010) = 0.84, *p*: n.s, T2: χ^2 (2, *N*=1021) = 0.58, *p*: n.s., T3: χ^2 (2, *N*=1009) = 1.14, *p*: n.s.) and age (T1: *F*(39,979) = 0.83, *p*: n.s., T2: *F*(39,981) = 0.98, *p*: n.s., and T3: *F*(41,967) = 0.92, *p*: n.s.) were non-significant at all measurement points.

Table 2 shows the distribution according to ethnic origin, marital status, children living at home and educational level in 2001 for the employees in the included organizations among the 792 employees who responded to the questionnaire in 2001.

The distribution according to different occupations among the 1010 employees (the total study population) in 2001 is presented in table 3.

Table 1

Decriptive data (number of units, distribution according to sex, and age) for the three included organizations (AMV Jönköpings län, AMV Örebro län and AMV Östergötlands län).

Organization		5(01			20	02				2003	
)	Number	Distri	ibution	Age	Number	Distril	bution	Age	Number	Dist	ribution	Age
	of units	accordi Men	ng to sex Women		of units	accordir Men	ng to sex Women		of units	accord	ling to sex Women	
		n	n	Mean		n	n	Mean		n	n unit	Mean
	и	(%)	(%)	(SD)	и	(%)	(%)	(SD)	и	(%)	(%)	(SD)
AMV	19	127	174	49.0	16	129	178	48.8	15	126	173	49.3
Jönköpings län		(42%)	(58%)	(0.0)		(42%)	(58%)	(9.5)		(42%)	(58%)	(9.5)
AMV	22	125	182	48.2	17	119	181	48.9	15	112	181	49.1
Örebro Län		(41%)	(29%)	(9.4)		(40%)	(%09)	(9.4)		(38%)	(62%)	(9.8)
AMV	19	156	246	48.8	13	163	251	49.6	15	162	255	50.0
Östergötlands län		(39%)	(61%)	(9.4)		(39%)	(61%)	(9.5)		(39%)	(61%)	(9.8)
Total	60	408	602	48.7	46	411	610	49.1	45	400	609	49.5
		(40%)	(60%) N = 1010	(9.3)		(40%)	(60%) N = 1021	(9.5)		(40%)	(60%) N = 1009	(9.7)

Organization		Origin		4	Marital status		Children hon	living at ne		Education	al level	
	Sweden	Other Nordic country	Other non- Nordic country	Living alone	Married/ cohabitating	Other	No children living at home	Children living at home	9-year Compre- hensive	Upper secondary	University	Other
	и	и	и	и	и	и	и	и	и	и	и	и
AMV Jönköpings län	226	7	5	42	183	8	113	119	31	112	85	9
AMV Örebro län	208	6	S	38	179	9	114	108	11	96	110	3
AMV Östergötlands län	292	10	16	58	254	5	187	128	32	132	137	15
Total	726	21	26	138	616	19	414	355	74	340	332	24

Distribution according to origin, marital status, children living at home and educational level in 2001, of the employees in the included organizations

Table 2

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		Admin- istrator (admini-
		Employ- ment officer
Distribution acc	Organization	
Distribution according to different occupations (mutually exclusive) in 2001 for the		

	or the included organization
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Table 3

Organization						Occi	ipation					
	Employ- ment officer (arbets- förmed- lare)	Admin- istrator (admini- strativ personal)	Admin- istrative official <i>(hand- lägg-</i> <i>are)</i>	Employ- ment coun sellor väg- väg- ledare)	Employ- ment advisory officer <i>(arbets- konsu-</i> <i>lent)</i>	Middle manager (första linjens chef)	Psycho- logist (psyko- log)	Social advisory officer (social konsu- lent)	Office cleaner <i>(lokal-</i> <i>vårdare)</i>	Executive manager (andra linjens chef)	Medical officers (medicinsk personal)	Housing assistent (boende- assis- tent)
	и	и	и	и	и	и	и	и	и	и	и	и
AMV Jönköpings län	178	29	32	3	17	17	11	4	∞	2	0	0
AMV Örebro län	218	26	25	0	ю	16	9	×	б	1	-	0
AMV Östergötlands län	186	44	27	72	34	12	6	11	7	7	7	-
Total	582	66	84	75	54	45	26	23	13	5	3	1

Data collection

The present study design was a longitudinal, three-wave, panel study. A questionnaire was sent to all employees in the participating organizations in 2001. A reminder was posted to the non-responders after two and four weeks. After one (i.e. 2002) and two years (i.e. 2003) a follow-up questionnaire was sent to all those who were currently employed at the included organizations, including those who had been employed during the last year, as well as the individuals who had terminated their employment or who had left the organization due to retirement. The follow-up questionnaire was also sent to the non-responders of the earlier questionnaire/questionnaires. The design of the study and the included questionnaires, with response rates, is presented in figure 7.

Non-response analysis

Two different analyses were performed to elucidate the nature of non-response in the present study. Firstly, the differences between the responders and non-responders were analysed, based on available data (age and sex). Secondly the result of a non-response questionnaire, distributed after the second-wave questionnaire, was analysed.

Differences between responders and non-responders

The differences between responders and non-responders are presented in table 4. The responders proved to be older (T1: t(337.43) = -3.30, p<.01, T2: t(423.11) = -4.77, p<.01, T3: t(483.84) = -5.12, p<.01) than the non-responders at all points of time. The difference between the response and non-response group regarding distribution between the sexes was non-significant (chi-square test, T1: $\chi^2(1, N=1010) = 0.23$, p: n.s., T2: $\chi^2(1, N=1021) = 0.14$, p: n.s.) for waves I and II but significant (chi-square test, T3: $\chi^2(1, N=1009) = 6.20$, p<.05) for wave III where the response rate for men was lower than for women.



The longitudinal design of the data collection

Figure 7

Table 4

Demographical differences between responders and non-responders

Wave	Responding cat	egory		Age	Š	X
	Responders	Non- responders	Total			
	и	и	Ν	Mean (SD)	Men (%)	Women (%)
Wave I (2001)	792	218		$\begin{array}{c} 49.2 \\ 46.8 \\ (9.46) \end{array}$	323 (40.8%) 85 (39.0%)	469 (59.2%) 133 (61.0%)
			1010	48.7 (9.28)	408 (40.4%)	602 (59.6%)
Wave II (2002)	764			50.0 (9.25)	305 (39.9%)	459 (60.1%)
		257	1021	46.7 (9.70) 49.2 (9.47)	106 (41.2%) 411 (40.3%)	151 (58.8%) 610 (59.7%)
Wave III (2003)	738			50.5 (9.60)	275 (37.3%)	463 (62.7%)
		271	1009	47.0 (9.59) 49.5 (9.71)	124 (45.8%) 399 (39.5%)	147 (54.2%) 610 (60.5%)

The results of the non-response questionnaire

To examine the underlying reasons why persons chose not to participate in the study, a non-response questionnaire was distributed to the individuals who had not responded to the second-wave questionnaire after two reminders (n = 257, mean age 46.7 years, SD 9.70, 106 men and 151 women). The non response questionnaire was distributed approximately one month after the last reminder.

The non-response questionnaire consisted of two questions: the first asked for the cause of not responding to the original questionnaire and the second question asked for further attitudes about the questionnaire and the study as a whole. The first question was formulated as a statement: '*The reason why I have chosen not to respond to the questionnaire 'Changes in work and health' is that during the last year I have been on:*' with six different closed and one open-ended response alternatives: 1.'*leave of absence due to higher education for the greater part of the year*'; 2.'*parental leave for the greater part of the year*'; 4.'*on sick leave for the greater part of the year*'; 5.'*on early retirement pension due to sickness for the greater part of the year*'; 6.'*on retirement pension for the greater part of the year*' and, lastly; 7.'*other causes, namely...*'.

The results of the non-response questionnaire at wave II are presented in table 5. A total of 73 individuals responded to the non-response questionnaire (response rate 29.2%, mean age of the responders 45.3 years, SD 9.77; 26 were men and 47 women). Just under half of the respondents (31 individuals) specified leave of absence (parental or due to higher education), sick leave or retirement as the reasons for not responding to the questionnaire. A majority of the respondents (40 individuals) specified other reasons for not responding to the original questionnaire. The causes were analysed and combined into six different categories. The most frequent causes were lack of time, personal reasons (for example, a demanding family situation with small children) or that the individual experienced the questionnaire as too extensive. Other specified causes were lack of interest or insufficient motivation, an apprehension that individual participation would be

irrelevant (as a result, for example, of a short period of employment or a very specialized appointment or assignment). Lastly, two persons perceived the study itself as irrelevant.

Table 5

The descriptive results of the dropout questionnaire

Reported cause of to not responding to the questionnaire ¹	n (%)	Specified "other cause(s)" ²	п
The person was on parental leave for the greater part of the previous year	8 (11.0%)		
The person was on leave of absence due to other causes for the greater part of the previous year	6 (8.2%)		
The person was on sick-leave for the greater part of the previous year	15 (20.5%)		
The person was on early retirement pension due to sickness for the greater part of the previous year	2 (2.7%)		
Other cause(s)	40 (54.8%)	Lack of time	15
		The questionnaire was perceived as too extensive and demanding	11
		Personal reasons	12
		Lack of interest or insufficient motivation to participate	10
		Perceives own participation as irrelevant	6
		Perceives the study as irrelevant	2
No particular reason reported	2 (2.8%)		
Total	73 (100.0%)		

² Not mutually exclusive

Instruments

A number of different instruments were used to investigate health, burnout, behavioural responses, and perceived organizational justice. The instruments and the statistical methods used analyse the collected data are presented in table 6.

1. Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey, SF-36

The SF-36 was used to measure health in studies II, III, IV, and V. The SF-36, or Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey, is a multi-purpose health survey which contains 36 questions. The SF-36 is designed as a generic indicator of health status for use in population surveys, and to be applicable in a wide range of types and severities of health conditions and in a number of clinical and non-clinical populations (McDowell, 2006). The SF-36 is useful in comparing both general and specific populations, estimating the relative burden of different diseases, differentiating the health benefits from different treatments and screening individual patients (Ware & Gandek, 1998). The SF-36 is a further development of the 18- and 20-item MOS (Medical Outcomes Study) short-form surveys, developed by the RAND Corporation, USA (Ware & Sherbourne, 1992) and was first used in its present form in 1990 (Ware & Gandek, 1998).

Description

The 36 items used in the SF-36 have been adapted from the original 245-item MOS questionnaire (McDowell, 2006) and have their roots in a number of other instruments that have been used since the 1970s (Ware & Gandek, 1998). The SF-36 items are arranged in one multi-item scale measuring each of eight health concepts: 1. Physical functioning, PF (ten items in question 3); 2. Role limitations due to physical health problems, RP (four items in question 4); 3. Bodily pain, BP (questions 7 and 8); 4. General health perceptions, GH (five items: questions 1 and 11a, 11b, 11c and 11d); 5. Vitality, energy or fatigue, VT (four items: questions 9a, 9e, 9g and 9i); 6. Social
Instrument	Measured variable	Subscales (number of items)	Reliab (Cronbach Original version	llity s alpha) Swedish version	Validation	Used in dissertation studies
SF-36	Health-related Quality of Life	 Physical functioning (10 items) 2.Role limitations due to physical health problems (4 items) 3.Bodily pain (2 items) 4.General health (5 items) 5.Vitality (4 items) 6.Social functioning (2 items) 7.Role limitations due to emotional problems (3 items) 8.Mental health (5 items) 	. 93ª . 82ª . 78ª . 87ª . 83ª . 83ª . 90ª	.91 ^b .93 ^b .88 ^b .85 ^b .83 ^b .83 ^b .79 ^b	<i>Original version:</i> Ware & Sherbourne, 1992; Mc Horney et al., 1993; Mc Horney et al., 1994 Swedish version: Sullivan, Karlsson, & Ware, 1995; Persson et al. 1998; Sullivan & Karlsson, 1998.	II, III, IV and V
Copenhagen Burnout Inventory (CB1)	Burnout	 Personal burnout (6 tiems) Work-related burnout (7 items) Client-related burnout (6 items) 	.87° .87° .85°	.90 ^d .73 ^d .88 ^d	<i>Original version:</i> Kristensen et al., 2005, Borritz et al., 2006 Swedish version: Armeson & Liljegren, 2005	III, IV and V
The Hagedoom et al. modified EVLN instrument	Behavioral reactions to problematic organizational events	 1. Exit (6 items) 2. Considerate voice (11 items) 3. Patience (5 items) 4. Aggressive voice (7 items) 5. Neglect (5 items) 	.92° .88° .83° .79°	.90 ^f .88 ^f .74 ^f .68 ^f .79 ^f	Original version: Hagedoom et al., 1999 Swedish version: Study I	I, II, IV and V
The Price and Mueller Distributive Justice Index	Perceived distributive organizational justice	Distributive justice (5 items)	.94 ⁸	.93 ^f	<i>Original version:</i> Price & Mueller, 1986	I, III, IV and V
The Daly Procedural Fairness Instrument	Perceived procedural organizational justice	Procedural justice (4 items)	.88 ^h	.88 ^f	Original version: Daly, 1995	I, III, IV and V
The Moorman Interactional Justice Instrument ^a McHormev et al 1994 ^b Su	Perceived interactional organizational justice llivan Karlsson & Ware 199	Interactional justice (6 items) 55 °K ristensen et al 2005 ^d Ad hoc analyses in the Ame	.93 ⁱ son & Lilieo	.85 ^f 	<i>Original version:</i> Moorman, 1991 mle (N=1405) ^e Haoedoom et al 1999	I, III, IV and V
^r McHorney et al., 1994 ou ^f Liljegren, Nordlund, & Ekt	illivan, Karisson, & ware, 192 perg 2007 ^g Bavendam, in Pric	95 "Kristensen et al., 2005 - Ad noc analyses in the Alin ce and Mueller, 1986 "Daly, 1995 Moorman, 1991	sson & Lujeg	ten, 2002 sai	עעעו inagedoorn et al., type (N=1405)	

Schematic presentation of the instruments used in the present dissertation

Table 6

Functioning, SF (questions 6 and 10); 7. Role limitations due to emotional problems, RE (questions 5a, 5b and 5c); and 8. Mental health, covering psychological distress and wellbeing, MH (five items: questions 9b, 9c, 9d, 9f, and 9h). The second question in the SF-36 is not counted in scoring the eight dimensions; this question covers change in health status over the past year and is used to estimate health change when the instrument is used in a cross-sectional context.

Scoring

As a first step in the scoring procedure all the item scores are re-oriented so that high scores correspond to better health. The second step is to recode the values for questions 1, 7 and 8, using the following weights, derived from Likert analyses. For question 1, excellent is scored as 5.0, very good = 4.4, good = 3.4, fair = 2.0, and poor = 1.0. For question 7 none = 6.0, very mild = 5.4, mild = 4.2, moderate = 3.1, severe = 2.2, and very severe = 1.0. Scores for question 8 are influenced by the answers to question 7: if no pain is recorded on either question, then question 8 is scored as 6. If question 8 is not answered at all, but item 7 > none, then question 8 is scored as 5. For the remaining categories of question 8: a little bit = 4, moderately =3, quite a bit = 2 and extremely = 1. If question 7 was not answered at all, the values for question 8 are: not at all = 6.0, a little bit = 4.75, moderately = 3.3, quite a bit 2.25, and extremely = 1. The items on the other scales are simply added together by using the raw points for each respective item (as it appears on the instrument). The third step in the procedure is to linearly transform to a 0-to-100 scale by using the following formula:

$$\frac{\text{Transformed}}{\text{scale}} = \frac{\begin{array}{c} (\text{Actual score} - \text{lowest} \\ \text{possible score}) \\ \hline \text{Possible raw} \\ \text{score range} \end{array} x100$$

A missing value is given for a scale if over half of its items are missing. If fewer items are missing these are replaced by that respondent's mean scores on the remaining items in the scale (McDowell, 2006).

Psychometric properties

The item-completion rates for SF-36 have been reported as high (88-95%) for different demographical groups, but somewhat lower for elderly, poorer and less educated respondents (McHorney, Ware, Lu, & Sherbourne, 1994). The item-internal consistency (correlations between items and hypothesized scale, corrected for overlap) has been shown proven to be high: all items, with the exception of GH 5, exceeded the .40 standard for item-internal consistency. The item-discriminant validity (correlation between items and other scales) has also proved to be acceptable: for 92.5% of all tests, item-scale correlations exceeded the correlations with other scales by more than two standard errors (McHorney et al., 1994). Some noteworthy floor- and ceiling effects have been reported for the SF-36. The most evident floor effects were found in both the role disability scales: RP and RE. On these scales 24.3% and 18.1% (in a clinical population) rated the lowest possible scores. The ceiling effects were distinct for the PF, RP, BP, SF, and RE scales: 19.2%, 36.7%, 17.8%, 46.2% and 56.1% respectively rated the highest possible scores (McHorney et al., 1994).

Reliability

The reliability of the eight scales has been tested both with internal consistency and testretest methods. With very few exceptions, the reliability statistics in any published studies have been less than the minimum standard for group comparisons of .70, in fact most have exceeded .80 (Ware & Gandek, 1998). In the original test of the instrument the reported internal-consistency reliability (Cronbach's alpha) was between .78 (GH) and .93 (PF) (McHorney et al., 1994).

Validity

A number of studies have tested the validity of the SF-36. The instrument seems to discriminate between types and levels of disease (McHorney, Ware, & Raczek, 1993) and corresponds relatively well with independent ratings performed by physicians (Nerenz, Repasky, Whitehouse, & Kahkonen, 1992).

The SF-36 has also been cross-validated with other instruments. In a comparison between SF-36 and 15 other instruments, performed by Ware, Snow, Kosinski and Gandek (as cited in McDowell, 2006), the reported correlations for the MH scale range from r = .51 to r = .82 with the equivalent scales in other measures; the corresponding correlations for the physical function scale ranged from r = .52 to r = .85.

Earlier studies have also shown that the SF-36 is relatively sensitive to change (Beaton, Bombardier, & Hogg-Johnson, 1994) and also seems able to discriminate between people absent from work due to illness and other causes (Essink-Bot, Krabbe, Bonsel, et al., 1997).

The Swedish version of the SF-36

The Swedish version of the SF-36 instrument was used in the present dissertation. The translation of the SF-36 to Swedish was carried out by the International Quality of Life Assessment (IQOLA) project (Ware & Gandek, 1998). The SF-36 was translated from English to Swedish by a process of translation–back translation process (Sullivan, Karlson, & Ware, 1995) and is presented in appendix I. The Swedish version of the instrument has been proved to have high completeness of data rates (ranging from 89.5% (PF) to 97.4% (SF)), high item-internal consistency (.58 to .88, corrected for overlap), satisfactory item-discriminant validity (ranging from .19 to .69) and high internal-consistency reliability (Cronbach's alpha): ranging from .79 to .93 (Sullivan et al., 1995).

2. The Copenhagen Burnout Inventory, CBI

The Copenhagen Burnout Inventory (CBI) was used in studies III, IV and V, and is a 19item, 3-scale burnout assessment measure. The instrument has been designed within the Danish Projekt 'Udbrændthed, Motivation og Arbejdsglæde' (Project on Burnout, Motivation and Job Satisfaction), PUMA project (Borritz et al. 2005). The instrument has been developed to be an alternative and, hopefully, to compensate for some shortcomings in the most-used burnout inventory: the Maslach Burnout Inventory (MBI). In the CBI, the central aspect of burnout is the attribution of fatigue and exhaustion to specific domains in the individual's life (Kristensen et al., 2005).

Description

The Copenhagen Burnout Inventory consists of three different scales: personal burnout (6 items) defined as: *"the degree of physical and psychological fatigue and exhaustion experienced by a person"*; work-related burnout (7 items) defined as: *"the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work"*; and client-related burnout (6 items) defined as: *"the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work"*; and client-related burnout (6 items) defined as: *"the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work with clients"*. The personal burnout scale is generic and can be answered by everyone, irrespective of occupation. The second scale presupposes a paid job and the third scale handles client-related work, such as nursing and healthcare.

For the personal burnout scale, the items are presented with five different response categories: 1: "*Always*", 2: "*Often*", 3: "*Sometimes*", 4: "*Seldom*" and 5: "*Never/Almost never*". For the work-related burnout scale the first three questions are presented with the following five response categories: 1: "*To a very high degree*", 2: "*To a high degree*", 3: "*Somewhat*"; 4: "*To a low degree*", 5: "*To a very low degree*". The last four items are presented with the following response categories: 1: "*Always*", 2: "*Often*", 3: "*Sometimes*", 4: "*Seldom*" and 5: "*Never/Almost never*". The last four items are presented with the following response categories: 1: "*Always*", 2: "*Often*", 3: "*Sometimes*", 4: "*Seldom*" and 5: "*Never/Almost never*". In the third scale, the client-related burnout scale, questions 1-3 are presented with these response categories: 1: "*To a*".

very high degree", 2: "To a high degree", 3: "Somewhat"; 4: "To a low degree", 5: "To a very low degree" and the last four with: 1: "Always", 2: "Often", 3: "Sometimes", 4: "Seldom" and 5: "Never/Almost never".

Scoring

All scales range from 0 to 100: The first category (i.e. "Always" or "To a very high degree") is scored "100"; the second category (i.e. "Often" or "To a high degree") is scored "75"; the third category (i.e. "Sometimes" or "Somewhat") is scored "50"; the fourth category (i.e. "Seldom" or "To a low degree") is scored "25"; and the fifth and last category (i.e. "Never/Almost never" or "To a very low degree") is scored "00". The last question in the work-related burnout scale is scored in reverse. The total score on the scale is the average of the scores for all the items. If fewer than three questions have been answered on the personal or client-related burnout scale or four questions on the work-related burnout scale, the respondent is classified as a non-responder.

Psychometric properties

The proportion of non-responders is reported to be low (< 2%) for all items and all scales were positively skewed, which indicates that most of the respondents used response categories corresponding to low levels of burnout (Kristensen et al. 2005). The three scales have also been reported to have relatively high inter-correlation: r = .73 between personal and work related burnout, r = .46 between personal and client-related burnout and r = .61 between work- and client-related burnout (Borritz et al., 2006).

Reliability

The reliability of the CBI scales has been tested with internal consistency (Cronbach's alpha) and is reported to be from .85 (client-related burnout scale) to .87 (personal and work-related burnout scale) (Kristensen et al. 2005). Another study (Winwood &

Winefield, 2004) has reported alpha reliabilities for CBI ranging from .79 (work-related burnout), .85 (client-related burnout) to .89 (personal burnout).

Validity

The three CBI burnout scales have been found to be negatively correlated with the vitality, mental and general health scales of the SF-36. The strongest correlation was found between CBI personal burnout and SF-36 vitality (r_s =-.75, p<.01) (Kristensen et al. 2005). It has also been shown that burnout, measured with the CBI work-related burnout subscale, is associated with demands (.14 $\leq r_s$ <.48, p<.01), active and developmental work (-.27 $\leq r_s$ <-.18, p<.01), interpersonal relations at work (such as social support and quality of leadership) (-.35 $\leq r_s$ <-.15, p<.01), job insecurity (r_s = .11, p<.01) and job satisfaction (r_s = -.51, p<.01), (Borritz et al., 2006). In a comparison between the Maslach Burnout Inventory (MBI) and CBI, the matches between the high burnout respondents, identified with MBI and CBI, were perfect in 71.5% of the cases (i.e. identified simultaneously by both instruments as high burnout). High correlations (.73 $\leq r$ ≤.82, p<.01) were found between the MBI Depersonalization scale (38 $\leq r$ ≤.52, p<.01) and with the MBI Personal accomplishment scale (-.45 $\leq r$ ≤-.38, p<.01) (Winwood & Winefield, 2004).

The Swedish version of the Copenhagen Burnout Inventory.

A Swedish version of the CBI was translated from Danish to Swedish in 1999-2000 (Arneson, Bendtsen and Jansson von Vultée, 2000) and is presented in appendix II. The translated version has thereafter been evaluated and validated. A construct validation of the Swedish version was performed by Södergren (2005). This study used both quantitative methods (Principal Component Analysis, PCA, with Varimax rotation,) and qualitative methods (interviews analysed with phenomenograpical method) to evaluate the underlying construct of burnout. The factor analyses showed that the items were distributed into two components: one personal/work-related component (50.4% of variance) and one client-related component (11.3% of variance). The qualitative analyses

showed that the respondents tended to group the items relating to personal burnout in one cluster but mixed the work-related and the client-related items together. Arneson (2006) performed a confirmatory factor analysis (PCA with Varimax rotation) of the Swedish version of the CBI. The personal burnout items loaded in one factor (factor loadings between .58 and .80), the client-related burnout items in another factor (factor loadings between .67 and .79) but the work-related burnout items loaded in both the personal burnout factor (3 items, factor loadings -.66, .58 and .78) and in a separate factor (4 items, factor loadings between .56 and .68). In another validation, performed by Arneson and Liljegren (2005), the CBI was compared with the SF-36 and EuroQol EQ-5D. In this validation the differences between high (defined as the 25% of respondents with the highest degree of burnout) and low (defined as the 25% of respondents with the lowest degree of burnout) personal and work-related burnout group were associated with lower (p < .05) physical and psychosocial health variables in all SF-36 variables. For the clientrelated burnout group the differences were significant (p < .05) for all variables, except for the PF (physical functioning) and the RP (role limitations because of physical health problems) scales. The differences in health, measured with EuroQol EQ5D and EuroQol VAS, between the high and low burnout groups were also significant (p < .05) for all burnout variables.

3. The Hagedoorn et al. modified EVLN instrument

The Hagedoorn et al. modified EVLN measure was used in studies I, II, IV and V and the instrument is based on the original Exit, Voice and Loyalty (EVL) model, proposed by Hirschman (1970) to explain individual responses to decline in different social systems. The theory has been developed and expanded by several other researchers and one of the most recent contributions in this field is the Hagedoorn et al. (1999) modified EVLN instrument.

Description

The Hagedoorn et al. modified EVLN instrument is a 34-item, 5-scale self-assessment instrument. The unique feature of this instrument, compared with other EVLN instruments, is that it discriminates between two different forms of the voice reaction: considerate voice, which is a more constructive and pro-organizational response than the other voice reaction: aggressive voice. The five scales are: Exit (6 items), Considerate voice (11 items), Patience (5 items), Aggressive voice (7 items), and Neglect (5 items).

The items are introduced with the following question: 'Everybody occasionally encounters a problem or a problematic event at work. This can be a difference of opinion with your supervisor, frustrations with regard to the behavior of co-workers, or dissatisfaction, for instance, about a schedule or a specific task you are assigned to do. People tend to react differently to these experiences. On the following pages, several descriptions of possible reactions are listed. Would you indicate how likely it is that you would react to problematic events in the described ways'. The items are presented with a 7-point Likert scale (1='definitely not' to 7='definitely yes').

Scoring

Summative scores for the scales are calculated by adding the raw points for the items of each scale together and thereafter dividing the sum by the number of items for each respective scale.

Psychometric properties

To test whether the five responses are empirically separable Hagedoorn et al. (1999) performed a factor analysis, using Principal Component Analysis (PCA) of a preliminary, 47-item version of the instrument. Thirteen of the 47 items had factor loadings less than .45, cross-loaded or loaded in other factors than expected, and were therefore excluded.

The final 34-item version of the instrument showed factor loadings between .48 and .86 and the five-factor solution explained 56.2% of the variance.

Reliability

The reliability of the five different response scales has been tested with internal consistency statistical method. The Cronbach's alphas ranged from .69 (patience) to .92 (exit) (Hagedoorn et al., 1999).

Validity

To test the concurrent validity of the EVLN instrument, Hagedoorn et al. (1999) tested the correlations between job satisfaction and the five different individual responses. As hypothesized, job satisfaction promoted 'considerate voice' and 'patience' and suppressed 'exit', 'aggressive voice' and 'neglect'. The exit, neglect and aggressive voice responses have also proved to be correlated with low perceived organizational justice (van Yperen et al., 2000).

The Swedish version of the Hagedoorn et al. modified EVLN instrument.

A Swedish version of the Hagedoorn et al. modified EVLN instrument has been developed and evaluated (study I within the present dissertation). The instrument was translated into Swedish by three independent translators. These versions were merged together in a consensus process and the consensus version was back-translated by a fourth translator and was then compared with the original version. The specific formulation 'education/healthcare' in the original version was altered to the general formulation 'type of organization' (i.e. 'bransch' in Swedish). The result of the translation is presented in appendix III.

The Swedish version was evaluated within the present dissertation and the instrument was shown to have acceptable psychometric properties for four of the five scales. The aggressive voice response scale had five (of seven) items that did not fulfil the item-scale convergent validity criterion and/or the item-scale divergent validity criterion. A factor analysis (PCA) also showed that four of the seven items had higher factor loadings in other factors than the expected. The internal consistency (Cronbach's alpha) for the five scales ranged from .68 (Aggressive voice) to .90 (Exit). To test concurrent validity, the correlations between the five EVLN responses and perceived organizational justice were calculated. As expected, associations were found between considerate voice and patience and high perceived organizational justice; and between neglect and exit and low perceived organizational justice. Predictive validity was tested by comparing the five responses and actual turnover. Respondents who left the organization displayed significantly higher levels of the exit response than those who remained in the organization.

4. The Price and Mueller Distributive Justice Index, DJI.

The distributive justice instrument used in the studies within the present dissertation is the measure described by James Price and Charles Mueller (1986): the Distributive Justice Index (DJI).

Description

Distributive justice, measured with the DJI, is defined as 'the degree to which rewards and punishments are related to performance inputs' (Price & Mueller, 1986). The DJI items deal with organizational rewards to the individual, in relation to the respondent's responsibilities, education/training, effort, strains and quality of work. The DJI consists of either five or six items; the version used in the present studies was the five-item version. The five items of the DJI are presented with a five-category Likert scale, ranging from 'very fair' to 'very unfair'.

Scoring

All items are summed for each respondent. The 'very fair' categories are given a '5' and the 'very unfair' categories are given a '1' (Price & Mueller, 1986).

Psychometric properties

Price and Mueller (1986) report that in a study performed by Bavendam, the five-item variant of the DJI has an index mean of 18.9 and standard deviation of 5.3.

Reliability

Bavendam, cited by Price and Mueller (1986), reports an internal consistency (Cronbach's alpha) between the five items, of .94.

Validity

In a study carried out by Bavendam, cited by Price and Mueller (1986), the five DJI items were included in a factor analysis, with orthogonal rotation, together with items measuring job opportunities, pay, routinization, centralization, downward instrumental communication, promotion prospects, importance of income, and external reasons for not quitting the job. The results of the analysis showed that the five distributive justice items loaded together with high factor loadings.

The Swedish version of the DJI

A Swedish version of the DJI has been developed and evaluated. The instrument was translated to Swedish by three independent translators and the translated versions were merged together in a consensus process. The translation is presented in appendix IV. The consensus version was back-translated by a fourth translator and was finally compared

with the original version. The specific formulation 'the hospital' was altered to the more general formulation 'the organization' in the Swedish version.

The Swedish version of the instrument was evaluated within the present dissertation (study III) and showed high internal consistency (Cronbach's alpha) of .93; in a factor analysis (PCA with varimax rotation) with procedural and interactional justice items the five DJI items loaded in the same factor (factor loadings between .76 and .87). The DJI also proved to have strong associations with procedural (r = .54, p < .01) and interactional justice: (r = .51, p < .01).

5. The Daly Procedural Fairness Instrument

Within the present dissertation, perceived procedural organizational justice was measured with the Daly Procedural Fairness Instrument (Daly, 1995).

Description

The Daly Procedural Fairness Instrument consists of four items that describe the individual's experience of justice in the organizational decision-making processes during organizational transitions.

Scoring

The four items are presented with a 5-point Likert-type scale, ranging from '1' = *'strongly disagree'* to '5' = *'strongly agree'*. Items one and two are scored in reverse. The raw points are added together and the total score on the scale is the average of the scores on the items.

Psychometric properties

The reported mean for the instrument is 3.64 and standard deviation is 1.05 (Daly, 1995).

Reliability

Daly (1995) and Daly and Geyer (1994) report an internal consistency (Cronbach's alpha) of .88 between the four items in the instrument.

Validity

In a study performed by Daly and Geyer (1994), procedural fairness, measured with the Daly Procedural Fairness Instrument, was associated with outcome fairness (SEM, standardized *mle* = 0.57) and intention to remain in the organization (SEM, standardized *mle* = 0.27). Daly (1995) found that procedural fairness was associated with outcome fairness (r = .41, p < .01), justification (r = .37, p < .01) and outcome unfavourability (r = .20, p < .05).

The Swedish version of the Daly Procedural Fairness Instrument

The Swedish version of the Daly Procedural Fairness Instrument was translated to Swedish by three independent translators; these translated versions were merged together in a consensus process. The consensus version was back-translated by a fourth translator and this version was finally compared with the original version. The translation is presented in appendix V. The formulation 'relocation decision' was altered to the general formulation 'decisions' in the final Swedish version.

In study III within the present dissertation the Swedish version of the instrument showed high internal consistency (Cronbach's alpha) of .88 and a factor analysis (PCA with varimax rotation) was performed where the four procedural justice items were analysed with distributive and interactional justice items. The four items loaded in the same factor (factor loadings between .79 and .82). The procedural justice instrument proved out to have strong associations with distributive justice (r = .54, p < .01) and interactional justice (r = .48, p < .01).

6. The Moorman Interactional Justice Instrument

In the present dissertation, perceived interactional organizational justice was measured with the Moorman Interactional Justice Instrument (Moorman, 1991).

Description

The questions used in the Moorman Interactional Justice Instrument focus on the interpersonal behaviour of the supervisor, and deals with the fairness perceptions of the interactions that accompany an organization's formal procedures (Moorman, 1991). The instrument consists of six items.

Scoring

The items are presented with a 5-point Likert scale, ranging from '1' = 'strongly disagree' to '5' = 'strongly agree'. The raw points are added together and the total score on the scale is the average of the scores on the items.

Psychometric properties

The reported mean (Moorman, 1991) for the instrument was 3.68 and standard deviation was 0.82.

Reliability

Moorman (1991) reports an internal consistency (Cronbach's alpha) of .93 between the items in the instrument.

Validity

Interactional justice, measured with the Moorman instrument, is associated with job satisfaction (r = .43, p < .01), distributive justice (r = .60, p < .01), formal procedures (r = .66, p < .01), altruism (r = .16, p < .05), courtesy (r = .32, p < .01), sportsmanship (r = .29, p < .01) and conscientiousness (r = 32, p < .01) (Moorman, 1991)

The Swedish version of the Moorman Interactional Justice Instrument

The Swedish version of the Moorman Interactional Justice Instrument was translated into Swedish by three independent translators. The translated versions were merged together in a consensus process and the consensus version was back-translated by a fourth independent translator. The back-translated version was finally compared with the original version. The translation is presented in appendix VI.

In study III of the present dissertation the Swedish version of the instrument has a high internal consistency (Cronbach's alpha) of .85. A factor analysis (PCA with varimax rotation) was performed, where the six interactional justice items were analysed with distributive and procedural justice items. The six interactional justice items loaded in the same factor (factor loadings between .59 and .81). The interactional justice instrument proved to have strong associations with distributive justice (r = .51, p < .01) and procedural justice (r = .48, p < .01).

Analytical methods and statistical tests

A number of different statistical methods and tests were performed to analyse the data. The methods used are presented in table 7.

I. Validity and reliability tests

Test of Internal Consistency with Cronbach's Alpha

The Cronbach's Alpha is the average inter-item correlation within a scale (internal consistency) and was used as a measure of reliability in studies I and III. The computer software SPSS, versions 11.5 and 14.0, was used for the analyses.

Multi-trait/multi-item analysis

A multi-trait/multi-item analysis was performed in study I to evaluate the scaling assumptions of the Hagedoorn et al. modified EVLN measure. The multi-trait/multi-item analysis consists of item-scale correlations (Pearson's product-moment correlation coefficients). High item-convergent validity is indicated if the item has high correlation $(r \ge .40)$ with the relevant scale and low divergent validity was indicated if the item correlated higher with any other scale than the relevant scale. The limit for significant difference was two standard errors $(2(1/\sqrt{n}))$. The analysis was performed with SPSS version 14.0.

II. Correlation analyses

Student's t-test

In the present dissertation the Student's *t*-test was used in studies I, II and III to analyse the differences between the sexes according to behaviour, health and burnout. Student's *t*-test is a statistical test of the null hypothesis, stating that the means of two different

1.	Design	Study population	Measures	Analytical method(s)/Performed statistical tests	Used computer Software
1	Cross-sectional and longitudinal validation study	N=792 (responded to wave I questionnaire)	 Hagedoom et al. EVLN Actual exit behaviour (ad hoc) Price and Mueller DJI. Daly PFI Moorman IJI 	 Student's <i>t</i>-test Analysis of Variance (ANOVA) Analysis of Variance (ANOVA) Multi-trativmulti-term Analysis Pincipal Component Analysis (PCA) Structural Equation Modeling (SEM) Logistic Regression (Univariate and Multivariate) Test of Internal Consistency. Cronbach's Alpha The Kaiser-Meyer-Olkin Test of Sampling Adequacy Barthel's Test of Sphericity Cattell's Stere Test 	SPSS ver. 14.0 AMOS ver. 6.0
	Longitudinal panel study	N=573 (employed and responded to the questionnaires at wave 1 & III)	 Hagedoorn et al. EVLN SF-36 	 Bivariate Correlation Analysis, Pearson's Correlations Coefficient Structural Equation Modeling (SEM) 	SPSS ver. 14.0 AMOS ver. 6.0
	Longitudinal panel study	N=428 (employed, responded and completed the questionnaires at waves I, II & III)	 Price and Mueller DJI. Dally PFI Moorman IJI SF-36 CBI 	 Principal Component Analysis (PCA) Test of Internal Consistency, Cronbach's Alpha Bivariate Correlation Analysis, Pearson's Correlations Coefficient Structural Equation Modeling (SEM) 	SPSS ver 11.5 AMOS ver. 6.0
	Longitudinal panel study	N=662 (responded and completed the questionnaires at waves I and III)	 The Exit variable from Hagedoom et al.EVLN Job mobility (ad hoc) SF-36 CBI 	 Student's <i>t</i>-test Analysis of Variance (ANOVA) Bonférroni Post-Hoc Test General Linear Model (GLM) repeated measures analysis 	SPSS ver. 14.0
	Longitudinal panel study	N=662 (responded and completed the questionnaires at waves I and III)	 The Exit variable from Hagedoorn et al.EVLN Job mobility (ad hoc) Price and Mueller DJI. Daly PFI Moorman IJI SF-36 CRI 	 Student's <i>t</i>-test Analysis of Variance (ANOVA) with Bonferroni correction for multiple comparisons Bivariate Correlation Analysis, Spearman's Rank Correlations Coefficient Structural Equation Modeling (SEM) 	SPSS ver. 14.0 AMOS ver. 6.0

Schematic presentation of the dissertation studies showing design and study population, as well as measures, analytical methods, statistical test and computer software used.

Table 7

populations (normally distributed) are equal. SPSS version 14.0 was used for all *t*-test analyses.

Bivariate Correlation Analysis with Pearson's product-moment correlation coefficient

The Pearson product-moment correlation coefficient is a measure of the correlation between two variables and reflects the degree of linear relationship between the two variables. Pearson's product-moment correlation was used in study I as a measure of correlation within the multi-trait/multi-items scaling test and in studies II and III as a pre-SEM test, to analyse the associations between the included variables. The analyses were performed with SPSS version 11.5 and 14.0.

Bivariate Correlation Analysis with Spearman's rank correlation coefficient

Spearman rank correlation coefficient is a non-parametric measure of correlation and, unlike the Pearson product-moment correlation coefficient, Spearman's rank correlation coefficient does not require that the relationship between the variables is linear. Spearman's rank correlation coefficient was used in study V as a pre-SEM test, to analyse the associations between the included variables. The analysis was performed with SPSS 14.0.

III. Generalized Linear Models

Analysis of Variance, ANOVA

The one-way ANOVA is an analysis of the variance of a quantitative dependent variable by a single factor (independent) variable. The method is an extension of the two-sample *t*test and was used in study I to analyse the associations between age, sex and behavioural responses; in study IV to analyse the relationship between turnover intentions, job mobility, health and burnout; and in study V to investigate the associations between sex, age, turnover intentions, organizational justice, job mobility, health and burnout. In study V the results of the ANOVA were corrected for multiple comparisons with Bonferroni correction. SPSS version 14.0 was used for the analyses.

The Bonferroni post-hoc test

The Bonferroni post-hoc test was used in study IV, after the initial ANOVA, to investigate the differences between the means in the tested range. SPSS version 14.0 was used for the analysis. The Bonferroni post-hoc test is a statistical method that enables a multiple-comparison test between more than two means.

General Linear Model (GLM) repeated measures analysis

The GLM multivariate procedure, used in study IV, provides regression analysis and analysis of variance for multiple dependent variables by one or more factor variables or covariates. The general linear model procedure makes it possible to test null hypotheses about the effects of different factor variables on the means of various groupings of a joint distribution of dependent variables. It is also possible to investigate interactions between factors, as well as the effects of individual factors. SPSS version 14.0 was used for the GLM analysis.

Logistic Regression Analysis

Logistic Regression Analysis (univariate and multivariate), performed with SPSS version 14.0, was used in study I to analyse the predictive qualities of the Hagedoorn et al. modified EVLN measure. Logistic regression makes it possible to predict an outcome on a dichotomous, dependent variable from categorical and/or continuous independent variables.

IV: Factor Analyses

Principal Component Analysis, PCA

In studies I and III a Principal Component Analysis (PCA) was performed to analyse the factor structure of the Hagedoorn et al. EVLN measure (study I) and the distributive, procedural and interactional justice measures (study III). The purpose of a factor analysis is to reduce the number of variables and to detect the underlying structure between variables. The PCA was used as extraction method in the factor analyses. This factor extraction method uses uncorrelated linear combinations of the observed variables where the first component has maximum variance. Successive components explain progressively smaller portions of the variance and are all uncorrelated with each other. Two different forms of factor rotation were used: Promax (in study I) and Varimax (in study III). Promax rotation is an oblique (non-rigid) rotation, which allows factors to be correlated, whereas Varimax is an orthogonal (rigid) rotation method that minimizes the number of variables with high loadings on each factor. SPSS version 11.5 and 14.0 was used for the PCA analyses.

The Kaiser-Meyer-Olkin measure for sample adequacy

The Kaiser-Meyer-Olkin measure for sample adequacy test was used before the PCA in studies I and III to test if partial correlations among the included variables are small (they should be larger than .50). SPSS version 11.5 and 14.0 was used for these analyses.

Bartlett's Test of Sphericity

The Bartlett Test of Sphericity was used in studies I and III to test if the correlation matrix is an identity matrix (i.e. the variables are uncorrelated) and not suitable for further factor analyses. The *p*-value for the test should be less than .05. SPSS version 11.5 and 14.0 was used for Bartlett's Test of Sphericity.

Cattell's Scree Test

The Cattell Scree test is a method used in studies I and III to elucidate how many factors should be extracted in a factor analysis. The test is carried out by plotting the eigenvalues in a diagram and the "scree" in the plotted line decides the number of factors used in the subsequent analysis. SPSS version 11.5 and 14.0 was used for these tests.

V. Structural Equation Modeling, SEM

Structural Equation Modeling, SEM, is used in studies I, II, III and V to analyse the relationship between sex, age, behavioral responses, and organizational justice (study I); age, behavioural responses, health and burnout (study II); organizational justice, health, and burnout (study III); and health, burnout, job mobility, turnover intentions, organizational justice and age (study V). SEM is a statistical method for testing and estimating causal relationships, using a combination of statistical data and methods, and causal assumptions.

Two different procedures for dealing with incomplete data were used: listwise deletion of data (studies I and III) and maximum likelihood estimation (studies II and V). The tested models were evaluated by using Root Mean Square of Approximation (RMSEA) and three different relative goodness of fit indices: the Comparative Fit Index (CFI), the Incremental Fit Index (IFI) and the Non-Normed Fit Index (NNFI). AMOS version 6.0 was used for all SEM analyses.

RESULTS

The evaluation and validation of the Hagedoorn et al. modified EVLN instrument (study I)

The aim of study I was to evaluate and further validate the Hagedoorn et al. modified EVLN instrument in a Swedish context.

Psychometric properties

The analysis of the descriptive statistics revealed a distinct skewness (0.93) in one of the included scales: neglect. This unevenness in the distribution was above all caused by a statistical floor effect: 14% of the respondents had reported the lowest possible score. Sex proved to be associated with the behavioral responses 'aggressive voice' (F(1,764) = 24.24, p<.01) and 'neglect' (F(1,766) = 7.19, p<.01) and age with the response 'exit' (F(3,764) = 41.20, p<.01). An adjusted model (sex and age) was associated with the responses 'exit' (F(3,758) = 20.00, p<.01) and 'aggressive voice' (F(3,758) = 4.69, p<.01).

The results of the multi-trait/multi-item analysis showed that all the items and the scales for the exit, considerate voice, patience, and neglect variables fulfilled both the item-scale convergent criterion and the item-scale divergent validity criterion. For the aggressive voice scale, five of the seven items failed one or both of the validity criteria. The internal consistencies (Cronbach's alpha) for the tested scales were all above .70 with the exception of aggressive voice (.68).

A factor analysis (Principal Component Analysis, PCA, with Promax rotation and Kaiser normalization) was performed to elucidate the factor structure of the instrument. The items in the exit, considerate voice, patience and neglect scales had the highest factor loadings in one distinct factor, but the aggressive voice variable had three items loading higher in another factor than the one expected (i.e. neglect). Negative correlations

(neglect vs. considerate voice: r = -.37 and exit vs. patience: r = -.10) were found between the opposite (according to the EVLN theory) behavioural responses. A second order factor analysis (PCA) was performed to analyse the two dimensional assumptions from the EVLN typology. There was a moderate correspondence with the underlying theoretical aspects and the empirical findings reported by Hagedoorn et al. (1999); the results do not entirely correspond with the underlying theoretical framework, as the behavioural response 'neglect' is less passive and the behavioural response 'patience' is less constructive than expected.

An SEM was carried out to analyse the associations between the manifest and latent variables in the instrument. Two models were formulated and tested: M^1 with 34 items and 5 latent variables, in accordance with Hagedoorn et al. (1999), and M^2 with 27 items and 4 latent variables, reflecting the original EVLN model (i.e. the variable 'aggressive voice' was excluded). The first model showed better relative goodness-of-fit indices than the second model (M^1 : $\chi^2/df = 5.16$, RMSEA = .060, NNFI: .84, IFI = .87, and CFI = .87 and M^2 : $\chi^2/df = 4.88$, RMSEA = .058, NNFI = .78, IFI = .81, and CFI = .81), but both models showed deficiencies regarding fulfilment of the proposed limits for model fit (Byrne, 2001 and Hoyle, 1995).

Validity

The concurrent validity for the instrument was tested by analysing the correlations between the EVLN variables and distributive, procedural and interactional organizational justice. From the results of earlier studies (Hagedoorn et al., 1999 and van Yperen et al. 2000) it was hypothesized that the destructive behavioural responses 'exit' and 'neglect' should be associated with a low degree of organizational justice, and that the constructive behavioural responses 'patience' and 'considerate voice' should be associated with a high degree of perceived organizational justice. As predicted, considerate voice and patience were associated with a high degree of perceived organizational justice: mle = 0.31, p<.01; procedural justice: mle = 0.31, p<.01; and interactional justice: mle = 0.48, p<.01; patience vs. distributive justice: mle = 0.15,

p<.01; procedural justice: $mle = 0.20 \ p<.01$; and interactional justice: $mle = 0.09, \ p<.01$). Exit was negatively associated with organizational justice (exit vs. distributive justice: $mle = -0.19, \ p<.01$; procedural justice: $mle = -0.17, \ p<.01$; and interactional justice: mle = $-0.09, \ p<.01$). The relation between aggressive voice and organizational justice was negative (vs. distributive justice: $mle = -0.08, \ p<.05$; procedural justice: $mle = -0.12, \ p<.01$; and interactional justice: $mle = -0.05, \ n.s.$) and the relation between neglect and organizational justice was non-significant.

Predictive validity was analysed by a comparison between the EVLN behavioural responses and actual turnover behaviour after one year. As hypothesized, the exit behavioural response was associated with actual turnover behaviour (OR: 1.94, 95% CI: 1.48 to 2.54, p<.01, adjusted for sex and age: OR: 1.75, 95% CI: 1.31 to 2.34, p<.01): the associations between the other variables and actual turnover were non-significant.

Summary

The Hagedoorn et al. EVLN instrument could be considered to be a valid and robust instrument to measure behavioural responses in an organizational context with the exception of the subscale 'aggressive voice', which presents some obvious and distinct deficiencies.

The relation between organizational behaviour, health, and burnout (studies II, IV and V)

Studies II, IV and V examined the relationship between behavioural responses (from an EVLN or job-mobility perspective), health and burnout. The aim of study II was to investigate the longitudinal, reciprocal relationship between behavioural responses and health. The aim of study IV was to elucidate the main, interactional and additive effects of turnover and job mobility (both internal and external) on health and burnout. The purpose of study V was to examine the reciprocal relationship between job mobility and

health and burnout, and to study the effects of perceived organizational justice and turnover intentions on this relationship.

Study II

Initial analyses

As a first step in the analyses in study II the correlations between the included variables were calculated. The exit behavioural response at baseline was cross-sectionally associated with the psychosocial SF-36 variables (-.17 $\leq r \leq$ -.13, p<.01). Longitudinally exit at baseline was associated with PF (r = .15, p < .01) and the psychosocial SF-36 variables (-.25 \leq r \leq -.17, p<.01) at the two-year follow-up. The considerate voice response was at baseline cross-sectionally associated with GH (r = .12, p < .01), VT (r = .17, p < .01) RE (r = .11, p < .01) and MH (r = .23, p < .01). Longitudinally considerate voice at baseline was significantly associated with health at two-year follow-up in the SF-36 variables GH (r = .13 p < .01), VT (r = .14, p < .01), SF (r = .11, p < .01), RE (r = .16, p < .01), and MH (r = .16, p < .01)=.22, p < .01). The associations between the patience behavioural response was crosssectionally significant for the SF-36 variable VT (r = .08, p < .05) and longitudinally for the SF-36 variable RP (r = -.09, p < .05) at the follow-up. The relation between the last EVLN response, neglect, and health was more distinct: at baseline neglect was crosssectionally associated with GH (r = -.14, p < .01), VT (r = -.14, p < .01), SF (r = -.13, p < .01) .01), RE (r = -.16, p < .01), and MH (r = -.14, p < .01). Longitudinally neglect at baseline was associated with GH (r = -.16, p < .01), VT (r = -.11, p < .05), SF (r = -.10, p < .05), RE (r = -.14, p < .01), and MH (r = -.14, p < .01) at the two-year follow-up.

As mentioned earlier, psychosocial health (the SF-36 variables VT, SF, RE and MH) was cross-sectionally associated with exit (negatively), considerate voice (positively) and neglect (negatively). Longitudinally, PF at baseline was associated with exit (r = .16, p < .01) at follow-up; GH with considerate voice (r = .11, p < .05) and neglect (r = .13, p < .01) at follow-up; VT with exit (r = .12, p < .05), considerate voice (r = .10, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) and neglect (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < .05) at follow-up; SF with exit (r = ..11, p < ..12, p < ..12

.09, p<.05) at follow-up; RE with neglect (r = -.14, p <.01) at follow-up; and MH with exit (r = -.14, p<.01), considerate voice (r = .15, p<.01) and neglect (r = -.13, p<.01) at follow-up.

SEM analyses

Two different cross-lagged SEM models were tested: M^1 with a global behavioural response construct and M^2 with the four behavioural responses separated. Both models showed similar and acceptable goodness of fit: M^1 : RMSEA = .066, CFI = .92, IFI = .92, NNFI = .90; and M^2 : RMSEA = .067, CFI = .93, IFI = .93, NNFI = .89.

The SEM analysis of M¹ showed that either physical health (latent variable including the SF-36 variables PF, RP, BP and GH) or psychosocial health (latent variable including the SF-36 variables VT, SF, RE and MH) at baseline predicted behavioural responses at follow-up. On the other hand, behavioural responses at baseline predicted psychosocial health at follow-up (mle = -.14, p<.05). In the analysis of M², physical health at baseline predicted the exit behavioral response at follow-up (mle = .20, p<.01); the exit behavioral response at baseline predicted psychosocial health at follow-up (mle = .16, p<.01); and considerate voice at baseline predicted psychosocial health at follow-up (mle = .11, p<.05).

Study IV

During the study period (2 years) 485 (73%) respondents were non-mobile (i.e. remained in the same workplace), 88 (13%) were internally mobile (changed workplace but remained in the same organization) and 89 (14%) were externally mobile (left the organization). Of the non-mobile respondents, 236 indicated low turnover intentions and 234 high turnover intentions at baseline; 48 respondents in the internally mobile group stated low and 38 high turnover intentions; and in the externally mobile group were the corresponding figures were 29 (low) and 51 (high).

Cross-sectional analyses

The group with high turnover intentions showed a lower degree of self-rated psychosocial health (MH: t(629) = 2.34, p < .05) and burnout (personal burnout: t(631) = -4.16, p < .01, work-related burnout: t(628) = -5.65, p < .01, and client-related burnout: t(601) = -3.75, p < .01) at baseline and at the two-year follow-up (MH: t(592) = 3.45, p < .01, personal burnout: t(578) = -2.58, p < .05, work-related burnout: t(573) = -3.15, p < .01, and client-related burnout: t(538) = -3.27, p < .01) than the group with low turnover intentions. The differences between the three job-mobility groups were non-significant at baseline but the difference was significant for personal burnout (F(2,591) = 4.90, p < .05) and work-related burnout (F(2,585) = 4.98, p < .05) at follow-up. The post-hoc analyses showed that there was a significant difference between the non-mobility group and the externally mobile group in both burnout variables (Bonferroni post-hoc: personal burnout: p < .01, work-related burnout: p < .01).

Longitudinal analyses

The changes in health and burnout during the study period between the different job mobility groups were significant in personal burnout (F(2,571) = 6.23, p < .01) and work-related burnout (F(2,563) = 4.83, p < .01). The post-hoc analyses showed a significant difference between the non-mobile and externally mobile groups in both burnout variables (Bonferroni post-hoc: personal burnout: p < .01, work-related burnout: p < .01).

The interactional effect on health and burnout of the combination of turnover intentions and job mobility was tested by six amalgamated turnover intentions/job mobility groups (low and high turnover vs. non-, internally-, and externally mobile group) but the differences between the groups was non-significant so the interactional hypothesis gained no support in the present study.

Study V

The aim of study V was to examine the longitudinal and reciprocal relationship between job mobility and health and burnout and to investigate the effects of perceived organizational justice and turnover intentions on this relationship.

Initial analyses

The differences in turnover intentions due to age were significant (F(3,642) = 37.86, p < .01) and women had significantly worse health than men (SF-36 PF: t(646) = 3.43, p < .01, BP: t(644) = 2.43, p < .01, SF: t(645) = 3.48, p < .01, RE: t(644) = 2.12, p < .01). Physical function, SF-36 variable PF, decreased with increasing age (F(3,644) = 6.54, p < .01).

As a first step in the analysis the correlations between the included variables were computed. Distributive, procedural and interactional organizational justice were crosssectionally $(.09 \le r \le .30, p \le .05)$ and longitudinally $(.09 \le r \le .24, p \le .05)$ associated with both physical and psychosocial health, with few exceptions. The three aspects of organizational justice were also associated with burnout (cross-sectionally: $-.39 \le r_s \le -.21$, p < .01, longitudinally: $-.32 \le r_s \le -.19$, p < .01). Turnover intentions were cross-sectionally associated with job mobility ($r_s = .13, p < .01$), organizational justice ($-.26 \le r_s \le -.16, p < .01$), physical health (SF-36 PF: $r_s = .10$, p < .05, GH: $r_s = -.09$, p < .05), psychosocial health (SF-36 VT: $r_s = -.15$, p < .01, SF: $r_s = -.18$, p < .01, RE $r_s = -.13$, p < .01, and MH: -.15, p < .01) and burnout (personal burnout: $r_s = .21$, p < .01, work-related burnout: $r_s = .26$, p < .01, and client-related burnout: $r_s = .24$, p < .01) and longitudinally with physical health (SF-36 PF: $r_s = .15, p < .01$), psychosocial health (SF-36 VT: $r_s = -.15, p < .01, SF: r_s = -.15$.20, p < .01, RE $r_s = -.16$, p < .01, and MH: $r_s = -.23$, p < .01) and burnout (personal burnout: $r_s = .16$, p < .01, work-related burnout: $r_s = .22$, p < .01, and client-related burnout: $r_s = .23$, p<.01). Job mobility was longitudinally associated with SF-36 MH (r_s = .09, p<.05) and personal ($r_s = -.12$, p < .01) and work-related burnout ($r_s = -.12$, p < .01) at follow-up. Health at baseline was longitudinally associated with health at follow-up (.11 $\leq r_s \leq$.66,

p<.01) and burnout at baseline was associated with burnout at follow-up (.38 $\leq r_s \leq .67$, p<.01).

SEM analyses

To analyse the relationship between health, burnout, job mobility, with age, turnover intentions and organizational justice as affecting factors, a SEM model was formulated and tested. The model showed acceptable goodness-of-fit indices: RMSEA = .111, CFI = .82, IFI = .83, and NNFI = .72.

In the tested model neither of the organizational justice variables nor health and burnout variables at baseline showed any significant association with job mobility, but turnover intentions predicted job mobility (mle = 0.19, p < .01). Job mobility, on the other hand, predicted psychosocial health (mle = 0.11, p < .05), personal burnout (mle = -0.15, p < .05) and work-related burnout (mle = -0.16, p < .05).

Summary

The results of study II indicate that the relation between behavioural responses and health is mainly one-sided: behavioural responses predict psychosocial health. The exit behavioural response at baseline was associated with worse psychosocial health at the two-year follow-up, whereas considerate voice predicted good psychosocial health at the two-year follow-up. Good baseline physical health predicted a high degree of exit behaviour after two years. The results of study IV replicate the results of study II considering the associations between exit i.e. turnover intentions, and decreased health and increased burnout. The results of study IV also showed that external mobility had a positive effect on personal and work-related burnout compared with non-mobility. The results also indicated that the combined effects of turnover intentions and job mobility are additive rather than interactional. Finally, the results of study V showed that job mobility is a more distinct predictor of psychohealth and burnout than health and burnout is of job mobility. Turnover intentions, but not organizational justice, proved to have an effect on job mobility.

The relation between organizational justice and health and burnout (study III)

The aim of study III was to investigate the associations between perceived organizational justice and health and burnout.

Initial analyses

The three organizational justice scales showed significant associations with each other $(.48 \le r \le .54)$ and the internal-consistency was satisfactory $(.85 \le \alpha \le .93)$. In a factor analysis (Principal Component Analysis, PCA, with Varimax rotation and Kaiser normalization) all included items showed the highest factor loadings in the expected variables (factor loadings for distributive justice items between .76 and .87; procedural justice items between .79 and .82; and interactional justice items between .59 and .81). The three justice scales together explained 70% of the variance in the sample.

SEM analyses

After the initial evaluation of the three organizational justice instruments, two different SEM models were formulated: a differentiated justice version, M^1 , dealing with the three aspects of organizational justice independently and one global justice construct model (including distributive, procedural and interactional organizational justice), M^2 . As the goodness-of-fit indices of the two models were relatively low (M^1 : RMSEA = .173, CFI = .53, IFI = .53, NNFI = .47 and M^2 : RMSEA = .126 CFI = .74, IFI = .74, NNFI = .72), two adjusted variants were formulated by permitting correlations between the measurement errors in the models. These models, M^1 b and M^2 b, showed considerably better indices (M^1 b: RMSEA = .155, CFI = .65, IFI = .65, NNFI = .57 and M^2 b: RMSEA = .101 CFI = .84, IFI = .85, NNFI = .82).

In M¹b distributive justice was cross-sectionally associated with psychosocial health (*mle* = 0.22, p<.01) and burnout (*mle* = -0.15, p<.01); procedural justice with physical health (*mle* = 0.35, p<.01); psychosocial health (*mle* = 0.30, p<.01) and burnout (*mle* = -0.25, p<.01) and interactional justice with burnout (*mle* = -0.15, p<.01). Longitudinally, distributive justice at baseline predicted psychosocial health (1-year: *mle* = 0.21, p<.01, 2-year: *mle* = 0.17, p<.01) and burnout (1-year: *mle* = 0.14, p<.01, 2-year: *mle* = 0.16, p<.01); procedural justice at baseline predicted physical health (1-year: *mle* = 0.20, p<.01, 2-year: *mle* = 0.14, p<.05); psychosocial health (1-year: *mle* = 0.19, p<.01, 2-year: *mle* = 0.15, p<.01) and burnout (1-year: *mle* = -0.24, p<.01, 2-year: *mle* = -0.18, p<.01) and interactional justice predicted at baseline predicted physical health (1-year: *mle* = -0.18, p<.01)

In the adjusted global justice model, M^2b , organizational justice was cross-sectionally associated with physical health (*mle* = 0.80, *p*<.01), psychosocial health (*mle* = 0.84, *p*<.01) and burnout (*mle* = -0.85, *p*<.01). Organizational justice also longitudinally predicted physical health (1-year: *mle* = 0.82, *p*<.01, 2-year: *mle* = 0.76, *p*<.01), psychosocial health (1-year: *mle* = 0.79, *p*<.01, 2-year: *mle* = 0.80, *p*<.01) and burnout (1-year: *mle* = -0.83, *p*<.01).

Summary

Organizational justice is strongly associated with physical health, psychosocial health, and burnout, and also longitudinally predicts health and burnout. The global justice construct showed better goodness-of-fit indices than the threefold justice construct and was more suitable to predict health and burnout longitudinally but a differentiated organizational justice concept could give valuable information about health related risk factors: if they are structural (distributive justice), procedural (procedural justice) or interpersonal (interactional justice). The two approaches to study organizational justice should therefore be regarded as complementary rather than exclusive.

Conclusions

The results of the included studies are presented in table 8.

The results of study I showed that the Swedish version of the Hagedoorn et al. modified EVLN instrument has acceptable psychometric properties with one exception: the aggressive voice scale. This scale failed to fulfil several of the stipulated validity criteria. In the light of these results, the aggressive voice scale and the five-variable EVLN model proposed by Hagedoorn et al. (1999) should be used with some caution.

In study II, the Hagedoorn et al. EVLN (1999) instrument was used to study the relationship between behavioural responses and health. The result showed that the relations are mainly one-sided: behavioural responses predict psychosocial health. The behavioural response 'exit' at baseline was associated with worse psychosocial health at the two-year follow-up, while considerate voice predicted good psychosocial health at the two-year follow-up. Good baseline physical health predicted a high degree of 'exit' behaviour after two years.

In studies IV and V the relationship between behavioural responses (turnover intentions, internal and external job mobility) and health and burnout was further investigated. In study V the mutual relationship between job mobility and health and burnout was examined. The results showed that this relation should be regarded as moderately one-sided, as job mobility is a considerably more distinct predictor of health than vice versa; job mobility predicted psychosocial health, and decreased personal and work-related burnout. The results of study IV showed that high turnover intentions were associated with low mental health and a high degree of burnout. External job decreased the degree of burnout compared with the non-mobility group. On the basis of these results, the effect of turnover intentions and job mobility on health and burnout seems to be additive rather than interactive.

Schem	atic presentation of the aims and results of	the studies included in the present dissertation
Study	Aim	Results
-	To evaluate and further validate the Hagedoorn et al. modified EVLN instrument in a Swedish context.	The neglect scale showed high skewness, as 14% of the respondents showed the lowest possible score. All scales, except aggressive voice, fulfilled the validity criterion in the multi-trait/multi-item analysis and had the highest factor loading in one distinct factor. The internal consistencies (Cronbach's alpha) were \geq 68 for the tested scales. Negative correlations were found between the opposite, according to the EVLN theory, behavioral responses (i.e. neglect vs. considerate and exit vs. patience). The result of the second-order factor analysis showed a moderate correspondence with the underlying theory. Constructive behavioural responses were associated with high organizational justice, which indicates high concurrent validity. The 'exit' behavioural response with low organizational justice, which indicates high concurrent validity. The 'exit' behavioural response with low organizational justice, which indicates high concurrent validity.
Π	To study the longitudinal and reciprocal relationship between behavioural responses and health.	The relation between behavioural responses and health is mainly one-sided: behavioural responses predict psychosocial health. The behavioural response 'exit' was associated with worse psychosocial health and 'considerate voice' predicted good psychosocial health at the two-year follow-up. Good physical health predicted a high degree of 'exit' behaviour.
E	To compare a global measure of organizational justice and a differentiated, threefold organizational justice measure with respect to cross- sectional and longitudinal associations with self-rated health and burnout.	The global justice model with autocorrelations showed better goodness-of-fit than the differentiated, threefold organizational justice measure. Global organizational justice was cross-sectionally and longitudinally positively associated with self-rated health, and negatively associated with burnout.
N	To study the main, interactional and additive effects of turnover and job mobility (both internal and external) on health and burnout.	High turnover intentions were cross-sectionally associated with worse mental health and higher degree of burnout. After changing workplace, the external mobile group had a lower degree of personal and work-related burnout compared with the non-mobile group. The relationship between turnover intentions and actual job mobility are additive rather than interactive.
>	To study the reciprocal relationship between job mobility and health and burnout, and the effects of perceived organizational justice and turnover intentions on this relationship.	The results showed that job mobility was a considerably more distinct predictor of health and burnout, than health and burnout were as predictors of job mobility, as job mobility predicted psychosocial health, personal and work-related burnout at the follow-up.

Schematic presentation of the aims and results of the studies included in the present disser

Table 8

The effect of organizational justice on health and burnout was investigated in study III. A global organizational justice construct showed better properties and was more able to longitudinally predict health and burnout than a threefold construct. Organizational justice was cross-sectionally and longitudinally associated with health and a low degree of burnout.
DISCUSSION

Method

Study sample

During the study period, the included organizations have undergone a period of major reorganization. This transition process has consisted of the merger of several offices to form larger units, a new and structured way of organizing the work and new assignments for the staff. Earlier studies have shown that major reorganizations could affect health (Ferrie, Shipley, Marmot, Stansfeld, & Davey Smith, 1998), perceived organizational justice (Shapiro & Kirkman, 1999) and employee behaviour (Armstrong-Stassen, 1998). On the basis of these results it is reasonable to assume that the reorganizations constitute a major confounder in the study of the relationship between health, organizational justice and employee behaviour. This could, at a first glance, be true, but the distinctive feature of the modern working life is continuous organizational change (Roberts & Armitage, 2006) and this problem is probably just as old as the scientific field of organizational sciences (see for example Cronbach & Furby, 1970; Golembiewski, 1989). Most likely, the only practical solution to this dilemma is to be aware of the context of organizational change and accept it as a part of the studied phenomena.

Differences between employees' sex and age in the three organizations included in this study were small and non-significant. The response rate for all three waves may also be considered as good (Mangione, 1995). This indicates that the results may be generalizable to the total AMV organization and to the regional organizations that did not participate in the present study. Several Swedish government organizations have undergone reorganization processes similar to those at the AMV and may have experienced similar effects on employee health.

Non-response analysis

The response rate, 29 %, to the non-response questionnaire is surprisingly high, considering the inclusion criteria: the study sample consisted of individuals who had chosen not to complete and return the main questionnaire. The data collection method, questionnaire, is probably not the most appropriate method of reaching individuals whose only mutual distinctive feature is that they have not replied to on an earlier survey. The alternatives, such as interviews, pose obvious ethical problems. By not replying, the respondents have made the decision to not participate in the study. This decision must be respected and a mailed non-response questionnaire was expected to be perceived more as a minor intrusion than a personal contact (i.e. an interview). A non-respondent questionnaire has a probable method bias considering the lack of responses from the determined non-repliers. This assumption is supported by the results of the non-response questionnaire, which imply that for some of the respondents the reason for not replying was that they experienced the original questionnaire as complex and time-consuming.

Measures

One conceivable shortcoming in the present studies is the possible mono-method bias, i.e. the validity problem derived from the decision to use one instrument to measure a variable, in particular when all the instruments used are self-report questionnaires (Donaldson & Grant-Vallone, 2002). The main reason, despite the risks, for using just one measure is to arrange a manageable questionnaire that is not experienced as too overwhelming and complex by the respondents, as this would increase the non-response rate. A number of actions have been carried out to decrease or eliminate the monomethod bias. The most important of these is the use of well-validated and proven instruments when this is possible. The SF-36 is described as the leading general health measure (McDowell, 2006) and is well evaluated. The CBI has been reported to have acceptable psychometric properties (Winwood & Winefield, 2004). The Hagedoorn et al. EVLN instrument has been thoroughly validated within the present dissertation and the four original variables showed satisfactory psychometric properties. The three justice

instruments in the present dissertation have strong inter-correlations, indicating that the risk for mono-measure bias is probably negligible.

Another aspect of the mono-method bias problem is the reliance on self-report questionnaires only. Earlier studies have shown that associations between different variables could be overestimated by differences in response style, due to the respondent's personality traits (de Jonge & Slaets, 2005), but numerous studies have also shown that self-report instruments predict mortality (Idler & Benyamini, 1997) and physical disability (Mossey, Mutran, Knott, & Craik, 1989) better than physician ratings or bio-medical health information (Winter, Lawton, Langston, Ruckdeschel, & Sando, 2007).

Despite the qualities of the SF-36, the instrument has some shortcomings. McHorney et al. (1994) report that the instrument has obvious ceiling effects, in particular the scales dealing with role limitations due to physical health problems (RP), social functioning (SF) and the role limitations due to emotional problems (RE). These limitations have also been reported for the Swedish version (Sullivan et al., 1995). It is reasonable to assume that these shortcomings have an impact on the explained variance in a sample, in particular in a relatively healthy population, as in the present studies. But, compared with other generic health status measures such as the Nottingham Health Profile, The COOP/WONCA charts and The EuroQol, the SF-36 is the only instrument that has items to measure positive health, and it is recognized as being the most suitable instrument to measure health in a relatively healthy population (Essink-Bot et al., 1997). Another reported deficiency of the SF-36 is the absence of items to measure important aspects of health such as cognitive function and distress (Hays & Shapiro, 1992) or coordinated actions (Anderson, Aaronson, & Wilkin, 1993). However, it is impossible to construct a broad, generic health measure that is still manageable and suitable for practical use that covers all conceivable domains of health.

The Copenhagen Burnout Inventory is a relatively new and untried burnout measure. Even if the results of the initial validation of the instrument are promising (Arneson & Liljegren, 2005; Kristensen et al., 2005; Winwood & Winefield, 2004) there is still more work to be done before this instrument can be considered as well evaluated and validated. The 'standard' burnout measure, the Maslach Burnout Inventory, MBI, has been criticized for its underlying definition of burnout (for example Kristensen et al., 2005) and the CBI seems to be based on a more robust theoretical foundation than the MBI, as it concentrates on the well-accepted key symptoms of burnout: fatigue and exhaustion. Another aspect of the CBI is that it takes a moderately static view on burnout. The instrument measures the actual *degree* of burnout, not the *stage* in the process of burnout (Hallsten, 1993), which could be considered as a deficiency, but this criticism is also relevant for other burnout instruments, such as the MBI.

The Hagedoorn et al. modified EVLN instrument is a relatively untried measure. The validation of the Swedish variant (study I within the present dissertation) showed some obvious shortcomings for the instrument, in particular for the aggressive voice subscale, but apart from this, the instrument seems to have acceptable qualities. One problem in connection with EVLN measures in general, which, has been discussed earlier is if they measure actual behaviour, as they are intended to do, or if they measure attitudes to actual behaviour (Leck & Saunders, 1992). This is a crucial point with both methodological and theoretical implications but the question is also generic and could be directed to practically every self-report instrument: do they really measure the actual state or the individual's ideal state? For the present instrument this risk seems to be small, as the predictive validity of the instrument is acceptable (study I).

Another conceptual point in any EVLN typology, including the Hagedoorn et al. (1999) modified EVLN instrument, which is worthy of note, is that the different responses are mutually exclusive. According to the theoretical framework, an individual can just react with one type of response at a given point of time. At a cursory glance this could seem obvious but when the typology is used to study individual responses of organizational processes, as it has been used in a number of different studies (for example: Rusbult & Lowery, 1985; Rusbult et al., 1988), the timeframe is considerably more extensive than a single moment. From this perspective it is reasonable to assume that a person could react with different behavioural responses during a process but the EVLN typology does not

include this possibility. This divergence between the possible responses according to the typology and the actual individual behaviour could pose a threat to the validity of any EVLN-measure, which does not take into consideration the possibility that an individual can react with different responses at different times, or maybe even at the same time, during a process.

Another aspect of the Hagedoorn et al. (1999) instrument that is worthy of note is that it focuses, for example in the instructions to the respondents, on problematic events at the workplace. This could be considered a problem, as most situations are, hopefully, unproblematic and it would therefore be relevant to look at the behaviour of individuals also in non-problematic situations. But there is good reason to believe that, for the majority of the respondents and situations, unproblematic situations are handled with the same strategy: by non-action. There is also reason to believe that a problematic event could act as a trigger for action. This is the basic assumption for the EVLN theory: the individual makes a deliberate choice in the situation, either to act or not to act (Hirschman, 1970).

The organizational justice measures used in this dissertation are relatively well used and evaluated, but, as mentioned previously, the construct of organizational justice is complex. Earlier studies have shown that the three forms of justice have strong intercorrelations (Sweeney & McFarlin, 1997; Welbourne, Balkin, & Gomez-Mejia, 1995) which could raise the question of whether these scales possess adequate discriminant validity. The scales seem to be distinct and independent factors, confirming an acceptable discriminant association between the three forms of justice should be considered as a global construct or as several sub-constructs. As the scientific field of organizational justice in general, and its association with health and burnout in particular, is relatively new, both the theoretical and the practical application of theories are continuously evolving. Arguments for one, two, three and even four component theories have been formulated and tested (Colquitt, 2001), but for the time being the division between distributive, procedural and interactional seems to be the closest to consensus (Cohen-Charash and Spector 2001).

Analytical methods and statistical tests

The statistical methods and tests used within the present dissertation are hardly controversial, and the analytical procedures could be regarded as straightforward and uncomplicated with one exception: the SEM analyses. Structural Equation Modeling has obviously has some distinct and positive features: it is a suitable statistical method to develop and test causal models, and the method makes it possible to use both latent and manifest variables. SEM could also be complex to use, especially in analyses with numerous variables, and the results may be hard to estimate and interpret.

From the application of SEM within the present studies, a number of SEM-related aspects could be discussed. In study I and V, categorical data were used in the SEM analysis. SEM is based on maximum likelihood estimation, which assumes that the data are continuously arranged: this could be problematic. A number of earlier studies (see Byrne, 2001, for review and further discussion) have examined and evaluated this problem. The consensual result of these studies is that SEM can handle categorical data but some caution is needed (Byrne, 2001).

Results

The results of study I showed that the Hagedoorn et al. EVLN instrument could be regarded as a valid instrument to measure individual behaviour in an organizational context, at least considering the four original EVLN responses. The behavioural response 'aggressive voice' proposed by Hagedoorn et al. (1999), does not seem to fulfil the psychometric expectations. This implies that the two-dimensional, four-response theoretical model suggested by Rusbult et al. (1982) should be regarded as a more solid theoretical construct than the two-dimensional, five-response model proposed by Hagedoorn et al. (1999).

Another closely related aspect is the underlying construct validity of the EVLN theory. With its two dimensions and four behavioural responses, the model has a congenial simplicity but it is possible, or even reasonable, that other possible dimensions or behavioural responses would elucidate the variance in individual behavioural responses in a more comprehensive way. In a meta-analysis of 100 earlier empirical studies, Skinner, Edge, Altman, & Sherwood (2003) have found 400 (!) different named and more or less separate coping strategies. Based on the analysis of included studies, Skinner et al. (2003) recommends the use of 6 different hierarchical systems of action types with 13 potential core families of different coping behaviours. On the basis of this result it is not reasonable to assume that a two-dimensional, four- or five-response model could describe the whole range of variance. The greatest problem is perhaps not that other dimensions and responses are conceivable and plausible but that the original theory has, certainly unexpressed but obvious, pretensions implying that the four or five responses and the two dimensions should be considered as mutually exclusive.

The results of study II further problematize the relationship between the dimensions and the behavioural responses of the EVLN theory. The theoretical construct 'passive behavioural responses' is somewhat of a linguistic tautology but the results further underline this possible anomaly, as the they showed that the active behavioural responses (i.e. exit and considerate voice) significantly affected health, and that the effects of the destructive responses (i.e. neglect and patience) on health were negligible. This could be interpreted in the sense that passive behaviours, by their nature as less 'behavioral' responses should, perhaps be regarded as "second-order" behavioural responses with less impact on other aspects such as health.

The results of study II should be interpreted in the light of the results of studies I and III. An employee's behavioural response to an organizational event cannot and should not be understood as an independent and separate occurrence, and the individual acts from different, both conscious and unconscious, motives. One important motive is organizational justice. The results of study I showed an association between organizational justice and behavioural responses and study III elucidated an association between organizational justice and health. These findings, examined together, make at least two different relations between health, organizational justice and behavioural responses possible: organizational justice could affect health, with behavioural responses as a mediating factor, or organizational justice could, independently, affect both health and behavioural responses.

Study III tries to shed light upon some aspects of the concept of organizational justice. During the last decade, there has been an increased scientific interest in organizational justice, and in particular its relation to health. These studies are exclusively empirical and the conceptual and theoretical basis is, unfortunately, largely overlooked. Even if some recent studies have tried to explore the divergence between organizational justice and other related constructs such as effort–reward imbalance or organizational trust, there is much more to be done. One relevant aspect which is worthy of attention is to investigate aspects that these constructs have in common, but also differences between various aspects of violations to the psychological contract between the employee and the organization. Maybe, at least with regard to the effect of injustice on health and burnout, unfairness could be the cognitive attribution of the psychological affect of deceit and social humiliation.

One important aspect of job mobility that has not been empirically studied to any particular extent, either within the present dissertation or in other studies, concerns the underlying motives for mobility. This aspect is certainly essential to fully understand the mechanisms of mobility, and especially to understand the interaction between turnover intentions and job mobility. For example, the underlying restraining or promoting motives for job mobility may explain why some people do not put their intentions into practice and why some people changes jobs even if they have not expressed a will to do so earlier. It is also of great importance, for our understanding of job mobility, to distinguish between 'pushing' or 'escaping/avoidant' and 'pulling' or 'attractive' motives for job mobility. The results of studies IV and V indicates that 'pushing' motives, manifested in a strong desire to leave the organization i.e. high turnover intentions, could be associated with decreased health and increased levels of burnout (study IV and V)

while 'pulling' or 'attractive' motives, manifested as low turnover intentions but actual, external, job mobility (study IV) enhance health and decrease the level of burnout.

When considering the effects of job mobility the results from the included studies could be generalized to other organizational contexts but certain aspects should be observed. The Swedish National Labour Market Administration and its employees have some, maybe not unique but particular, features which could affect their disposition towards job mobility. As the work of the individuals in the study population concerns different aspects of the labour market and unemployment, they are very familiar with the opportunities for getting a new job in other organizations. This could be both restraining and promoting, depending on the conditions on the labour market. Other factors that are most likely restraining include in-service training, which is comparatively extensive but job-specific, and the relatively high average age (just under 50 years) of the employees.

The results of study V showed that job mobility affects health but health has a very modest impact on job mobility. This finding should be understood in a Swedish context where non-organizational factors affect the individual's decision to change jobs. Sweden has a relatively extensive public welfare system with comprehensive employment security legislation. For example, an employee cannot be given notice to quit due to sickness in Sweden. For a majority of employees in Sweden, sickness benefits are considerably higher than unemployment compensation, which decreases the incentives for health-induced job mobility. These legal aspects certainly have a restraining effect on job mobility among employees with low health.

To sum up, the results showed that perceived organizational justice is longitudinally associated with good health and a low degree of burnout. This result is in accordance with earlier studies but incidates that the association between organizational justice and health is also valid regarding the longitudinal relationship between the threefold distinction of organizational justice and burnout. The results also showed that an active and pro-organizational behaviour (considerate voice) is associated with high psychosocial health, and an active but contra-organizational behaviour (exit) is associated with low

psychosocial health. When turnover intentions are put into action, the effect on health is inverted, as external job mobility showed a positive effect on burnout. Job mobility also proved to be a more distinct predictor of health and burnout than health and burnout is of job mobility.

Implications for future research

As mentioned earlier, the present studies were conducted in one organization, the Swedish National Labour Market Administration, and the results could be affected by specific organizational aspects. Even if three different regional organizations were used and the study population was relatively heterogeneous, regarding sex and age distribution, the results should be replicated in other organizational settings before any extensive generalizations of the findings to other organizational contexts are made.

One important aspect of EVLN that has largely been overlooked in earlier research is the impact of time on individual behavioural responses. One distinct feature of the Cognitive Appraisal Model is the individual-situation feedback loop: the individual adapts his or her behaviour to the situation and to the effect of the coping behaviours on the situation. From this perspective it is plausible that employee behavioural responses will change over time, due to the effect of the responses and altered individual prerequisites such as, perhaps, health and degree of burnout.

Another important aspect that should be addressed by future research is that of improving the insufficient construct validity of the underlying EVLN theory. A conceivable way to approach this initially could be to empirically and unconditionally examine the behavioural responses in an organizational setting, with an inductive and explorative approach in order to identify which behavioural responses are used, to what extent, in which context, and with what effect. The concept of job mobility is perhaps more distinct and unambiguous, but the relation between job mobility and other related aspects such as, occupational mobility remains uninvestigated. The restrictive and promotive effects of possible individual, organizational, and societal predictors, on job mobility are also unclear, at least regarding their effects on health and burnout.

Another construct that needs further theoretical development is organizational justice. The theoretical and empirical distinction between organizational justice and other related constructs, such as, effort–reward imbalance and organizational psychological contracts is insufficient and needs further elaboration.

Even if the mutual relationship between behavioural responses, health, burnout and organizational justice has been elucidated in studies II, III, IV and V, some aspects are indistinct and need further research. One example that could be studied in more detail is the predicting/mediating and/or confounding effect of organizational justice on the relation between behavioural responses and health.

Practical implications

A well-validated and evaluated EVLN measure could be used in a number of practical organizational applications. It could be used to identify employees and groups of employees who are at risk of future ill health and burnout. It could also be used as an instrument for evaluating organizational health-promotive strategies. The results of study II showed that an active-constructive behavioural response (i.e. constructive voice) predicts future psychosocial health and a low degree of burnout. From these findings it is reasonable to assume that strategies which promote active and pro-organizational behaviour, such as empowerment-based health-promotive processes (Arneson, 2006), could be considered as more effective than others, regarding their effect on health.

The results of study III underline an important perspective of modern working life: the experience of organizational justice. During different organizational processes such as, transitions and mergers, not only the distributive aspect of organizational justice should be considered. The procedural and interactional aspects are in many cases just as important as the outcome. An attentive and sensitive leadership, with knowledge of

organizational processes and the importance of employees' subjective experiences of organizational occurrences, is crucial for employee health.

The results of studies I, II, and III together shed light on another important aspect: the relationship between behavioural responses and health. Employees who perceive organizational injustice will often react with destructive behaviour, which, from the perspective of both the organization and the employee, could lead to problems such as decreasing efficacy, and productivity, and increasing individual ill health. Employee discontent, lax and negligent behaviour should be regarded not only as common grumbling, but as possible early indicators of future employee ill health and burnout.

The results of studies IV and V underline the importance of 'pulling' forces in workrelated health-promotive, and rehabilitation processes such as external job mobility have a positive impact on employee health and degree of burnout. From the results of studies IV and V, strategies and structures that facilitate inter-organizational mobility could be regarded as health-promotive. It is also worthy of note that the 'pushing' forces towards job mobility, indicated by high turnover intentions, seem to be associated with *poor* health compared with, as mentioned above, the 'pulling' forces that seem to be associated with *good* health.

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Appendix I

The English-Swedish translation of the Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey (Sullivan, Karlson, & Ware, 1995).

English version (original version)

- 1. In general, would you say your health is:
- 2. *Compared to one year ago,* how would you rate your health in general *now*?
- 3. The following items are about activities you might do during a typical day. Does *your health now limit you* in these activities? If so, how much?
 - Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports
 - b. *Moderate activities*, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf
 - c. Lifting or carrying groceries
 - d. Climbing several flights of stairs
 - e. Climbing one flight of stair
 - f. Bending, kneeling, or stooping
 - g. Walking more than a mile
 - h. Walking several blocks
 - i. Walking one block
 - j. Bathing or dressing yourself
- 4. During the *past 4 weeks*, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?
 - a. Cut down on the *amount of time* spent on work or other activities
 - b. Accomplished less than you would like
 - c. Were limited in the kind of work or other activities
 - d. Had difficulty performing the work or other activities (for example, it took extra effort)

Swedish version (translated version)

- 1. I allmänhet, skulle Du vilja säga att Din hälsa är:
- 2. <u>Jämfört med för ett år sedan</u>, hur skulle Du vilja bedöma Ditt allmänna hälsotillstånd <u>nu</u>?
- 3. De följande frågorna handlar om aktiviteter som Du kan tänkas utföra under en vanlig dag. <u>Är Du på grund av</u> <u>ditt hälsotillstånd</u> begränsad till dessa aktiviteter <u>nu</u>? Om så är fallet, hur mycket?
 - Ansträngande aktiviteter, som att springa, lyfta tunga saker, delta i ansträngande sporter
 - Måttligt ansträngande aktiviteter, som att flytta ett bord, dammsuga, skogs-promenader eller trädgårds-arbete
 - c. Lyfta eller bära matkassar
 - d. Gå uppför flera trappor
 - e. Gå uppför en trappa
 - f. Böja Dig eller gå ner på knä
 - g. Gå mer än två kilometer
 - h. Gå några hundra meter
 - i. Gå hundra meter
 - j. Bada eller klä på Dig
- 4. Under de <u>senaste fyra veckorna</u>, har Du haft något av följande problem i Ditt arbete eller med andra regelbundna aktiviteter <u>som följd av Ditt kroppsliga</u> <u>hälsotillstånd</u>?
 - Skurit ned den tid Du normalt ägnat åt arbete eller andra aktiviteter?
 - b. Uträttat mindre än du önskat?
 - c. Varit hindrad att utföra vissa arbetsuppgifter eller andra aktiviteter?
 - d. Haft **svårigheter** att utföra Ditt arbete eller andra aktiviteter (t ex genom att det krävde extra ansträngning)?

- 5. During the past 4 weeks, have you had any of the following problems with your work or other regular activities as a result of any emotional problems (such as feeling depressed or anxious)?
 - a. Cut down on the *amount of time* you spent on work or other activities
 - b. Accomplished less than you would like
 - c. Did work or other activities *less* carefully than usual
- 6. During the *past 4 weeks*, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?
- 7. How much *bodily* pain have you had during the *past 4 weeks*?
- 8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the house and housework)?
- 9. These questions are about how you feel and how things have been with you during the *past 4 weeks*. For each question, please give the one answer that come closest to the way you have been feeling. How much of the time during the *past 4 weeks*...
 - a. Did you feel full of pep?
 - b. Have you been a very nervous person?
 - c. Have you felt so down in the dumps that nothing could cheer you up?
 - d. Have you felt calm and peaceful?
 - e. Did you have a lot of energy?
 - f. Have you felt downhearted and blue?
 - g. Did you feel worn out?
 - h. Have you been a happy person?
 - i. Did you feel tired?

- Under de <u>senaste fyra veckorna</u>, har du haft något av följande problem i Ditt arbete eller med andra regelbundna dagliga aktiviteter <u>som en följd av</u> <u>känslomässiga problem</u> (som t ex nedstämdhet eller ängslan)?
 - a. Skurit ned den tid Du normalt ägnat åt arbete eller andra aktiviteter
 - b. Uträttat mindre än Du skulle önskat
 - c. Inte utfört arbete eller andra aktiviteter så noggrant som vanligt
- 6. Under de <u>senaste fyra veckorna</u>, i vilken utsträckning har Ditt kroppsliga hälsotillstånd eller Dina känslomässiga problem stört Ditt vanliga umgänge med anhöriga, vänner, grannar eller andra?
- 7. Hur mycket <u>värk eller smärta</u> har du haft under de <u>senaste fyra veckorna</u>?
- Under de <u>senaste fyra veckorna</u>, hur mycket har <u>värken eller smärtan</u> stört Ditt normala arbete (innefattar både arbete utanför hemmet och hushållsysslor)?
- Frågorna handlar om hur du känner Dig och hur Du haft det <u>under de</u> <u>senaste fyra veckorna</u>. Ange för varje fråga det svarsalternativ som bäst beskriver hur Du känt Dig. Hur stor del av tiden under de senaste fyra veckorna...
 - a. ...har Du känt Dig riktigt pigg och stark?
 - b. ...har Du känt Dig mycket nervös?
 - c. ...har Du känt Dig så nedstämd att ingenting har kunnat muntra upp dig?
 - d. ...har Du känt Dig lugn och harmonisk?
 - e. ...har Du varit full av energi?
 - f. ...har Du känt Dig dyster och ledsen?
 - g. ...har Du känt Dig utsliten?
 - h. ...har Du känt Dig glad och lycklig?
 - i. ...har Du känt Dig trött?

- 10. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?
- 11. Hove TRUE or FALSE is each of the following statements for you?
 - a. I seem to get sick a little easier than other people
 - b. I am as healthy as anybody I know
 - c. I expect my health to get worsed. My health is excellent

- 10. Under de senaste fyra veckorna, hur stor del av tiden har Ditt kroppsliga hälsotillstånd eller Dina känslomässiga problem stört Dina möjligheter att umgås (t ex hälsa på släkt, vänner, etc)?
- 11. Välj det svarsalternativ som bäst beskriver hur mycket vart och ett av följande påståenden STÄMMER eller INTE STÄMMER in på Dig.
 - Jag verkar ha lite lättare att bli sjuk a. än andra människor
 - b. Jag är lika frisk som vem som helst av dem jag känner
 - Jag tror att min hälsa kommer att c. bli sämre
 - d. Min hälsa är utmärkt

Appendix II

The Danish-Swedish translation of the Copenhagen Burnout Inventory (Arneson, Bendtsen, & Jansson von Vultée, 2000)

Danish version (original version)

Personal burnout

- 1. Hvor tit føler du dig træt?
- 2. Hvor tit er du fysisk udmattet?
- 3. Hvor tit er du følelsesmæssigt udmattet?
- 4. Hvor tit tænker du: "Nu kan jeg ikke klare mere"?
- 5. Hvor tit føler du dig udkørt?
- 6. Hvor tit føler du dig svag og modtagelig over for sygdom?

Work-related burnout

- 1. Udmatter dit arbejde dig følelsesmæssigt?
- 2. Føler du dig udbrændt på grund af dit arbejde?
- 3. Føler du dig frustreret af dit arbejde?
- 4. Føler du dig udkørt, når din arbejdsdag er slut?
- 5. Er du udmattet om morgenen ved tanken om endnu en dag på arbejdet?
- 6. Føler du, at hver time er en belastning for dig, når du er på arbejde?
- 7. Har du overskud til at være sammen med familie og venner i fritiden?

Client-related burnout

- 1. Føler du, at det er belastende at arbejde med klienter?
- 2. Føler du, at det er frustrerende at arbejde med klienter?
- 3. Bliver du tappet for energi af at arbejde med klienter?
- 4. Føler du, at du giver mere, end du får igen i arbejdet med klienter?
- 5. Er du træt af at arbejde med klienter?
- 6. Er du somme tider i tvivl om, hvor længe du orker at blive ved med at arbejde med klienter?

Swedish version (translated version)

Personal burnout

- 1. Hur ofta känner Du dig trött?
- 2. Hur ofta känner Du Dig fysiskt utmattad?
- 3. Hur ofta är Du känslomässigt utmattad?
- 4. Hur ofta tänker Du "Nu orkar jag inte mer"?
- 5. Hur ofta känner Du Dig slutkörd?
- 6. Hur ofta känner Du Dig svag och mottaglig för sjukdom?

Work-related burnout

- 1. Blir Du känslomässigt uttröttad av Ditt arbete?
- 2. Känner Du Dig utbränd på grund av Ditt arbete?
- 3. Känner Du Dig frustrerad av Ditt arbete?
- 4. Känner Du Dig slutkörd när Din arbetsdag är över?
- 5. Känner Du Dig utmattad på morgonen vid tanken på ännu en dag på jobbet?
- 6. Känner du att varje timme på arbetet är en påfrestning för Dig?
- Har Du tillräckligt med energi för att umgås med familj och vänner på fritiden?

Client-related burnout

- 1. Känner Du att det är påfrestande att arbeta med klienter?
- 2. Känner Du att det är frustrerande att arbeta med klienter?
- 3. Tar arbetet med klienter all Din energi?
- 4. Känner Du att Du ger mer än Du får tillbaka i arbetet med klienter?
- 5. Är Du trött på att arbetat med klienter?
- 6. Är Du tveksam till att Du orkar fortsätta att arbeta med klienter?
Appendix III

The English-Swedish translation of the Hagedoorn et al. (1999) EVLN instrument.

English version (original version)

Instruction:

'Everybody occasionally encounters a problem or a problematic event at work. This can be a difference of opinion with your supervisor, frustrations with regard to the behavior of coworkers, or dissatisfaction, for instance, about a schedule or a specific task you are assigned to do. People tend to react differently to these experiences. On the following pages, several descriptions of possible reactions are listed. Would you indicate how likely it is that you would react to problematic events in the described ways'

Exit

- 1. Consider possibilities to change jobs
- 2. Actively look for a job outside the field of education/health care
- 3. Intend to change employers
- 4. Actively look for a job elsewhere within the field of education/health care
- 5. Look for job advertisements in newspapers to which you could apply
- 6. Intend to change your field of work

Considerate voice

- 7. Try to come to an understanding with your supervisor
- In collaboration with your supervisor, try to find a solution that is satisfactory to everybody
- 9. Try to work out an ideal in collaboration with your supervisor
- Together with your supervisor, explore each other's opinions until the problems are solved
- 11. Try to compromise with your supervisor
- 12. Talk with your supervisor about the problem until you reach total agreement
- 13. Suggest solutions to your supervisor
- 14. Immediately report the problem to your supervisor
- 15. Immediately try to find a solution
- 16. Try to think of different solutions to the problem
- 17. Ask your supervisor for a compromise

Swedish version (translated version)

Instruction:

'Alla människor möter ibland problem eller besvärliga situationer på arbetet. Det kan vara att man inte tvcker samma sak som sin arbetsledare. att retar man sig рå arbetskamraters beteende eller att man inte är nöjd med, till exempel, ett arbetsschema eller en arbetsuppgift som man är satt att utföra. Människor tenderar att reagera olika på dessa upplevelser. På följande sidor är flera beskrivningar av tänkta reaktioner angivna. Kan Du beskriva hur troligt det är att Du skulle reagera på besvärliga arbetssituationer på det sättet som beskrivs?'

Exit

- 1. Överväga möjligheterna att byta arbete
- 2. Aktivt söka jobb utanför Din nuvarande bransch
- 3. Försöka byta arbetsgivare
- 4. Aktivt söka efter arbete inom Din nuvarande bransch
- 5. Söka i platsannonser efter arbeten som du skulle kunna söka
- 6. Försöka byta arbetsområde

Considerate voice

- 7. Försöka komma överens med Din arbetsledare
- Att i samarbete med Din arbetsledare försöka nå en lösning som tillfredställer alla
- Försöka komma fram till en ideal lösning tillsammans med Din arbetsledare
- Tillsammans med Din arbetsledare försöka ta reda på varandras åsikter tills problemen är lösta
- 11. Försöka kompromissa med Din arbetsledare
- 12. Tala med Din arbetsledare tills Ni är fullständigt överens
- 13. Föreslå lösningar för Din arbetsledare
- 14. Omedelbart rapportera problemet till Din arbetsledare
- 15. Omedelbart försöka finna en lösning
- 16. Försöka att fundera ut olika lösningar på problemet
- 17. Fråga Din arbetsledare om Ni kan kompromissa

Patience

- Trust the decision-making process of the organization without your interference
- 19. Trust the organization to solve the problem without your help
- 20. Have faith that something like this will be taken care of by the organization without you contributing to the problem-solving process
- 21. Assume that in the end everything will work out
- 22. Optimistically wait for better times

Aggressive voice

- 23. Describe the problem as negatively as possible to your supervisor
- 24. Try to win the case
- 25. Deliberately make the problem sound more problematic than it really is
- 26. Being persistent with your supervisor in order to get what you want
- 27. Starting a 'fight' with your supervisor
- 28. Try to prove in all possible ways to your supervisor that you are right
- 29. By definition, blame the organization for the problem

Neglect

- 30. Report sick because you do not feel like working
- 31. Come in late because you don't feel like working
- 32. Put less effort into your work than may be expected of you
- Now and then, do not put enough effort into your work
- 34. Missing out meetings because you do not feel like attending them

Patience

- 18. Känna tilltro till organisationens beslutsprocess utan att själv medverka
- 19. Lita på att organisationen kan lösa problemen utan Din hjälp
- Tro på att organisationen tar hand om detta utan att Du bidrar till lösningen av problemet
- 21. Anta att allting kommer att lösa sig till slut
- 22. Optimistiskt vänta på bättre tider

Aggressive voice

- 23. Beskriva problemet så negativt som möjligt för Din arbetsledare
- 24. Försöka få Din vilja igenom
- 25. Medvetet låta problemet låta mer besvärligt än vad det egentligen är
- 26. Vara orubblig gentemot Din arbetsledare för att få det som Du vill
- 27. Starta ett "bråk" med Din arbetsledare
- 28. Försöka att på alla sätt övertyga Din arbetsledare om att Du har rätt
- 29. Skylla problemet på organisationen

Neglect

- 30. Sjukanmäla Dig för att Du inte känner för att arbeta
- 31. Komma försent för att du inte känner för att arbeta
- 32. Lägga mindre möda i Ditt arbete än vad som kanske förväntas av Dig
- Av och till inte lägga ned tillräckligt med möda i ditt arbete
- 34. Missa möten bara för att Du inte känner för att arbeta

Appendix IV

The English-Swedish translation of the Price and Mueller (1986) Distributive Justice Index

English version (original version)

- 1. How *fair* has the hospital been in rewarding you when you consider the *responsibilities* you have?
- 2. How *fair* has the hospital been in rewarding you when you take in account the amount of *education and training* you have?
- How *fair* has the hospital been in rewarding you when you consider the amount of *effort you have put fourth*?
- 4. How *fair* has the hospital been in rewarding you when you consider the *stresses and strains of your job*?
- 5. How *fair* has the hospital been in rewarding you when you consider the *work that you have done well*?

Swedish version (translated version)

- 1. Hur rättvis tycker Du att den uppskattning Du fått från Din arbetsgivare har varit i förhållande till det ansvar Du har?
- 2. Hur rättvis tycker Du att den uppskattning Du fått från Din arbetsgivare har varit i förhållande till Din utbildning och den erfarenhet Du har?
- Hur rättvis tycker Du att den uppskattning Du fått från Din arbetsgivare har varit i förhållande till den möda Du har lagt ned i Ditt arbete?
- 4. Hur rättvis tycker Du att den uppskattning Du fått av Din arbetsgivare varit i förhållande med den stress och anspänning som Ditt arbete medför?
- 5. Hur rättvis tycker Du att den uppskattning Du fått av Din arbetsgivare varit i förhållande till det arbete Du utfört väl?

Appendix V

The English-Swedish translation of the Daly (1995) Procedural Fairness Instrument

English version (original version)

- 1. The organization went about deciding to move in a way that was not fair to me
- 2. The way that management made the relocation decision was not fair to me
- 3. The organization was fair to me in the way that it made the decision to relocate
- 4. The steps that the company took to make the relocation decision were fair to me

Swedish version (translated version)

- 1. Beslut i den här organisationen fattas på ett sätt som är orättvist för mig
- Det sätt som ledningen fattar beslut på i den här organisationen är orättvist gentemot mig
- 3. Organisationen behandlar mig rättvist när den fattar beslut
- Den process som ligger bakom beslut inom den här organisationen är rättvist gentemot mig

Appendix VI

The English-Swedish translation of the Moorman (1991) Interactional Justice Instrument

English version (original version)

- 1. Your supervisor considered your viewpoint
- 2. Your supervisor was able to suppress personal biases
- 3. Your supervisor provided you with timely feedback about the decision and its implications
- 4. Your supervisor treated you with kindness and consideration
- 5. Your supervisor showed concern for your rights as an employee
- 6. Your supervisor took steps to deal with you in a truthful manner

Swedish version (translated version)

- 1. Din arbetsledare tar hänsyn till Dina synpunkter
- 2. Din arbetsledare har en förmåga att dämpa sina förutfattade meningar och personliga åsikter
- 3. Din arbetsledare håller Dig informerad om de beslut som fattas och dessas konsekvenser
- 4. Din arbetsledare behandlar Dig vänligt och hänsynsfullt
- 5. Din arbetsledare tar hänsyn till Dina rättigheter som anställd
- 6. Din arbetsledare strävar efter att vara uppriktig mot Dig