

Predictors of disability retirement: From early intentions to retirement

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Academic dissertation

To be presented, with the permission of the Faculty of Medicine of the University of Helsinki, for public examination in Auditorium PIII, Porthania, Yliopistonkatu 3, on November 16th, 2007, at 12 o'clock noon

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ISBN 978-952-5317-98-5 (paperback)
ISBN 978-952-5317-99-2 (PDF)
Helsinki University Print
Helsinki 2007

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ABSTRACT

The strong tendency of elderly employees to retire early and the simultaneous aging of the population have been major topics of policy and scientific debate. A key concern has been the financing of future pension schemes and possible labour shortage, especially in social and health services within the public sector. The aging of the population is inevitable, but efforts can be made to prevent or postpone early exit from the labour force, e.g., by identifying and intervening in the factors that contribute to the process of early retirement due to disability.

The associations of intentions to retire early, poor mental health and different psychosocial factors with the process of disability retirement are still poorly understood. The purpose of this study was to investigate the associations of intentions to retire early, poor mental health, work and family related psychosocial factors and experiences of earlier life stages with the process of disability retirement.

The data were derived from the Helsinki Health Study (HHS, N=8960) and the Health and Social Support Study (HeSSup, N=25 901). The Helsinki Health Study is an ongoing employee cohort study among middle-aged women and men. The Health and Social Support Study is an ongoing longitudinal study of a working-age sample representative of the Finnish population. The analyses were restricted to respondents 40 years of age or older. Age and gender adjusted prevalence and incidence rates were calculated. Associations were studied by using logistic, multinomial and Cox regression.

Strong intentions to retire early were common among employees. Poor mental health, unfavourable working conditions and work-to-family conflicts were clearly associated with increased intentions to retire early. Strong intentions to retire early predicted disability retirement. Risk of disability retirement increased in a dose-response manner with increasing number of childhood adversities. Poor mental and somatic health, life dissatisfaction, heavy alcohol consumption, current smoking, obesity and low socioeconomic status were also predictors of disability retirement.

The impact of poor mental health and adverse experiences from earlier life stages, work and family related psychosocial factors, e.g., work-family interface, the subjective experience of well-being and health related risk behaviours on the process of disability retirement should be recognised. Preventive measures against disability retirement should be launched before subjective experience of ill health, work disability and strong intentions to retire early emerge.

TIIVISTELMÄ

Elinajan pidentyminen ja toimintakykyisten vuosien lisääntyminen yhdessä varhaisen eläkkeelle siirtymisen kanssa ovat synnyttäneet keskustelua ja huolta kasvavista eläke-, sosiaali- ja terveydenhuollon kustannuksista tulevaisuudessa. Työurien pidentämistavoitteiden saavuttamiseksi on tehty lainsäädännöllisiä muutoksia sekä perustettu erilaisia työssä jaksamista tukevia toimenpideohjelmiä. Tutkimuksen yhtenä tehtävänä on ennalta ehkäisevästä näkökulmasta selvittää työssä uupumisen ja varhaisen eläkkeelle siirtymisen riskitekijöitä.

Tutkimusta tarvitaan erityisesti elämänkaaren eri vaiheiden, mielen terveyden sekä työhön ja perheeseen liittyvien psykososiaalisten tekijöiden merkityksestä eläkkeelle siirtymisprosessissa. Tämä tutkimus keskittyi selvittämään mielen terveyden, erilaisten psykososiaalisten tekijöiden, eläkeaikomusten ja työkyvyttömyyseläkkeelle siirtymisen välisiä yhteyksiä. Tutkimusaineistoina käytettiin sekä Helsinki Health Studyn (HHS, N=8960) että Health and Social Support Studyn (HeSSup, N=25 901) osa-aineistoja koskien 40 vuotta täyttäneiden ja vanhempien vastaajien tietoja varhaiseläkeaikomuksista, terveydestä, psykososiaalisista tekijöistä, lapsuudenaikaisista tapahtumista sekä työkyvyttömyyseläkkeelle siirtymisestä. Pääasiallisina tutkimusmenetelminä käytettiin ikä- ja sukupuolivakioitujen prevalenssi- ja insidenssilukujen laskemista, logistista, multinomiaalista sekä Coxin regressioanalyysia.

Vahvat varhaiseläkeaikomukset olivat yleisiä yli 40 -vuotiailla työntekijöillä. Aikomuksia siirtyä varhaiseläkkeelle lisäsivät alentunut psyykinen terveys sekä erilaiset kuormittavat työhön ja perheeseen liittyvät psykososiaaliset tekijät, mm. työn ja perheen yhteensovittamisvaikeudet. Varhaiseläkeaikomukset ennakoivat vahvasti sairauserusteista eläkkeelle siirtymistä. Mitä enemmän vaikeuksia lapsuuteen oli kasautunut, sitä suurempi oli riski siirtyä työkyvyttömyyseläkkeelle. Masentuneisuus, somaattinen sairastavuus, tytyymättömyys elämän eri osa-alueisiin, tupakointi, merkittävä ylipaino, alkoholinkäyttö sekä alhainen sosioekonominen asema lisäsivät työkyvyttömyyseläkeriskiä. Yksilölliset tekijät, elämänkaaren eri vaiheet huomioiva ja riittävän aikainen puuttuminen työkyvyttömyysriskiä nostaviin riskitekijöihin on olennaista sekä työhyvinvoinnin ylläpidon että työurien pidentämistavoitteiden toteutumisen kannalta.

ABBREVIATIONS

BDI	Beck Depression Inventory
BMI	Body mass index
CI	Confidence interval
ETK	Eläketurvakeskus, the Finnish Centre for Pensions
GHQ	General Health Questionnaire
HeSSup	The Health and Social Support Study
HHS	The Helsinki Health Study
HR	Hazard ratio
ICD	International Classification of Diseases
ICF	International Classification of Functioning, Disability and Health
KEVA	Kuntien eläkevakuutus, the Local Government Pensions Institution
KuEL	Municipal Employees' Pensions Act (Kunnallinen eläkelaki)
LiSat-11	Life Satisfaction Scale
LLI	Limiting Longstanding Illness
MCS	Mental Component Summary
NPA	National Pensions Act
OR	Odds ratio
PCS	Physical Component Summary
SES	Socioeconomic status
SF-36	Short Form-36
SII	Social Insurance Institution (Kansaneläkelaitos, KELA)
TEL	Employees' Pensions Act (Työntekijän eläkelaki)
TyEL	Employees' Pensions Act 1.1.2007-
VaEL	State Employees' Pensions Act 1.1.2007-
VEL	State Employees' Pensions Act

LIST OF ORIGINAL PUBLICATIONS

- I Harkonmäki Karoliina, Lahelma Eero, Martikainen Pekka, Rahkonen Ossi, Silventoinen Karri: Mental health functioning (SF-36) and intentions to retire early among municipal employees: The Helsinki Health Study. *Scand J Public Health*, 2006;34:190-198

- II Harkonmäki Karoliina, Rahkonen Ossi, Martikainen Pekka, Silventoinen Karri, Lahelma Eero: Associations of SF-36 mental health functioning and work and family related factors with intentions to retire early among employees. *Occup Environ Med*, 2006;63:558-563

- III Harkonmäki Karoliina, Korkeila Katariina, Vahtera Jussi, Kivimäki Mika, Suominen Sakari, Sillanmäki Lauri, Koskenvuo Markku: Childhood adversities as a predictor of disability retirement. *J Epidemiol Community Health*, 2007;61:479-484

- IV Harkonmäki Karoliina, Martikainen Pekka, Lahelma Eero, Pitkäniemi Janne, Silventoinen Karri, Halmeenmäki Tuomo, Rahkonen Ossi: Intentions to retire early, life dissatisfaction and the subsequent risk of disability retirement. Submitted 2007

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I. INTRODUCTION

The strong tendency of elderly employees to retire early and the simultaneous aging of the population in the Western industrialised countries have been major topics of policy and scientific debate, particularly during the last decades. It has been estimated that life expectancy for women in established market economies will rise, perhaps reaching the age of ninety during the next two decades (Murray & Lopez 1997). Over the next 25 years, the population in Finland will age more rapidly than the populations of most other OECD countries. The aging of the population and the low employment rates for older workers lead to increasing pension and health care expenditures. Work disability has been the major reason for aging employees low labour market participation rates in Europe. Likewise in Finland the proportion of elderly people receiving a disability pension is high and the current effective retirement age has been low in comparison to other OECD countries. (Levinsky 2000; Gustman & Steinmeier 2001; Prins & Bloch 2001; Prinz 2003; OECD 2004; Stattin 2005.)

In Finland a key concern has been the financing of future pension schemes and the possible labour shortage, especially in the public sector, which has the main responsibility for welfare services. Approximately 250 000 Finnish Local Government employees will retire during the period 2008-2023 (about 50% of the current number of employees) (Halmeenmäki 2007). Figure 1 shows the actual retirement attrition of Finnish Local Government Sector between the years 1997-2006, and Figure 2 shows the estimated retirement attrition by main municipal occupation sectors for the years 2008-2023.

The number of new disability pensions started to grow in Finland in the 1970s. This phenomenon was strongly related to the developed early-exit programmes, labour market policies, industrialisation and urbanisation. During the 1970s and 1980s early retirement schemes with new so-called flexible early retirement pension forms and higher levels of earnings-related pensions clearly supported a policy that promoted older, often low-educated employees, early exit from the labour market. Since the late 1980s the change in the age structure of the population and the tendency of an aging workforce to retire early together with the threat of

labour shortage and growing pension expenditures, have caused serious concern in the Finnish government as well as in many other western countries. (Huunan-Seppälä et al. 2003.)

In Finland these concerns led to the appointment of the Pension Committee in 1990. Based on the proposals of this committee, various projects related to the promotion of good work ability and legislative changes were implemented (e.g., eligibility criteria for the individual early retirement pension and unemployment pension became stricter). In addition to these actions recommendation of the scientific research on the reasons of early retirement was introduced and the clear growth in the research field concerning both employees' retirement intentions and retirement started to emerge. (Eläkekomitea 1991.)

One of the major societal changes since the beginning of the last century has been the enlargement of service work and information technology. (Figure 3) Along with this change demands of work life have also changed rapidly. Work-related health risks in the information society are different than risks in the agricultural and industrial society. On the other hand, the development of medical technology has improved the results of medical treatment. All these features have affected the processes leading to work disability. In the 1970s and 1980s the most common diagnosed causes for disability pension related to cardiovascular and musculoskeletal diseases.

From the 1990s the role of depression and related disorders as diagnosed causes of work disability has increased (Figure 4). However, the overall prevalence of mental disorders including depression has not increased during the last two decades (Aromaa & Koskinen 2002). Possible reasons for the increase in mental disorders as a cause of work disability are highly complex and presumably are related to many factors: diagnostic changes (introduction of ICD-10 in 1996); cultural, attitudinal and societal changes; increasing skill demands and feelings of work insecurity; better screening and diagnosis of depression; possible 'medicalisation' of stressful life events and disappointments, changes in the health care systems and changes in employment and pension policy. (Järvisalo et al. 2005.)

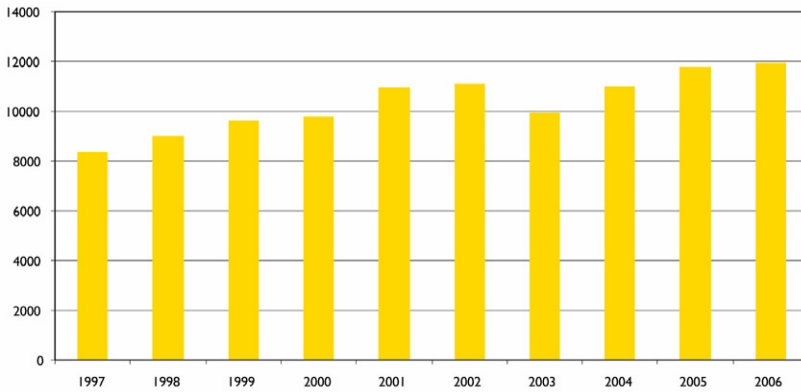
The consequences of poor mental health have been acknowledged, but the associations of different work and non-work related psychosocial factors, mental health and process of disability

retirement are still poorly understood. Despite the large amount of retirement research concerning either retirement intentions or actual retirement, only a few studies have actually examined the association between intentions to retire and early retirement. Past research has mainly concentrated on the 'objective' risk factors for disability retirement, and less is known about the impact of the subjective experience of well-being on the process of early retirement. Also lacking are studies of the process of disability retirement that use prospective longitudinal data and focus on both retirement intentions and actual retirement, including various measures of both work and non-work related psychosocial factors and mental well-being.

A sociological life course approach to the labour force exit stresses that past experiences shape both work and retirement behaviour in later life (Elder 1994; Mutchler et al. 1997; Kim & Moen 2002). An epidemiological life course approach to chronic diseases addresses the long-lasting effect of childhood circumstances on adult health and functioning (Ben-Shlomo & Kuh 2002; Kuh et al. 2003; Elstad 2005). Recent research evidence indicates that vulnerability to depression is influenced by such early life experiences as negative emotional life events, childhood maternal nurturance and parental relationships e.g., the level of parental warmth (Kendler et al. 2002; 2006; Repetti et al. 2002; Chapman et al. 2004; Korkeila et al. 2005; Jokela et al. 2007). However, studies on the impact of earlier life stages to the risk of disability retirement in adulthood are scarce and no studies on the potential cumulative effects of multiple childhood adversities on the risk of disability retirement have been carried out before. Thus, extending the research also to cover potential determinants from earlier stages of life is justified and would increase the understanding of the complex process of disability retirement, especially due to depression and other affective disorders.

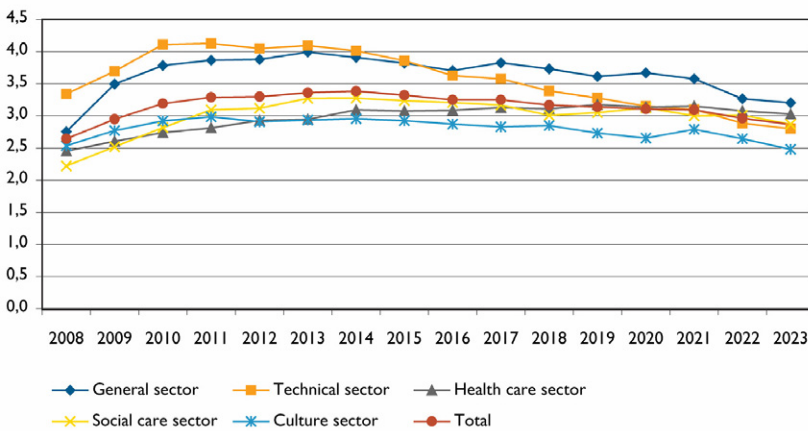
The overall aim of this study was to examine the factors related to increased intentions to retire early, the risk factors of disability retirement and the predictive value of intentions to retire early on the process of disability retirement. Attention was mainly given to the effects of poor mental health and various psychosocial factors including adverse childhood experiences, work and family related factors and the experience of subjective well-being on the process of disability retirement.

Figure 1. Actual retirement attrition of Finnish Local Government Sector between the years 1997-2006 (in number of persons)



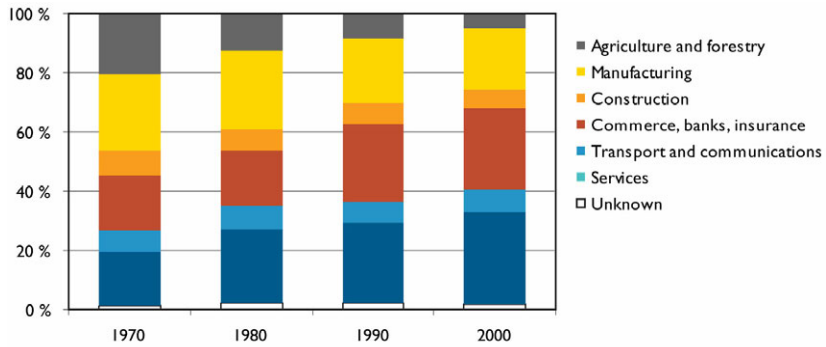
Ref: Halmeenmäki 2007

Figure 2. Retirement attrition of Finnish Local Government Sector by main occupation sectors during the years 2008-2023 (%)



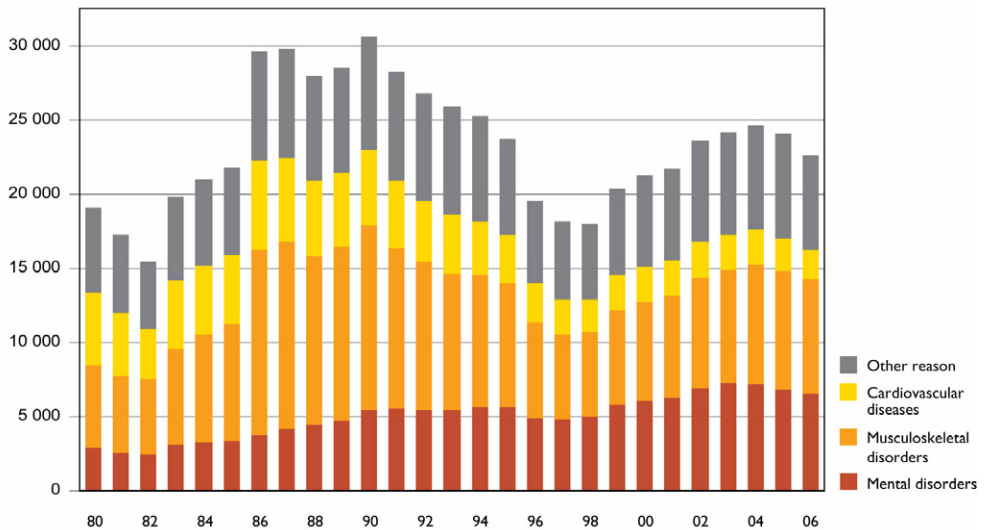
Ref: Halmeenmäki 2007

Figure 3. Economically active population 1970-2000



Ref: Statistical Yearbook of Finland 2004

Figure 4. New disability pensions in Finland 1980-2006 by diagnostic reasons (statutory earnings-related pension scheme, private sector)



Ref: Finnish Centre for Pensions 2007

2. THE FINNISH PENSION SYSTEM AND WORK DISABILITY

2.1 The Finnish pension system

In Finland there are two main pension schemes, the residence-based national pension scheme, which provides minimum pensions to all citizens who have little or no earnings history and the employment-based earnings-related pension scheme, which is aimed to transfer pension rights earned during working years to old age pensions. The residence-based national pension system and the employment-based earnings-related pension make up the first-pillar pension provision. Compared to many other European countries the second-pillar employer-specific pension provision or pension provision based on labour market agreements and the third-pillar pension provision based on private insurance are pretty rare in Finland. (Hietaniemi & Vidlund 2003.)

The national pension scheme and the earnings-related pension scheme together make up the retirement income security, which provides pensions in old age and for reasons of incapacity for work, long-term unemployment and death of the provider. The national pension scheme is administered by the Social Insurance Institution (SII, KELA). The administration of the earnings-related pension scheme is decentralised. Earnings-related pension provision is handled in the private sector by 54 pension providers and coordinated by the Finnish Centre for Pensions (ETK). Public-sector pension provision is handled by the Local Government Pensions Institution (KEVA) and the State Treasury (Valtiokonttori). (Hietaniemi & Vidlund 2003; *Statistical Yearbook of the Social Insurance Institution 2005.*)

Earnings-related pensions are financed jointly by employers and employees. National pensions are financed solely through employer contributions together with tax revenues. Most of the earnings-related pension schemes are partially funded: about a quarter of the pension contributions are funded to cover future pensions. The remaining three quarters are used to finance pensions currently being paid. The target level of Finnish pension provision is 60% of the pensionable earnings (in practice, the level of the pension is often about 50%, due to such things as breaks in the work history). (Hietaniemi & Vidlund 2003.)

In February 2003 the Finnish Parliament approved a large pension reform package concerning private-sector earnings-related pensions. The pension reform (which also applies to the public sector with some minor differences concerning, e.g., the occupation-specific retirement ages) took effect gradually from the beginning of 2005. The aim of this pension reform is to postpone the effective retirement age by two to three years. Aging employees are encouraged to continue in the labour market not only by a bonus accrual but also by improved possibilities for rehabilitation. The age span for accrual of an earnings-related pension was broadened so that the pension accrues on wages earned between the ages of 18 and 68. Retirement on an old-age pension is possible between ages of 63 and 68. It is also possible to take an early old-age pension at the age of 62. Between the ages of 18 and 52, a pension will accrue at the rate of 1.5% of the annual wage. For a person between 53 and 62 years of age the accrual rate will be 1.9%. If a person does not retire at the age of 63 but continues to work, the pension will accrue at an accelerated annual rate of 4.5%. The individual early retirement pension and the unemployment pension were in general abolished, and therefore the remaining pension forms will be old-age, disability, part-time and survivors' pensions. (Niemelä & Salminen 2003.)

During the last century which brought enormous structural changes to Finnish society, from an agricultural society to an industrial and information society, the social security system including pension security also went through major changes. At the beginning of the twentieth century there was no extensive social security system at all in Finland, and the first pension systems included only some privileged occupational groups working for the state and the municipalities. The first major pension legislation was the National Pensions Act of 1937. However, the pension benefits paid were small. The next prominent pension reform took place in 1957, when pensions became flat-rate and means-tested benefits. In 1961 the employment pension scheme (the earnings-related pension scheme) was introduced for the first time and the work performance principle received a much more prominent role in the whole pension security system. (Niemelä 1994.) The most important amendments to the legislation in the pension schemes as of the 1950s are presented in the Appendix, Table 1.

2.2 Definition of work disability

In the Finnish pension system, the granting of a disability pension requires a medically confirmed illness, disease or injury that essentially restricts or prevents working. A long career and working conditions have been admitting criteria especially for the illness-based individual early retirement pension (abolished generally in the year 2005). A disability pension can also be granted as temporary, for example, as a rehabilitation allowance or as a part-time, such as part-time disability pension or part-time rehabilitation allowance. The final decision of a person's work disability is made by the insurance institutions. In other words, in Finland a person's intention and a decision to retire early or a treating physician's statement of the claimant's disability does not necessarily lead to disability retirement. The rejection percentage of all disability pension applications is approximately 20-25%.

The process leading to disability retirement involves three essential concepts: functioning, work ability and assessment of work disability. Functioning is a medical concept that describes the human body functions and/or the individual's capability of reacting and executing activities in his/her environment. Work ability describes the individual's ability to gainful employment. Evaluation of work ability includes always the assessment of functional capacity, occupational skills and education, work history and work tasks. The decision of disability pension eligibility is part of the social insurance system, and the granting of a disability pension is always a judicial decision, which must be legal, valid, fair and based on a medically diagnosed illness. (Aro 2004.)

The legislative definitions of work disability are (Huunan-Seppälä et al. 2003):

“The NPA (National Pension Act): “due to an illness, impairment or injury, is incapable of performing their regular job or other comparable employment considered to ensure a reasonable income, having regard to age, professional skills and other circumstances. Persons permanently blind or unable to move or otherwise reduced to such state of incapacity due to an illness, impairment or injury that they cannot manage without another person's help shall always be considered disabled”

“The TEL (Employees’ Pension Act): “taking into account the time already lapsed, his/her capacity for work can be estimated to have been continuously reduced, due to an illness, impairment or injury, by at least 40%. When reduced work capacity is assessed, the employee’s remaining capacity to earn an income through such available employment which he/she can reasonably expected to perform is taken into account, with further consideration given to his/her education, previous work, age, living conditions and other comparable factors”. The Disability pension is granted to an employee when his/her work capacity is assessed to have been reduced by at least 60%, for 12 months or more. When the work capacity has been reduced by at least 40% a Partial Disability Pension is granted.”

“Under the Statutory Earnings-Related Pension Scheme, both wage and salary earners have a right to a disability pension in the public sector if, during the employment contract, the person “has due to an illness, impairment or injury, become incapable of performing his/her regular employment” This is considered to be occupational incapacity (KuEL, VEL). If, on the other hand, the incapacity appears after the employment contract has ceased, the eligibility for pension is still considered, in relation to employment considered to be suitable, and offering reasonable income, for the claimant, having regard to the claimant’s age, professional skills and other circumstances.”

Models of functioning and disability

Functional capacity and work ability/disability are complex and multifaceted concepts (de Jong 2003). The biopsychosocial model of functioning and disability implies that an individual’s disability could be defined as the result of the interplay between health problems, environmental and personal factors (Waddell et al. 2002). The International Classification of Functioning, Disability and Health (ICF) (WHO 2001) divides the domains of functioning into bodily functions and structures, activities, participation and environmental factors. According to the integrative model (Mäkitalo & Palonen 1994), work ability is an attribute that can not be explained only by the relationship between the individual’s physical, psychological and social capacity and his/her work characteristics. Work ability is formed by the reciprocal effects of an individual’s resources, work tasks, work environment, social relations and employer policy.

The multi-dimensional model (Ilmarinen et al. 2006) implies that work ability should be understood as an outcome of interactions between an individual's resources (health and functioning, skills, values, attitudes), work conditions (work characteristics and demands, work community and organisation, foreman work and leading), occupational health care and labour protection as well as life outside the workplace, including family and other close relationships. It needs to be underlined that the same disease and impairment in a medical sense can lead to a different degree of disability, depending on both objective and subjective dimensions of human life, e.g., occupational status, occupational requirements and work conditions, personality, different life events and conditions outside the workplace.

Health conditions, body functions and body structure, other individual factors and environmental factors may be considered as belonging to the 'objective' dimension of human life. A negative subjective experience of health problems and restrictions as well as a positive subjective experience of, e.g., emotional relationships, social acceptance and one's own coping skills may be seen as a more subjective dimension of human life. According to the modified model of ICF ('a tentative model') (Ueda & Okawa 2005), the subjective dimension of functioning and disability interacts with the objective dimensions (body functions and structures, activities, participation, environment), but also has an independent impact on the process of work disability. The subjective experience of disability includes, e.g., satisfaction with health conditions, participation, individual's values and meaning of life, hope for the future/despair, interest in life/loss of interest, emotional relationships with immediate others, e.g., feelings of being trusted, feelings of being thanked, enjoyment of being with others, isolation, social or group belonging acceptance and basic attitudes to life, e.g., optimistic/pessimistic. Not only medical problems and impairments (ICD-10), but also the subjective experience of well-being and functioning affect both the intentions to retire and the actual retirement.

3. REVIEW OF THE LITERATURE

To be granted a disability pension in Finland, a person must have an illness, disease or injury that essentially restricts or prevents working. Thus, medical reasons are evident predictors of disability retirement. However, it should be noted that the same disease and impairment in a medical sense can lead to a totally different degree of disability depending on occupational status, occupational requirements and work and family related psychosocial conditions and life situation. The impact of earlier life stages and the subjective experience of well-being on the process of disability retirement are not fully known and perhaps are undervalued. Studies are scarce that focus both on the intention to retire early and the actual retirement, including analyses of the complex associations of poor mental health and different psychosocial factors from present and earlier life stages with a risk of disability retirement. A summary of previous studies of intentions to retire early and risk factors for disability retirement are shown in Tables 1 and 2.

3.1 Process of disability retirement

Retirement has been studied and defined in many ways: as an event, as a process, as a role, a status or as a phase of life. Retirement can occur on time (old age retirement) or be premature (early retirement); it can be based on voluntary or involuntary decision-making, and it can be partial or complete. (Atchley 1976; 1979; Beehr 1986; Talaga & Beehr 1989.) Feldman (1994) defines retirement as the exit from a work position or career path taken by individuals, usually after middle age and taken with the intention of decreased psychological commitment to work. Although early exit arrangements usually bridge the period between full employment and receipt of a public old-age pension, bridge employment - employment that takes place after retirement - has become more prevalent. This increasing trend worldwide makes it difficult to discuss and define retirement only as a dichotomous phenomenon or as a discrete event (retired vs. working/not retired). (Kohli & Rein 1991; Guillemard & van Gunsteren 1991; Mutchler et al. 1997; Kim & Feldman 2000; Beehr et al. 2000.)

Based on behavioural action theories (e.g., the theory of reasoned action and planned behaviour), models predicting the process of retirement have been developed and applied in previous research (Hwalek et al. 1982; Morrow 1982; Huhtaniemi 1995). In a process model developed by Beehr (1986), retirement has been divided into three phases: preference to retire, decision to retire and actual retirement. The factors leading to a retirement decision can be divided into personal ones, such as age, health, attitudes and expectations toward retirement; personal finances; and work and non-work related environmental factors, such as job satisfaction, attainment of occupational goals, marital and family life and attitudes of relevant others (Beehr 1986; Henkens & Tazelaar 1997; Beehr et al. 2000).

The modes of early labour market exit can be divided into three routes: disability pathway, unemployment pathway or a voluntary early retirement pathway (Kohli & Rein 1991; Gould 1999; Hytti 2004; Saurama 2004). Economic and structural changes have considerably affected both the development of the pension schemes and the used routes of early exit from the labour market (Kohli & Rein 1991; Gould & Saurama 2004). In Finland, early exit from the labour market in the 1970s took place almost completely through the disability pathway, while in the 1980s the unemployment pathway became common alongside with the disability pathway. In the early 1990s, the growth of mass unemployment and long-term unemployment increased the use of the unemployment pathway (Gould 1999). According to Hytti (1998), Finland as well Germany and the Netherlands belong to the OECD countries that have clearly used pension policies to regulate the supply of labour.

The causes and the consequences of early retirement are highly related to the used routes of early exit from the labour market. Diseases and unemployment are evident reasons for disability retirement and unemployment retirement. Financial incentives, leisure time wishes and a spouse's retirement are considered reasons for early retirement in the case of more voluntary based routes of early exit. For example, a part-time pension, as a combination of work and retirement, is not associated with medical or unemployment eligibility criteria. Disability based 'involuntary' early retirement can also be seen as a mode of decommodification, which relates to the situation in which a welfare state ensures a living for the individual who has lost his/her ability to work due to illness or injury. (Saurama 2004.)

A commonly-used division for the causes of retirement has been the distinction between 'push' and 'pull' factors. In addition to individual related constraints, needs and desires, retirement intentions and actual retirement also reflect broader social practices, which either push aging employees out of the labour market or pull them towards retirement (Kohli & Rein 1991; Feldman 1994; Hytti 1998; Gould 2001; Stattin 2005). Factors related to the causes of early retirement can also be divided into individual factors (micro-level), work related factors (meso-level) and societal factors (macro-level). Age and health, job characteristics, social circumstances and economic factors are usually regarded as push factors, while economic incentives, a spouse's employment status, family size and leisure expectations are regarded as pull factors.

The same event may, however, be rated as either a push or a pull factor, depending on the context and on whether or not the retirement is voluntary (Schultz et al. 1998). In the Finnish pension system, push factors have been considered more important for the retirement process than pull factors, especially in a situation where strong intentions to retire early have emerged (Gould et al. 1992; Hytti 1998). In summary, the process that leads to disability retirement can be seen as a result of the interplay between individual and societal constraints and opportunities, including especially individual health and work related factors, occupational and other socioeconomic factors, current pension and employer policies, pension legislation, attitudes, values, expectations and desires towards work and retirement.

3.2 Sociodemographic factors, intentions to retire and disability retirement

Age has been shown to be the most important individual factor influencing both employees' intentions to retire and early retirement (Huhtaniemi 1995; Taylor & McFarlane Shore 1995). The effect of age on the risk of early retirement is both direct and indirect. Fulfilment of the eligibility criteria for certain pension benefits is often based on the year of birth. In addition, age affects many factors associated with early retirement, e.g., morbidity and work history (Huhtaniemi 1995). In Finland being male has usually been shown to increase intentions to retire early (Lehto & Sutela 1998; Elovainio et al. 2001; Forma & Harkonmäki 2001; Savioja 2005) as well as early retirement, especially due to disability and unemployment (Hytti 1993a; 1993b;

Hakola 2002; Seitsamo 2005). However, the research findings on the role of gender in the early retirement process have been somewhat inconsistent (Forma et al. 2006). In an 11-year follow-up study of Swedish people, a higher risk of disability retirement was found for women than for men (Borg et al. 2004). Also in a recent follow-up study of Danish employees, women were more likely to retire due to disability than men, but few explanations for these gender differences were found (Albertsen et al. 2007). In a 3-year follow-up study of Norwegian men and women with long-term sickness absence (Gjesdal & Bratberg 2002), no gender difference in the overall incidence of new disability pensions was found.

There is notable evidence on the association between low socioeconomic status (SES) and increased morbidity and mortality (Koskenvuo et al. 1981; Marmot et al. 1991; Kaprio et al. 1996; Mackenbach et al. 1997). Socioeconomic health inequalities have also been found for subjective indicators, such as self-rated health (e.g. Cavelaars et al. 1998; Lahelma et al. 2002). In a study of Finnish municipal employees, Lahelma et al. (2005) found SES inequalities for subjective experience of pain or ache, limiting longstanding illness and physical health functioning (SF-36, PCS), but SES inequalities were non-existent or slightly reversed for subjective mental health indicators (GHQ-12, SF-36, MCS).

Large amount of evidence has also been gathered on the associations of SES with the process of early retirement. Low socioeconomic status as measured by low education or low occupational status has shown to increase intentions to retire early (Huuhtanen & Piispa 1991; Gould et al. 1991; Uusimäki 1995; Karisalmi 1998a; Takala 1998; Janatuinen 2001; Forma & Harkonmäki 2001; Elovainio et al. 2003; Siegrist et al. 2007) and the risk of disability retirement (Härkäpää 1992; Månsson et al. 1998; Biering-Sørensen et al. 1999; Krokstad et al. 2002; Husemoen et al. 2004). A 7-year prospective study of Norwegian employees indicated a strong and unexplained effect of education on disability retirement due to back pain. The independent effect of education found was not mediated by occupational class, working conditions or health related risk behaviours (smoking, BMI, alcohol consumption, physical exercise). (Hagen et al. 2006.)

Research findings on the effects of socioeconomic factors on the process of early retirement have been partly inconsistent (Feldman 1994; Talaga & Beehr 1995; Beehr et al. 2000). In

Finland low socioeconomic status has clearly been shown to be a risk factor for early retirement (Hytti 1993a; Janatuinen 2001; Elovainio et al. 2003; Karpansalo et al. 2004), yet in a follow-up study among British civil servants, for example those employees in the higher-paid grades were more likely to retire early than employees in the lower-paid grades (Mein et al. 2000). The inconsistency of the previous research findings especially concerning the effects of financial factors, are probably related to the differences in the social insurance and pension systems with their differing levels of compensation.

In some Finnish studies the relationships between age, occupational status and intentions to retire early have shown u-shaped rather than linear associations. The most aged employees seem to report fewer intentions to retire early than somewhat younger ones (Piispa & Huuhtanen 1995; Forma & Harkonmäki 2001). In a study of retirement intentions among Finnish hospital employees the most retirement-orientated occupational groups were cleaners, laundry and kitchen personnel, but also those employees with the highest occupational status, e.g., administrative personnel, physicists and chemists (Huhtaniemi 1995).

3.3 Health, health behaviours, intentions to retire and disability retirement

Strong evidence has been gathered that indicates that poor health and functioning are related to the process of early retirement, especially due to disability. According to previous research, poor health and functioning are clearly associated with increased intentions to retire early (Gould et al. 1991; Huuhtanen & Piispa 1991; 1993; Piispa & Huuhtanen 1995; Huhtaniemi 1995; Uusimäki 1995; Elovainio et al. 2003; Forma 2004a; Elovainio et al. 2005; Huuhtanen & Tuomi 2006) and a higher risk of disability retirement (e.g., Klockars et al. 1998; Biering-Sørensen et al. 1999; Månsson & Råstam 2001; Janatuinen 2001; Månsson et al. 2002; Krokstad et al. 2002; Gjesdal & Bratberg 2002; Gjesdal et al. 2004; Rytönen et al. 2004). In a register based follow-up study by Kivimäki et al. (2004a), long spells of absence and the total number of sick days strongly predicted disability retirement, especially due to musculoskeletal disorders, among Finnish municipal employees.

In a follow-up study of Finnish men, Karpansalo et al. (2003; 2004; 2005) found that low cardio-respiratory fitness, self-assessed poor health and depression measured at baseline clearly predicted subsequent disability retirement. Men with the highest depression score (HPL, Human Population Laboratory) had almost a 4-fold greater risk of disability retirement due to mental disorders. The corresponding risk ratios were 1.7 for disability retirement due to musculoskeletal disorders, 2.2 due to cardiovascular diseases and approximately 2.0 for other chronic somatic diseases. After adjusting for confounding factors (age, education, occupation, BMI, alcohol consumption, smoking, maximal oxygen uptake and chronic diseases), the association between depression and the risk of disability retirement due to mental disorders attenuated but still remained almost 3-fold. (Karpansalo et al. 2005.)

Health related risk behaviours such as heavy alcohol consumption, smoking and obesity have been shown to be risk factors for increased morbidity and mortality (Kaprio & Koskenvuo 1989; Kauhanen et al. 1997; Hu et al. 2004; 2005a; 2005b; Patja et al. 2005; Ezzati et al. 2005a; 2005b; Järvenpää et al. 2005; Neubauer et al. 2006; Toumbourou et al. 2007). Research evidence has also been gathered indicating that health related risk behaviours are related to increased risk of disability retirement (e.g., Månsson et al. 1996; Manninen et al. 1997; Upmark et al. 1999b; Hagen et al. 2002; Husemoen et al. 2004; Rytönen et al. 2004). However, research findings of the effects of health related risk behaviours have been somewhat inconsistent (Rytönen et al. 2004). For example, the J-shaped association found between BMI and incidence of disability pension (Månsson et al. 1996; Karnehed et al. 2007) was not found in a study by Lund et al. (2001). We actually lack studies on the associations between health related risk behaviours and intentions to retire early among employees. However, in a recent study of Finnish municipal employees, heavy alcohol consumption, smoking and obesity increased the strong intentions to retire early (Harkonmäki et al. 2006).

Some studies have examined the impact of sense of life control and life satisfaction on the process of early retirement. In a study of over 40 year old Finnish employees, a low sense of life control was associated with increased intentions to retire early (Huhtaniemi 1995). In a follow-up study among Finnish municipal employees (Huuhtanen & Tuomi 2006), stressful life events such as loss of a close family member increased the intentions to retire early, while improvement of

good relations with other people and life satisfaction decreased those intentions. In a study by Suominen et al. (2005), a weak sense of coherence (SOC) predicted the subsequent risk of disability retirement among ≤50-year-old Finns. In the previous longitudinal studies conducted with the Finnish Twin Cohort data (Appelberg et al. 1996; Koivumaa-Honkanen et al. 2004a), life dissatisfaction, measured on a four-item life satisfaction scale (Allardt 1973), predicted subsequent disability retirement. In a study of employed Norwegian men and women, Hagen et al. (2002) found that low subjective well-being as measured by general life satisfaction, feelings of being worn out, frequent feelings of loneliness and feelings that getting help if needed is very unlikely predicted the future disability retirement due to back pain.

3.4 Work and family related factors, intentions to retire and disability retirement

There is a large amount of scientific research on the relationship between work related psychosocial factors and health. Over the past 35 years, several work related stress models have been introduced to illustrate the relationship between work characteristics and employee health. The following variables have been studied in the area of work stress assessment: job stressors, strains and health outcomes. (Hurrell et al. 1998; Kivimäki et al. 2006.) Previous studies have found evidence of the association of job strain with various health outcomes, e.g., cardiovascular diseases, metabolic syndrome, self-rated general health and mental health (Johnson & Hall 1988; Kasl 1996; Bosma et al. 1997; Stansfeld et al. 1999; Van der Doef & Maes 1999; de Jonge et al. 2000; Belkić et al. 2000; Cheng et al. 2000; Laaksonen et al. 2006; Chandola et al. 2006). In addition to job strain, poor social support and relations at work, workplace bullying, low organisational justice, poor team climate and conflicts between work and family have been shown to affect the health of employees negatively (Johnson & Hall 1988; Romanov et al. 1996; Kivimäki et al. 2003a; 2003b; 2004b; Chandola et al. 2004; Ylipaavalniemi et al. 2005; Jansen et al. 2006; Ferrie et al. 2006).

Stressful psychosocial working conditions including experience of work insecurity (threat of layoffs and unemployment, rapid changes at work), imbalance between occupational skills and work tasks and workload are also considered to be important factors in the process of early

retirement (McGoldrick & Cooper 1990; Gröhn 1991). Job autonomy, skill variety that an employee perceives, desire to work and positive interaction with others at work have been shown to lessen intentions to retire early (Schmitt & McCune 1981). In a study of retirement behaviour among US male employees Hayward et al. (1989) found that those with low substantive complexity and physically demanding occupations were more likely to retire early than those with more complex and physically less straining occupations.

Previous research has shown that physical and mental work load, job stress, low job control, high job demands, few opportunities for personal development at work, poor leadership skills, threat of involuntary work shift, workplace bullying and conflicts between work and family life increase employees' intentions to retire early (Gould et al. 1991; Huuhtanen & Piispa 1991; 1993; Piispa & Huuhtanen 1995; Huhtaniemi 1995; Janatuinen 2001; Karisalmi 2001; Forma 2004a; 2004b; 2007; Sutinen et al. 2005; Raymo & Sweeney 2006; Siegrist et al. 2007). In a study of Finnish social and health care employees (Elovainio et al. 2005), the association between low job control and intentions to retire early was stronger if job demands were high. In a follow-up study among Finnish municipal employees (Huuhtanen & Tuomi 2006), no significant differences in strong intentions to retire early were found between those in physical work and those in mental work, but during the follow-up, the rate of disability retirement was higher among those engaged in physical work.

In a follow-up study of Finnish men (Karpansalo et al. 2002), heavy physical work was associated with disability retirement, especially due to musculoskeletal disorders. In addition to heavy work and musculoskeletal strain, job dissatisfaction, working in uncomfortable positions, long working hours, unsafe working conditions, mental job strain, experienced discrimination by a supervisor and demanding jobs with little authority have been shown to be the risk factors for disability retirement (e.g., Krause et al. 1997; Klockars et al. 1998; Janatuinen 2001; Krokstad et al. 2002; Blekesaune & Solem 2005).

In a study of over 10 000 Finnish adults (Elovainio et al. 2003), the associations of social support measured by social network size and network heterogeneity with early retirement (N=10 489) and retirement preferences (N=7759) were studied. Low social support showed no independent

association with retirement preferences among men. Women with low social network size were more likely not to report early retirement preferences than other women. Low social network size and network heterogeneity were associated with early retirement, suggesting that being retired before the age of 55 years may be predicted by a low level of social support. A 4-year follow-up study of Finnish men (Krause et al. 1997) showed that social support from supervisors and an ability to communicate with co-workers reduced the risk of disability retirement. Hagen et al. (2002) found in a 7-year follow-up study among Norwegian employees that low social support increased the risk of disability retirement.

In a study by Appelberg et al. (1996), a higher risk of work disability was found for those employees with interpersonal conflicts in the workplace. Organisational downsizing was shown to increase the subsequent risk of disability retirement in a study by Vahtera et al. (2005). Poor work time control and long hours in paid and domestic work have been shown to increase the risk of work disability as measured by sickness absences (Ala-Mursula et al. 2004; 2005; 2006). However, as compared to the more individual related factors such as own health and finances, there has been relatively little research on the impact of different work related psychosocial factors on the process of early retirement (Beehr et al. 2000).

Marital status, a spouse's employment status and the number of dependents have been shown to affect the timing of retirement and the intentions to retire (Henretta et al. 1993; Talaga & Beehr 1995; Henkens & Tazelaar 1994; Henkens 1999; Reitzes et al. 1998; Szinovacz et al. 2001; Forma 2004b). Studies conducted in the United States (US) have usually found that a husband's retirement especially increases the probability of the wife's retirement (Blekesaune & Solem 2005). In a study of retirement behaviour among aging US employees (Talaga & Beehr 1995), having dependents living in the household and the poor health of a spouse clearly increased the probability of retirement for women, but not for men.

In previous studies, having a retired spouse has usually been shown to increase both the intentions to retire early and actual early retirement (Gould et al. 1991; Gould & Takala 1993; Hytti 1993b; Henkens & Tazelaar 1994; Feldman 1994; Seitsamo 2005). However, in a study by Talaga & Beehr (1995), women with a retired spouse actually worked more hours per week than

those with a working husband. According to Hytti (1993b), applying for a disability pension in Finland is more common among those whose spouse is already retired and those who are divorced or widowed as compared to those who are married with a working spouse. In the longitudinal study of Norwegian working aged people, Krokstad et al. (2002) found that being divorced or separated increased the risk of disability retirement among 20-49 year-old women. However, the found relative differences of marital status in disability retirement have been considered to be smaller than those, e.g., in mortality (Koskenvuo et al. 1978; 1979; Hytti 1993b).

Studies of the impact of earlier life stages on the process of disability retirement are scarce. In a study by Upmark & Thundal (2002), unfavourable conditions during childhood and adolescence predicted disability pension and sickness absence in adulthood among Swedish women. In another Swedish study of young men, adjustments for unfavourable conditions (e.g., low social class of origin, a father who often drank alcohol, own risk behaviour during upbringing and adolescence, low emotional control) significantly attenuated the risk of disability pension found for lower socioeconomic groups (Upmark et al. 2001). Two earlier studies based on the same cohort of Swedish young men (Upmark et al. 1997; 1999a) also showed that psychiatric diagnosis at the time of conscription, low emotional control, medication for nervous problems, unemployment and own risk behaviour were associated with a higher risk of disability pension. The potential cumulative effects of multiple childhood adversities on the risk of subsequent disability retirement were not examined in these studies.

3.5 Predictive value of intentions to retire

Despite the large amount of retirement research concerning either intentions to retire or actual retirement, only a few studies have actually examined the association between intentions to retire and actual retirement (Lamphere 2000; Henkens & Tazelaar 1997). The results from these studies indicate that the association between retirement intentions and retirement depends on the time-span between the measurement of intentions and the actual retirement: the closer the time of retirement, the better the predictive value of the intentions (Prothero & Beach 1984; Anderson et al. 1986; Ekerdt et al. 1989; Henkens & Tazelaar 1997).

Only a few studies conducted in Finland with the data including both employees' intentions to retire early and actual retirement events have examined the predictive value of intentions to retire early. The results from these few studies have shown that employees who intended to retire early also do so more often than those with no intentions to retire (Gould 1994; Uusimäki 1995; Huhtaniemi 1999; Huuhtanen & Tuomi 2006). However, we lack studies on the predictive value of intentions to retire early and especially on the factors contributing to the association between intentions to retire and actual early retirement due to disability. The process of early retirement usually takes years and is affected by many factors, including health, work and non-work related different psychosocial factors and life-events.

3.6 Summary of previous studies

As a summary of the past research, previous studies of factors associated with the process of disability retirement have focused more on individual related factors, such as aging and poor physical health, than on the complex associations of mental health and various psychosocial work and family related factors with the process of disability retirement. Studies of the effects of earlier life stages and exposure to negative psycho-emotional life events on the risk of disability retirement are sparse. No studies on the potential cumulative effects of multiple childhood adversities on the risk of subsequent disability retirement have been carried out before. In addition, intentions to retire and actual retirement have usually been studied separately, and only a few studies have examined the predictive value of intentions to retire early.

Because of the differing measurements of retirement intentions and retirement and differences in social security systems, including pensions and compensation levels, the findings concerning the factors related to the process of early retirement are not fully comparable between the international and the Finnish studies of early retirement (Feldman 1994; de Jong 2003). A considerable amount of research concerning employees' retirement intentions has been done in the United States, where retirement intentions have commonly been measured by asking the planned/intended retirement age (in how many years, at what age) and the expected form and the timing of retirement. Thus, the following summary of previous studies concerning intentions to retire early shown in Table 1 mainly includes Finnish studies from the 1990s onwards. The

selected time period relates to the clear growth of the research on employees' retirement intentions from the beginning of the 1990s onwards.

In previous national and international prospective studies on the risk factors of disability retirement, retirement status has been either obtained from a follow-up questionnaire or from official pension registers. Longitudinal studies on the risk factors for disability retirement from the 1990s onwards are shown in Table 2. The time period from the 1990s onwards was selected because the majority of the previous research on the risk factors for disability retirement has been conducted since the beginning of the 1990s (see e.g., Karpansalo 2006).

Table 1. Studies on the factors related to retirement intentions from the 1990s onwards.

Authors	Study design	Distribution of retirement intentions, factors related to retirement intentions, predictive value of retirement intentions
Huuhtanen & Piispa 1991; 1993 Piispa & Huuhtanen 1995	35 -65 year-old employees in Finland. Phone interviews: 1990, N=878 1992, N=1175 1994, N=1395	1990: men: no intentions 35%, weak 49%, strong/application 16%; women: no 36%, weak 51%, strong/application 13%. 1992: men: no 41%, weak 43%, strong/application 16%; women: no 45%, weak 43%, strong/application 12%. 1994: men: no 41%, weak 47%, strong/application 12%; women: no 41%, weak 47%, strong/application 12%.
Gould et al. 1991; Gould 1994	50-64 year-old private sector employees in Finland. Questionnaire 1990, N=791 Questionnaire 1993, N=650 (follow-up)	Increased intentions to retire early: low work ability (index), longstanding illnesses, uncertainty concerning occupational activity after two years, mental symptoms, aging, low occupational status, lack of prestige at work, stressful working conditions, e.g. time pressures, low job control and high job demands, experienced importance of non-work related life areas, e.g., leisure time. 1990: 50-54 year-old: no intentions 40%, weak 43%, strong 14%, application 3%; 55-64 year-old: no 27%, weak 38%, strong 25%, application 10%. Retirement orientated: Poor health, physical and mental work load, monotonous work, unpleasant work environment, difficult work time conditions, job insecurity, low income, incentive wage, industrial work. Follow-up, retired: retirement orientated 21%; work orientated 4%.
Rasku 1993; Rasku & Kinnunen 1995	45-49 and 55-59 year-old teachers in Finland. Questionnaire 1991, N=1012	45-49 year-old: no intentions/retirement age 55 years 16-77% (5 different teacher groups), weak 12-50%, strong/application 11-40%. 55-59 year-old: no intentions 11-35%, weak 31-40%, strong 27-58%. Increased intentions to retire early: poor health and functioning, mentally demanding work, desires to allocate more time for family and for hobbies, having worked enough (especially in the age group of 55-59 years), low sense of coherence.
Henkens & Tazelaar 1994; 1997	59 year-old (or 40 years employment history) civil servants who work for the Dutch national government and who were less than 1 year from the moment of eligibility for early retirement. Questionnaire 1991, N=1015 'Do you intend to use the opportunity to retire early?'	Intentions to retire early 77% (before the age of 65). Poor health, family situation: number of dependents and marital status. Intention to retire decreased if the number of dependents was high or if a person was divorced or widowed. Intentions were higher when spouse/friends were already retired. Intentions of early retirement were lower if there were expectations of the financial drawback and the loss of social contacts. No effects of the financial-economic variables were found. Follow-up three years after in 1997: 83% of all respondents had retired early, about 20% of the respondents showed discrepancy between intentions to retire and actual retirement behaviour. The opportunity structure and the evaluation of the consequences of early

	Yes, no, I don't know. Follow-up in 1994. Information on the retirement status was obtained from the Central Salary Administration.	retirement were concluded to be important factors in the process of early retirement.
Huhtaniemi 1995; 1999	40-65 year-old employees at Turku University Central Hospital, Finland. Questionnaire, N=362, and individual interviews, N=51, 1993. Follow-up in 1998. Questionnaire, N=160	No intentions 37%, weak 46%, strong 14%, application 4%. The low sense of life control, psychological stress symptoms, physical health concerns, job stress and low social support increased intentions to retire early. Interaction effect between other explanatory variables and the level of the sense of life control was found. Intentions to retire early predicted subsequent retirement.
Uusimäki 1995	55 year-old people living in the city of Oulu, Finland. Questionnaires and clinical examinations, 1990/1991; 1992 N=780; 752. Follow-up in 1994, register linkage, N=548. Work/retirement orientation (At this moment do you have intentions to retire early? No/yes/don't know, those answering 'yes' were classified as retirement orientated)	Retirement orientated 30%: low socioeconomic status, marital status (being divorced/widowed) poor health (longstanding illnesses, pain, sleeping problems, depressive symptoms, self-rated health, work ability, functional capacity, sickness absences), industrial work, early start of gainful employment, dissatisfaction with work/work environment, adverse physical factors, negative attitude toward work, job demands, physical and mental work load. Follow-up: retired/application: retirement orientated about 50%, work orientated about 20%.
Karisalmi 1998a; 1998b	50-64 year-old private sector employees in Finland. Questionnaire 1996, N=1230	Retirement intentions: 50-54 year-old: no 66%, weak 25%, strong/application 9%; 55-64 year-old: no 46%, weak 37%, strong/application 18%. Combined measure was formulated to study the attitude of staying at work/move into retirement. Intentions to retire: low work ability (index), low occupational status, stress symptoms and low job control.
Takala 1998	Finnish persons who have been sicklisted for more than 60 days (sample of 3401 persons in 1996), Postal survey, N=2504	No intentions 17%, weak 29%, strong 38%, application 17%. Increased intentions to retire early: low education and income, physical and mental work load, low job control, poor self-rated health, work ability, somatic diseases and mental disorders.
Janatuinen 2001	Government employees in Finland. Questionnaire 1997, N=1823	The best alternative in the future (concerning own work): Disability/individual early retirement/unemployment pension (6%): especially over 55 year-old, low education and occupational status, limiting longstanding illness, low mental and physical health and functioning, low sense of coherence, mental and physical

Elovainio et al. 2001	Finnish social and health care personnel. Questionnaire 1999, N=3072	work load, workplace bullying, low job decision latitude and low possibilities of personal development at work, instability of work position.
Forma & Harkkonmäki 2001	Four occupational groups working in the Finnish Local Governments: the municipal leaders, representatives of personnel administration and municipal occupational health care, shop stewards of the Trade Union for the Municipal Sector. Questionnaire 2000, N=1453	Strong intentions to retire/application: physicians 13%, social workers 10%, nurses (trained) 3%, assistant maids and cleaners 8%. Problems with team work and time pressure. Municipal leaders: no intentions 32%, weak 43%, strong 24%, application 1%. Personnel administration: no 41%, weak 43%, strong 16%. Occupational health care: no 52%, weak 35%, strong 13%, application 1%. Shop stewards: no 28%, weak 43%, strong 28%, application 2%. Age, poor health, stress, being a male increased intention to retire early (the most aged respondents reported fewer intentions to retire early than somewhat younger ones). With regard to the municipal leaders negative evaluation concerning the state of the municipal economy and its future trends were positively correlated intentions to retire early.
Karisalmi 2001	Finnish employees of metal industry, N=1435 and retail trade, N=1164, Questionnaire 1998	Metal industry: no intentions 29%, weak 43%, strong 22%, (pension saving 5%). Retail trade: no 38%, weak 39%, strong 19% (pension saving 3%). Intentions to retire early were more common among employees in the metal industry. High mental job demands (retail trade), low job control (metal industry), low self-rated work ability, mental distress, experienced poor supervision, low motivation to continue at work, being a manual worker increased intentions to retire early.
Elovainio et al. 2003	Full-time employees aged 40-55 years in Finland (the Health and Social Support Study). Questionnaire 1998, N=7759	No/only weak intentions: 75%, strong/application 25%. Increased intentions to retire: male, low occupational training, poor self-rated health; lack of social relations was not associated with increased intentions to retire early.
Forma 2004a; 2007	Municipal employees in Finland (the Local Jobs 2010 –study). Questionnaire 2003, N=2515	No intentions 35%, weak 42%, strong 22%, application 1%. Increased intentions to retire early: low education, married/cohabiting, poor self rated health, longstanding illnesses, poor physical and mental work ability, stress, exhaustion symptoms, unpleasant work environment (atmosphere, poor leading), threat of involuntary work shift and unemployment, imbalance between occupational skills and work tasks, high job demands and low job control, mental and physical work load, difficulties in reconciling work and family.
Savioja 2005	Those people living in Finland in 1998 (born in 1945-50 & controls: 1935-1944/1951-1970). Questionnaire 1998, N=2262	Born in 1945-50: no intentions 28%, weak 40%, strong 31%, application 1%. Born in 1935-1944: no 25%, weak 33%, strong 33%, application 8%. Born in 1951-1970: no 47%, weak 38%, strong 14%, application 1%. Born in 1945-50, increased intentions to retire early: male, uncertainty concerning coping at work, the number of years in gainful employment (only in women), poor health.

Elovainio et al. 2005	20-65 year-old employees in Finnish social and health care. Questionnaire 1999, N=3072	Responses to the two questions on early retirement thoughts were summed and dichotomised (surely will not cope until official retirement age/seriously considered seeking a pension/applied for a pension vs. others). Low education, poor self-rated health, poor job control and high job demands. Interaction effect of job control and job demands on retirement intentions were found: low job control was more strongly associated with retirement thoughts among those with high job demands. Association between job characteristics and retirement thoughts were stronger among employees over 45 years.
Sutinen et al. 2005	Hospital physicians, who were employed in 1997 & 1998, three hospital districts in Finland: Varsinais-Suomi, Kanta-Häme, Vaasa. Questionnaire, N=447	Retirement attitudes included two questions concerning considerations of applying for a disability pension/other pension and whether to choose between work and retirement. Low job control, poor teamwork and unjust supervision were associated with increased intentions to retire.
Huuhtanen & Tuomi 2006	Aging municipal employees in Finland. A follow-up study during 1981-1997. Employees at work in 1992 (intentions to retire) and retirement status in 1997. Questionnaires, N=1067. Retirement status in 1997 was also confirmed from the registers.	No intentions 27%, weak 45%, strong 21%, application 7% in 1992. (Strong intentions/application: men 32%, women 26%). Physical and mental workload, low stimulation of work, low work motivation, life dissatisfaction, low sense of life control, stressful life events, poor health, fear of future and poor finances. 60-64 year-old employees had fewer intentions to retire early than 55-59 year-old. Strong intentions to retire early predicted subsequent disability retirement.
Gould & Polvinen 2006	50-64 year-old participants of the Health 2000 –study, Finland 2000-2001. Questionnaire/interview/pension registers, N=2071	Strong intentions to retire early: men 32%, women 26%. Increased intentions to retire early: poor self rated work ability, low work motivation, physical and mental work load. Older men had fewer intentions to retire early as compared to women in the same age group and to somewhat younger men. Especially among the 50-54 year-old men health and motivation problems were strong correlates of intentions to retire early.
Raymo & Sweeney 2006	52-54 year-old respondents of the 1992 Wisconsin Longitudinal Study (WLS). Telephone interview and questionnaire, N=4106. Retirement preferences as the dependent variable was a measure of whether respondents preferred to be	Full-time work 15%, part-time work 23%, not working 62%. Higher levels of conflicts between work and family, being a female, having a higher net worth, being eligible for an employer-sponsored pension by age 62, having impaired health, being government employee rather than salary worker/private wage were positively associated with intentions to retire.

Harkonmäki 2006	fully, partially, or not at all retired 10 years in the future. Municipal employees in Finland (the Local Jobs 2010 –study). Questionnaire 2006, N=890	Strong intentions to retire 2006: 29%; will retire as soon as possible: 50%; even as healthy will not continue working after the age of 63: 56%. Lower occupation-specific retirement ages. Employees in the sector of health care were the most retirement orientated occupational group. After adjustment for the retirement ages the differences in intentions to retire early between the working sectors no longer were statistically significant.
Siegrist et al. 2007	Men and women aged 65 or less reporting to do any paid work from the data of the 'Survey of Health, Ageing and Retirement in Europe' (SHARE, 10 European countries). Interviews/Questionnaires, N=6836. Intended retirement was measured by the question: Thinking about your present job, would you like to retire as early as possible? Yes/no.	Intentions to retire early ('yes') 49%. The prevalence varied across countries from 30% in the Netherlands to 67% in Spain. Increased intentions to retire early: poor quality of work (low job control, JCQ, effort-reward imbalance, ERI), low education, poor self-rated health, depressive symptoms (CES-D), low physical health as measured by the number of bodily symptoms, being a male, poor quality of life (CASP-12).

Table 2. Prospective studies on the risk factors for disability retirement.

Authors	Study design	Risk factors for disability retirement
Härkäpää 1992	35-54 year-old blue-collar Finnish employees with chronic low-back pain. Questionnaire, medical examinations (pre-treatment examination, one treatment period, refresher programme after 1.5 year and five follow-ups). Approximate follow-up 4.5 years. Outcome: disability pension granted by June 1988: no/yes. N=476	Older age, being a wage-earner (vs. self-employed subjects), higher anxiety scores, weaker beliefs in internal control over back pain, poor accomplishment of home exercise program. Only in half of the cases the main reason for disability retirement was low back pain. The found psychosocial risk factors of disability retirement were concluded to be common to different kinds of disability processes.
Appelberg et al. 1996	24-64 year-old Finnish employees (the Finnish Twin Cohort -study). A 6-year follow-up. N=15348. Mail survey in 1981. Information on disability retirement from the nationwide register of the Social Insurance Institution 1982-1987.	Interpersonal conflict at work among women. Life dissatisfaction among both genders. Monotonous work, neuroticism, experienced stress of daily activities among men.
Månsson et al. 1996	Five complete birth-year cohorts (1926-1930) of male residents of Malmö, Sweden. Health screening program in 1974-1978 (questionnaire items and laboratory tests). An 11-year follow-up. N=5926. Information on disability retirement from the nationwide register of the National Social Insurance Board.	Being underweight, overweight and obesity (J-shaped relation between body mass index and incidence of disability pension). Musculoskeletal diseases, cardiovascular diseases and mental disorders accounted for 67% of all main diagnoses in granted disability pensions.
Krause et al. 1997	42, 48, 54 or 60 year-old Finnish men (the Kuopio Ischemic Heart Disease Risk Factor Study). Baseline examinations between the years 1984-1989. A 4-year follow-up (on the average, range 3.8-5.2). N=968. Disability retirement status was	Heavy work, musculoskeletal strain, repetitive or continuous muscle strain, job dissatisfaction, working in uncomfortable positions, long working hours, noise at work, physical and mental job strain. Social support from supervisors and ability to communicate with co-workers reduced the risk of disability retirement.

Manninen et al. 1997	ascertained by the questionnaire. 18-64 year-old Finnish farmers. A 10-year follow-up. N=8655. Health survey in 1979. Information on disability retirement from the nationwide register of the Social Insurance Institution 1980-1990.	High psychological distress (SCL-90) (strongest associations when disability retirement was caused by mental disorders and cardiovascular diseases). Also body mass index, smoking.
Upmark et al. 1997	Young Swedish males who were conscripted for compulsory military service between 1969 and 1970. Questionnaire, follow-up until 1992. N=49321. Information on disability retirement from the National Social Insurance Board.	Psychiatric diagnosis at time of conscription, low emotional control, medication for nervous problems, remedial class, unemployment. Disability pension with alcohol-related diagnosis: risk use of alcohol, psychiatric diagnosis, contact with police or a child welfare authority.
Månsson et al. 1998	Five complete birth-year cohorts (1926-1930) of male residents of Malmö, Sweden. Health screening program in 1974-1978 (questionnaire items and laboratory tests) An 11-year follow-up. N=5782. Information on disability retirement from the nationwide register of the National Social Insurance Board.	Low socioeconomic status even after adjusting for work conditions and other risk factors for disease: smoking, hypertension, body mass index, S-gammaglutamyltransferase, S-cholesterol.
Klockars et al. 1998	Aging municipal employees in Finland. An 11-year follow-up study 1981-1992. Questionnaire: employees at work in 1981, N=6257. Information on disability retirement status was confirmed from the registers in 1992.	Diagnosed illnesses, physical and mental stress symptoms, pain and aches, heavy work, working in uncomfortable positions, unsafely working conditions, mentally demanding work, smoking, low physical activity.
Upmark et al. 1999a	Young Swedish males who were conscripted for compulsory military service between 1969 and 1970. Questionnaire, follow-up until 1993. N=41702. Information on disability retirement from the National Social Insurance Board.	Disability pension with a psychiatric diagnosis: psychiatric diagnosis at conscription, low emotional control, unemployment, ranking low on an "IQ" test. Disability pension with non-alcohol- and non-drug related psychiatric diagnoses: low social support at adolescence. Disability pension with an alcohol- or drug-related diagnosis: signs of extrovert deviant behaviour.
Månsson et al. 1999	Five complete birth-year cohorts (1926-1930) of male residents of	Alcohol over consumption and teetotalism. Moderate alcohol intake was found to decrease the risk of subsequent disability retirement.

	Malmö, Sweden. Health screening program in 1974-1978 (questionnaire items and laboratory tests) An 11-year follow-up. N=3751. Information on disability retirement from the nationwide register of the National Social Insurance Board.	
Biering-Sørensen et al. 1999	Four birth-year cohorts (1918, 1928, 1938, 1948) living in the Municipality of Glostrup (Copenhagen), Denmark. Health survey in 1977-78. A 15-year follow-up. N=892. Information on disability retirement from the Registry for Early Retirement Pension.	Age, general health variables: dyspnoea, colic, nervousness, previous operations and hospitalizations, low general health risk-score by a doctor, self-reported poor general health, high body mass index, low peak flow and isometric endurance of the back muscles, unemployment and sick leave, low physical activity in leisure time, smoking and self-assessed worse physical condition than those at the same age.
Upmark et al. 1999b	20-52 year-old Swedish people (the Stockholm Health of the Population Study, HPS). Questionnaire, interview and health examination 1984-1985. A 7-year follow-up. N=1855. Information on disability retirement from the National Social Insurance Board.	Self reported high alcohol consumption (obtained from the postal questionnaire and telephone interview). Poor self-rated health, being a manual worker (only in women).
Månsson & Råstam 2001	Five complete birth-year cohorts (1926-1930) of male residents of Malmö, Sweden. Health screening program in 1974-1978 (questionnaire items and laboratory tests). An 11-year follow-up. N=5800. Information on disability retirement from the nationwide register of the National Social Insurance Board.	Poor self-rated health. After adjustment for premorbidity/medication the association between poor self rated health and disability retirement maintained strong.
Janatuinen 2001	Government employees in Finland, who had participated in the early rehabilitation programme during 1992-1993. Questionnaire/(interview), N=119 (22). Information on disability	Poor self-rated health and work ability, poor mental well-being, exhaustion, low education and occupational status, negative work characteristics, such as physical workload, experienced discrimination by supervisor, being 'marked' as a low motivated worker, demanding jobs with little authority, personnel cutbacks.

	retirement from the register of the State Treasury.	
Lund et al. 2001	Danish waste collectors and municipal workers. A questionnaire-based survey in 1994. A 2.5-year follow-up. N=2618. Disability retirement status was ascertained by questionnaire.	Low skill discretion, prevalent diseases, underweight, smoking.
Upmark et al. 2001	Young Swedish males who were conscripted for compulsory military service between 1969 and 1970. Questionnaire/register, the National Population and Housing Census of 1975. N=33609. Information on disability retirement during 1971-1993 from the National Social Insurance Board.	Low socioeconomic status, the highest risk was found for unskilled manual workers. Adjustments for unfavourable conditions during upbringing (e.g. low social class of origin, father's problem with alcohol abuse, own risk behaviour during upbringing and adolescence, low emotional control) significantly attenuated the risk of disability retirement found for lower socioeconomic groups.
Månsson et al. 2002	Five complete birth-year cohorts (1926-1930) of male residents of Malmö, Sweden. Health screening program in 1974-1978 (questionnaire items and laboratory tests) An 11-year follow-up. N=5798. Information on disability retirement from the nationwide register of the National Social Insurance Board.	Poor self-rated health and medication. Also clear evidence of synergism between these two factors was found (the strong combined risk of poor self-rated health and medication).
Upmark & Thundal 2002	A stratified population-based sample of women in Göteborg, Sweden (original sample, N=3130, comprised women born in 1925, 1935, 1945, 1955, 1965, mailed questionnaires) Subsample: Interview, N=284. Information on disability retirement from the local Social Insurance Office.	Unfavourable conditions during childhood and adolescence, e.g. negative feelings from childhood, parents' problems with drinking, not living with both parents at the age of 18 years.
Karpansalo et al. 2002	42-65 year-old men from eastern Finland (the Kuopio Ischemic Heart Disease Risk Factor Study, KIID).	Lifting, static muscular loading, uncomfortable work positions. Physical workload increased the risk of disability retirement especially due to musculoskeletal disorders.

	Baseline examination/interview 1984-1989. Follow-up from the baseline examination up to the year 2000. N=1755. Information on disability retirement from the Social Insurance Institution and the Finnish Centre for Pensions.	Low level of education, low self-rated health, physically demanding work, low job control, longstanding health problem, unemployment (20-49 year-old men), separated/divorced (20-49 year-old women), low subjective well-being (men), current smoking, physical inactivity (50-66 year-old).
Krokstad et al. 2002	20-66 year-old Norwegian people (the Nord-Trøndelag Health Study, HUNT). Questionnaires/health screening in 1984-1986. A 10-year follow-up. N=62369. Information on disability retirement from the National Insurance Administration Database.	Physically demanding work, poor general health, feeling of being worn out, low social support, current smoking, body mass index in the upper percentile.
Hagen et al. 2002	25-59 year-old employees in the Norwegian county of Nord-Trøndelag in 1985. (the Nord-Trøndelag Health Study, HUNT). Questionnaires/health screening in 1984-1986. A 7-year follow-up. N=34754. Information on disability retirement because of back pain from the National Insurance Administration Database.	
Gjesdal & Bratberg 2002	Under 60 year-old Norwegian people (the KIRUT database is drawn from several public registers e.g. Statistics Norway). A 3-year follow-up. N=14657. Information on disability retirement from the National Insurance Administration Database.	Age, duration of the sickness spells, part-time work increased the risk of disability retirement (higher levels of education and having children below 7 years in women reduced the risk).
Karpansalo et al. 2003	42-60 year-old men from eastern Finland (the Kuopio Ischemic Heart Disease Risk Factor Study, KIID). Baseline examination/interview 1984-1989. Follow-up from the baseline examination up to the year 2000. An	Cardiorespiratory fitness (maximal but symptom limited exercise test on an electrically braked cycle ergometer). After adjustment for age, body mass index, alcohol consumption, smoking, socioeconomic status and baseline chronic diseases an inverse association was found between cardiorespiratory fitness and the risk of disability retirement especially due to cardiovascular diseases.

Karpansalo et al. 2004	<p>11-year follow-up (average). N=1307. Information on disability retirement from the Social Insurance Institution and the Finnish Centre for Pensions.</p> <p>42-60 year-old men from eastern Finland (the Kuopio Ischemic Heart Disease Risk Factor Study, KIID). Baseline examination/interview 1984-1989. Follow-up from the baseline examination up to the year 2000. N=1748. Information on disability retirement from the Social Insurance Institution and the Finnish Centre for Pensions.</p>	<p>Self-assessed poor health was a strong predictor of disability retirement due to mental disorders, musculoskeletal disorders and cardiovascular diseases.</p>
Gjesdal et al. 2004	<p>Norwegian long-term sickness absentees. Baseline variables were obtained from the sickness absence certificates and the National Insurance Services. A 5-year follow-up. N=2043. Information on disability retirement from the Norwegian DP register (the National Insurance Administration Database)</p>	<p>Men on sick leave for mental disorders, previous sickness absence (significant only for total absence above 20 weeks in the 4 years preceding inclusion), age was the strongest predictor of disability pension, also lower income (association was not linear), unemployment in women.</p>
Kivimäki et al. 2004a	<p>Below 55 year-old Finnish municipal employees (the Finnish 10-town study). A register based follow-up study from 1990 to 2001. N=46569. Information on disability retirement from the Local Government Pensions Institution and the State Treasury.</p>	<p>Long absence spells and the total number of sick days predicted strongly disability retirement especially due to musculoskeletal disorders.</p>
Husemoen et al. 2004	<p>30-66 year-old Danish people. A 5-year follow-up study based on pooled data from three longitudinal population studies conducted in the Copenhagen area. N=9053. Information on disability retirement from the official pension registers.</p>	<p>Smoking, unemployment, in men also living alone, low level of education and a sedentary lifestyle, in women physically demanding work.</p>
Koivumaa-Honkanen	<p>18-54 year-old Finnish twins. An 11-</p>	<p>Life dissatisfaction predicted subsequent disability retirement due to</p>

et al. 2004a	year follow-up. N=22136. Information on disability retirement from the Social Insurance Institution of Finland.	psychiatric and non-psychiatric causes among healthy at baseline and due to psychiatric causes among the ill at baseline.
Rytkönen et al. 2004	Finnish male employees (LEL workers). Baseline questionnaire in 1998. Follow-up during 1998-2002. N=2456. Information on disability retirement from the Etera Mutual Pension Insurance Company.	Poor perceived health, self-reported illnesses (mental disorders, musculoskeletal disorders, cardiovascular diseases), spells of absence, poor perceived working capacity, uncertainty concerning occupational activity after two years, intentions to retire early, heavy weekly alcohol consumption, work injuries, physical workload, musculoskeletal strain, being a dockworker. The best predictors of disability retirement were self-assessment of the certainty of continued occupational activity, absence due to illness and mental resources.
Borg et al. 2004	25-34 year-old Swedish persons, who had a sick-leave spell ≥ 28 days with neck, shoulder or back diagnoses. N=213. An 11-year follow-up. Information on disability retirement from the Social Insurance Offices.	Sick-leave spell ≥ 90 days during the two previous years. Higher risk for women and for foreign citizens.
Blekesaune & Solem 2005	60-67 year-old Norwegian employees. Both register data and survey data were used. A follow-up, on average, 3.4 years. N=19114. Information on disability retirement from the National Social Insurance Administration Database.	Hard physical work, jobs with low individual autonomy among men (especially with cardiovascular diseases as causes for disability retirement), an interaction effect between job stress and low autonomy was statistically significant among women, low socioeconomic status. Physical job strains were most strongly associated with musculoskeletal disorders as causes for disability retirement, but also the association with cardiovascular diseases was found.
Karpansalo et al. 2005	42-60 year-old men from eastern Finland (the Kuopio Ischemic Heart Disease Risk Factor Study, KIID). Baseline examination/interview 1984-1989. Follow-up from the baseline examination up to the year 2000. N=1726. Information on disability retirement from the Social Insurance Institution and the Finnish Centre for Pensions.	Depression (assessed at baseline by HPL, Human Population Laboratory, depression score). High depression score predicted disability retirement attributable to any cause, especially mental disorders.
Vahtera et al. 2005	21-54 year-old Finnish municipal employees (the Finnish 10-town study). A register based follow-up	Organisational downsizing was associated with a higher risk of disability retirement. Employees who remained in work after downsizing were at increased risk of disability retirement caused by physical diseases such as

	<p>study including four towns. Employers' records in 1991-1993 were used. N=19 273. Information on disability retirement during the years 1994-1998 was obtained from the Local Government Pensions Institution and the State Treasury.</p> <p>15-64 year-old Finnish people. Questionnaires 1989/1993. Follow-up from the beginning of 1990 until the end of 1996. N=2196. Information on disability retirement from the Social Insurance Institution of Finland.</p>	<p>musculoskeletal disorders.</p> <p>Weak sense of coherence (SOC) in people ≤ 50 years of age on entry into the study.</p>
Suominen et al. 2005		
Hagen et al. 2006	<p>25-59 year-old employees in the Norwegian county of Nord-Trøndelag in 1985 (The Nord-Trøndelag Health Study, HUNT). Questionnaires/health screening in 1984-1986. A 7-year follow-up. N=38426. Information on disability retirement because of back pain from the National Insurance Administration Database.</p>	<p>Low education, effect of education on the risk of disability retirement due to back pain was not mediated by occupational class, working conditions or individual life style.</p>
Mykletun et al. 2006	<p>20-66 year-old Norwegian people (The Nord-Trøndelag Health Study, HUNT). Questionnaires/health screening in 1995-1997. Over a 2-year follow-up. N=45782. Information on disability retirement from the National Insurance Administration Database.</p>	<p>Anxiety and depression at baseline strongly increased the risk of disability retirement, even when disability pensions awarded for any mental disorders were excluded. The effects of anxiety and depression were stronger in individuals aged 20-44 than in those aged 45-66.</p>
Karnehed et al. 2007	<p>Swedish men born 1952-59 with a record in the Military Service Conscript Register. Follow-up linkages to the official registers in 1960, 1970, 1985 (the Population and Housing Censuses) and in 1990-2001</p>	<p>Obesity in young adulthood. The relationship between BMI and disability pension was J-shaped with higher risks for underweight and obese men.</p>

<p>Albertsen et al. 2007</p>	<p>(the Longitudinal Database of Education, Income and Occupation, including information on disability retirement). N=366 929</p>	<p>18-64 year-old Danish employees (Danish Work Environment Cohorts Study, DWECs), interviewed in 1995 and followed up 1996-2004. N=5574. Information on disability retirement from the DREAM register (data on all social transfer payments).</p>	<p>Standing work, smoking among both genders. In women, being a public employee, low job security, low social support at work, living with a retired spouse. Public employment was the single factor that explained most of the gender difference.</p>
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4. RESEARCH FRAME OF THE STUDY

The conceptualisation of disability retirement as a process has its basis in the retirement model developed by Beehr (1986), where the retirement process is divided into the following phases: preference to retire, decision to retire and actual retirement. According to this model, personal factors (health, skill obsolescence and economic well-being) and environmental factors, including both job related factors (attainment of occupational goals and job characteristics) and non-job factors (marital life, family, leisure pursuits) affect the process of early retirement. (Figure 5)

The research frame of this study was developed on the basis of the Beehr model and is shown in Figure 6. Disability retirement defined as a process is divided into two phases: intentions to retire and actual retirement due to disability. A prospective study design is used to examine the predictive value of intentions to retire early and the risk factors of disability retirement. Poor mental health and health behaviours, childhood adversities, life dissatisfaction, stressful working conditions and work-family conflicts are considered to be the risk factors of early retirement, which either increase intentions to retire early (Study I & Study II) or increase the risk of disability retirement (Study III & Study IV). The associations of poor mental health and different work and family related psychosocial factors with intentions to retire early are examined in the first two substudies. Potential risk factors of disability retirement, especially childhood adversities, poor mental health, life dissatisfaction, health related risk behaviours and the predictive value of intentions to retire early are examined in the two latter substudies.

The decision to retire and actual disability retirement can both be seen as a function of interplay between expectations towards retirement, intentions to retire as well as opportunities and constraints to retire. Age, health, socioeconomic status, individual work history and the social insurance system including the pension system and pension legislation all affect the opportunities to retire early. It should be emphasised that in Finland, the granting of disability pension requires a medically confirmed illness, disease or injury that essentially prevents working. The final decision of the disability retirement is made by the insurance institutions (the Social Insurance Institution and earnings-related pension institutions, e.g., the Local Government Pensions Institution).

Figure 5. Proposed individual and environmental causes on the process of retirement (Beehr 1986)

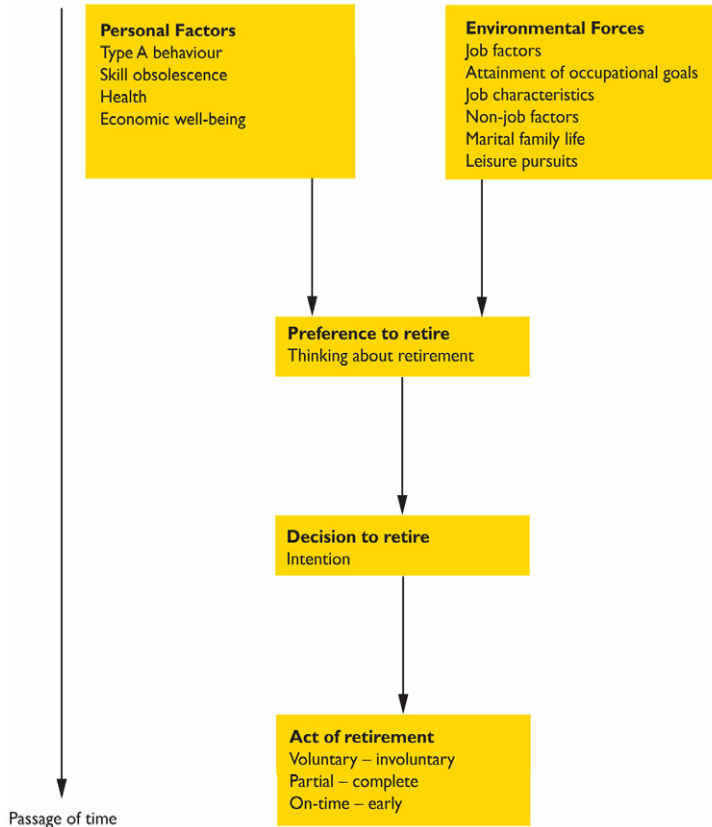
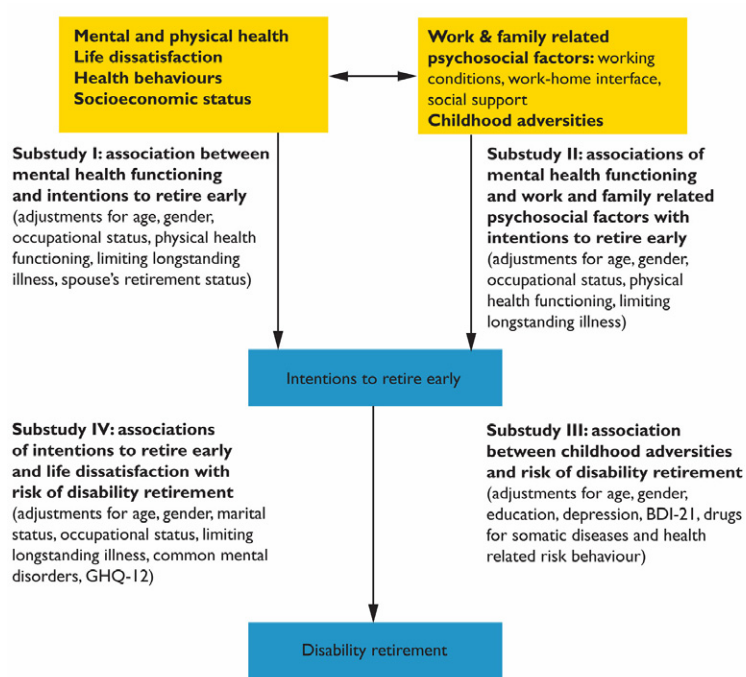


Figure 6. The research frame of the study



5. AIMS OF THE STUDY

The overall aim of this study was to examine the factors related to increased intentions to retire early, the risk factors of disability retirement and the predictive value of intentions to retire early on the process of disability retirement. Attention has mainly been given to the effects of poor mental health and various psychosocial factors, including adverse childhood experiences, work and family related factors and experience of subjective well-being.

The main goals were as follows:

1. To examine the association of mental health functioning with intentions to retire early and the contribution of poor physical health functioning, limiting longstanding illness, low socioeconomic status and having a retired spouse to this association. (Study I)
2. To examine the associations of mental health functioning, unfavourable working conditions, conflicts between paid work and family life and social network size with intentions to retire early. (Study II)
3. To examine whether adverse childhood experiences predict disability retirement and whether this association is affected by adult risk factors, i.e., low socioeconomic status, depression, poor somatic health and health related risk behaviours. (Study III)
4. To examine the predictive value of intentions to retire early on the process of disability retirement and the contribution of life dissatisfaction to the association between intentions to retire early and disability retirement. (Study IV)

6. MATERIAL AND METHODS

6.1 Cohorts

The Helsinki Health Study (HHS)

The Helsinki Health Study is an ongoing cohort study among middle aged women and men employed by the City of Helsinki. The general aim of this study is to give a comprehensive picture of health, functioning and well-being among the employees of the City of Helsinki. The City of Helsinki is the largest municipal employer in Finland. It has a staff of some 40 000 (about 70% women). The largest sectors are social welfare, education and health care. In 2004 the mean age of all City of Helsinki employees was 44. Baseline questionnaire data were collected in three waves in 2000-2002; each year employees reaching 40, 45, 50, 55 and 60 received mailed questionnaires (N=8960, response rate 67%). (Lahelma et al. 2005.)

For purposes of Study I entitled 'Mental health functioning (SF-36) and intentions to retire early among ageing municipal employees: The Helsinki Health Study' the 60 year-old respondents (12%) and those who had already sent a pension application (1%) were excluded. The final sample of Study I consisted of 7765 respondents (81% women). In Study II entitled 'Associations of SF-36 mental health functioning and work and family related factors with intentions to retire early among employees', also the first questionnaire wave, year 2000, was excluded because questions concerning organisational justice and work-family interface were lacking. The final sample of Study II consisted of 5037 respondents (81% women).

In Study IV entitled 'Intentions to retire, life dissatisfaction and the subsequent risk of disability retirement', participants who had replied to the questionnaire and had given written consent for register linkage (74%) were followed up from the date the completed questionnaire was received by the study team to the date of disability retirement or to the date when the person began to receive an old-age pension or to the date of death or to the end of the year 2004. The maximum follow-up time was five years. Those who were retired or had sent a pension application before

the beginning of the follow-up time were excluded. The final population of Study IV included 6484 participants (79% women).

The Health and Social Support Study (HeSSup)

The Health and Social Support Study (HeSSup) is an ongoing, longitudinal study of a working-aged sample representative of the Finnish population. Major emphasis was given to social support and other psychosocial factors as potential determinants and protective factors of ill health. The baseline survey was carried out by a postal questionnaire during the year 1998 (N=25 901, age groups: 20-24, 30-34, 40-44, 50-54, response rate 40.0%). (Korkeila et al. 2001.) A follow-up questionnaire including respondents in 1998 (response rate 80.2%) was sent during 2003 to all those who responded to the first questionnaire. For the purposes of Study III entitled 'Childhood adversities as a predictor of disability retirement', respondents under 40 years of age (n=9329), those who had retired at baseline in 1998 (n=509) or those whose main activity could not be determined in 1998 (n=390) or in 2003 (n=583, including the unclear retirement or employment status) were excluded. Thus, the final sample consisted of 8817 respondents (58% women).

6.2 Study variables

Outcome variables

Intentions to retire early (Study I & Study II)

In the previous Finnish studies the following questions have been widely used: Have you considered retiring before normal retirement age? No, Yes/sometimes, Yes/often, I have already sent an application; Have you considered seeking disability pension, individual early retirement pension or any other form of pension? I have not considered, it has crossed my mind, I have seriously considered seeking pension, I have already applied for a pension. Responses to these questions have commonly been dichotomised (intentions/preferences vs. no intentions/no

preferences). (Elovainio et al. 2001; Forma & Harkonmäki 2001; Karisalmi 2001; Huuhtanen & Tuomi 2006.)

In a study of 55 year-olds living in the city of Oulu, Finland, retirement orientation was assessed by the question 'At this moment do you have the intention of retiring early?' The response options were no/yes/don't know' (Uusimäki 1995). In a study of Finnish government employees, respondents were asked to evaluate the best alternative for the future concerning work and retirement (Janatuinen 2001). In some studies a combined measure (work/retirement orientated) formulated from more than one question of intentions to retire early and attitudes towards work and retirement has been used (e.g., Gould et al. 1991; Karisalmi 1998a).

In the present study, the intentions to retire early were assessed with the question 'Have you considered retiring before normal retirement age?' There were four preset response options: 1) No, I have not; 2) Yes, sometimes; 3) Yes, often; 4) I have already sent an application. Intentions to retire early as an outcome variable was divided into three categories: 1=no intentions to retire early, 2=weak intentions, 3=strong intentions. The fourth preset category, 'I have already sent a pension application', was excluded since sending an application form would be more of an indicator of behaviour, representing the decision to retire early already having been taken.

Disability retirement (Study III & Study IV)

Disability retirement in Study III was obtained by a follow-up questionnaire (2003). The outcome variable was self-reported employment status (response options: employed/unemployed/dismissed temporarily/studying/working in own household/disability retired/early retired/partly retired/retired at the official retirement age/doing something else). Respondents who were retired due to disability at follow-up but not at any form at baseline (year 1998) were included as incident cases of disability retirement.

In Study IV the information on disability retirement was obtained from pension registers of the Local Government Pensions Institution and the State Treasury including new illness-based pensions during the years 2000-2004. The maximum follow-up time was 5 years (average 3.5

years). In this substudy, disability retirement included permanent, temporary and part-time disability pensions (admitted disability pension during the follow-up period: no=0/yes=1). Those who were already retired or who had sent in a pension application at the beginning of the follow-up period were excluded. The linkage of the baseline questionnaires with the register data on the new disability pensions was made at the individual level by using the unique person numbers.

Sociodemographic factors

Age groups

The age groups used in Study I and Study II were 40, 45, 50, and 55 year-old respondents; in Study IV 60 year-old respondents were also included (the Helsinki Health Study). In Study III (the Health and Social Support Study) the age groups used were 40-44 and 50-54 year-old respondents.

Socioeconomic status

Socioeconomic status (SES) was measured by occupational status in Study I, II and IV (the Helsinki Health Study). Occupational status was derived from the City of Helsinki personnel register, which was linked to the questionnaire data for those who gave written consent (77% of all respondents). For those who did not give permission to make this linkage, occupational data were completed from the questionnaires. A six-tier classification was used in Study I and Study II: 1) managers, 2) professionals, 3) semi-professionals, 4) routine non-manual employees, 5) skilled manual workers, and 6) unskilled manual workers. In Study IV a five-tier classification of occupational status was used: 1) managers, 2) professionals, 3) semi-professionals, 4) routine non-manual employees, and 5) manual workers. Managers have subordinates and they also do administrative work (e.g., directors of nursery schools); professionals do professional work and typically do not have subordinates (e.g., teachers and physicians); semi-professionals include, e.g., nurses and technicians; routine non-manual employees include, e.g., child minders and assistant maids, while manual workers include e.g., kitchen maids and bus drivers.

In Study III (the Health and Social Support Study) socioeconomic status was obtained from the baseline questionnaire in 1998. Socioeconomic status was measured by occupational training with four categories: no training or short training course/lower occupational training/higher occupational training/university or polytechnic degree.

Spouse's employment status and marital status

Spouse's employment status and marital status of the respondent were derived from the baseline questionnaires (the Helsinki Health Study, Studies I, IV). Spouse's employment status was assessed with the following question: 'Which of the following best describes your spouse's main activity at the current time?' There were seven preset response options, but the scale was reduced to four categories: 1) no spouse; 2) spouse working part-time or full-time; 3) spouse unemployed or doing house work; 4) spouse retired. Marital status was divided into four categories: married/cohabiting; single; divorced/separated and widowed.

Health

Mental and physical health functioning (Study I & Study II)

Mental and physical health functioning were measured by the Short Form 36 (SF-36) mental (MCS) and physical (PCS) component summaries. The SF-36 questionnaire contains 36 items measuring health related functioning on eight subscales, which can be summarised into a physical and a mental functioning summary component (PCS and MCS) by a method based on factor analysis. These eight subscales include: Physical Functioning, Role-Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role-Emotional and Mental Health. PCS is correlated with Physical Functioning, Role-Physical and Bodily Pain scales, while MCS is correlated with Mental Health, Role-Emotional and Social Functioning scales. Vitality, General Health and Social Functioning scales are correlated with both component summaries. (Ware & Kosinski 2001.)

The values of the mental and physical health functioning summaries have been standardised by using population means and standard deviations in the general US population in 1998 (the standardised mean was set to 50 and the standard deviation to 10). Lower scores imply poorer health functioning. The linearity of the association of MCS and PCS with intentions to retire early was tested in Studies I and II by fitting the MCS and PCS components in quartiles into the model including age, gender and MCS or PCS as a continuous variable. Adding the classified variable improved the fit of the model statistically significantly (Study I: $\Delta\chi^2_6=40.6$, $p<0.0001$ for MCS and $\Delta\chi^2_6=27.3$, $p<0.0001$ for PCS; Study II: $\Delta\chi^2_6=22.9$, $p<0.001$ for MCS and $\Delta\chi^2_6=17.05$, $p<0.009$ for PCS) suggesting non-linearity. Thus MCS and PCS were divided into quartiles, the lowest quartile implying the poorest health functioning.

Limiting longstanding illness (Studies I, II, IV)

Limiting longstanding illness (LLI) was inquired about with the question: ‘Do you have any longstanding illness, disability or infirmity?’ If the answer was ‘yes’, a follow-up question was asked: ‘Does your illness/disability restrict your work or does it limit your daily activities (gainful employment, housework, schooling, studying)?’ Those who answered ‘yes’ were classified as having limiting longstanding illness. A missing answer was classified as not having a limiting longstanding illness.

Long-term regular use of medication due to somatic diseases (Study III)

Use of medication was measured by the question: “How often have you used the following drugs during the previous year?”. Five original response options were: no use/<10 days/10-59 days/60-180/>180 days (over 6 months). A missing answer was classified as not having used drugs given that the respondent had replied to at least one of the other specific questions on drug use. Long-term regular use of medication due to somatic diseases included analgesics, antihypertensives and heart drugs. The following classification was used: use of medication for more than six months during the previous year, no/yes.

Depression (Beck Depression Inventory-21) (Study III)

Depression was measured by the 21-item Beck Depression Inventory (BDI-21) (Beck et al. 1961; 1988; Varjonen et al. 1997). The 21-item Beck Depression Inventory includes mood, pessimism, sense of failure, lack of satisfaction, guilt feelings, sense of punishment, self-dislike, self-accusation, suicidal wishes, crying, irritability, social withdrawal, indecisiveness, distortion of body image, work inhibition, sleep disturbance, fatigability, loss of appetite, weight loss, somatic preoccupation, loss of libido. The sum score based on 21 items was first calculated including responses with no more than three missing items. Depression was classified into three categories: sum scores 0-9/>9≤18/>18 representing no/mild/moderate or severe depression, respectively.

Common mental disorders (GHQ-12) (Study IV)

Common mental disorders were measured by the General Health Questionnaire (GHQ-12) (Goldberg 1972; Goldberg et al. 1997), which was developed to identify minor, non-psychotic, psychiatric symptoms and short-term changes in mental health. The 12-item version of GHQ includes inability to concentrate, anxiety-based insomnia, feeling of strain, inability to cope with difficulties, make decisions, lack of confidence and esteem, depression and enjoy with life. Each item was first dichotomised between response alternatives 2, i.e., “same as usual”/”no more than usual”, and 3, i.e., “less than usual”/”rather more than usual”. Responding 3 or 4 gave one point, whereas responding 1 or 2 gave zero point. Summing up the 12 items gave the total GHQ-12 scores, ranging from 0-12 (Cronbach’s alpha 0.91). The cut-off point of three or more GHQ-12 symptoms was used to indicate common mental disorders (Makowska et al. 2002; Lahelma et al. 2006).

Life dissatisfaction (Study IV)

Life dissatisfaction was measured by the modified version of LiSat-11 (Fugl-Meyer et al. 1991; Melin et al. 2003) with the 9-item life-satisfaction scale. The following question was presented: ‘How satisfied are you with the following areas of your life: marriage or relationship, hobbies,

standard of living, work, combining paid employment and family, family life, sexual life, health, perception of yourself. Response options were: very satisfied/moderately satisfied/a little satisfied/no feelings either way/a little dissatisfied/moderately dissatisfied/very dissatisfied. Four dimensions of life dissatisfaction were assessed based on both theoretical evaluation and the information from the principal component analysis (PCA): subjective well-being (perception of your self, health), work life (work, combining paid employment and family), leisure time (standard of living, hobbies) and marital life (marriage or relationship, family life, sexual life). The Cronbach's alphas were, respectively, 0.70, 0.66, 0.54 and 0.88. The items of each dimensions of life dissatisfaction were first dichotomised: 0=not dissatisfied, 1=dissatisfied, then summed up and further divided into two categories: dissatisfied: no=sum score 0, yes=sum score >0.

Health related risk behaviours (Study III)

Current smoking was derived from five questions inquiring: whether the respondent has ever smoked more than 5 packs of cigarettes (options no/yes); whether the respondent smokes or has sometimes smoked cigarettes regularly, i.e., daily/almost daily (options no/yes); whether the respondent is still smoking on a regular basis (options no/yes); the mean amount of cigarettes per day, the current situation: none, <5, 5-9, 10-14, 15-19, 20-24, 25-40, >40; whether the respondent smokes or has ever smoked cigars or a pipe regularly, i.e., daily/almost daily (options no, yes/quitted, yes/still smoking). Current smoking was classified as yes or no (no smoking/smoked less than 5 packs/smoked regularly, but quitted/no current cigar or pipe smoking). Heavy alcohol consumption was determined by the question: 'How often have you been drunk during the past 12 months?' (options: not once/once/2-3 times/4-5 times/once in two months/once a month/2-3 times a month/once a week/a couple of times or more a week). Those who had been drunk once a week or more were classified as heavy alcohol users. Obesity was measured by Body Mass Index (BMI), which was calculated from the questions on current weight and height (weight in kilograms/by the square of height in meters) and dichotomised (BMI ≥ 30 kg/m², no/yes).

Work and family related psychosocial factors

Job demands and job control (Study II)

Job demands and job control were measured by the Karasek Demand-Control Model (Karasek 1979). Job demands included ten items and job control nine items, with five response alternatives, from 5= fully disagree to 1= fully agree. Job demands measure stressors, such as work load demands and time pressures, and job control measures employees' authority to make decisions concerning own work activities, opportunities for being creative, using and developing skills (job decision latitude/decision authority) (Brisson 2000; Elovainio et al. 2005). The factor analysis performed on job demands and job control supported unidimensionality of both job control (Cronbach's alpha 0.76) and job demands (Cronbach's alpha 0.75) in the data. The summary scores were calculated separately for job demands and job control and further divided into quartiles (Laaksonen et al. 2006). Responses with more than two missing items were excluded and in other case a missing value was replaced with the mode value.

Procedural and relational justice (Study II)

Organisational justice was measured by the subscales of procedural and relational justice (Moorman 1991; Elovainio et al. 2002), both consisting of four items. Procedural justice measures the degree to which the respondent agrees that the procedures used in the workplace are designed to collect accurate information necessary to make decisions, provide opportunities to appeal or challenge the decision, generate standards so that decisions can be made with consistency and hear the concerns of all those affected by the decision. Relational justice measures whether the respondents think that their supervisor considers the employee's viewpoint, is able to suppress personal biases, treats subordinates with kindness and consideration and takes steps to deal with subordinates in a truthful manner. Both subscales included five response alternatives, from 5= fully disagree to 1= fully agree. The summary scores were first calculated for procedural and relational justice (Cronbach's alpha 0.90, 0.86, respectively) and further divided into quartiles: high/rather high/rather low/low. Responses

with more than one missing items were excluded, and in other case a missing value was replaced with the mode value.

Work-family interface (Study II)

Work-to-family conflicts were measured by the question ‘To what extent does your job responsibilities interfere with your family life?’ and family-to-work conflicts by the question ‘To what extent does your family life and family responsibilities interfere with your performance on your job in any of the following ways?’ (Frone 2000; Chandola et al. 2004). Both dimensions included four items. Family-work items were: family matters reduce the time you can devote to your job; family worries or problems distract you from your work; family activities keep you from getting the amount of sleep you need to do your job well; family obligations reduce the time you need to relax or be by yourself. Work-family items were: your job reduces the amount of time you can spend with the family; problems at work make you irritable at home; your job involves a lot of travel away from home; your job takes so much energy you don’t feel up to doing things that need attention at home. Response alternatives were: 1= not at all, 2= to some extent, 3= a great deal and 4= not applicable. The items were summed up to for both dimensions and further divided into tertiles: no conflicts/weak conflicts/strong conflicts.

Social support (Study II)

Social support was assessed using the Brief Social Support Questionnaire by Sarason with four items (Sarason et al. 1987). The questionnaire asked how many different kinds of persons the respondent may rely on when help or support is needed. Such persons included: a spouse or a partner, other close relative, a close friend, a close friend from work or a boss, a close neighbour, someone else close to you, no one. The items were summed up and the social support received was classified into four categories (given that the respondent had replied to at least one of the items) representing the size of the social network: 0-3, 4-6, 7-10, 11-.

Childhood adversities (Study III)

In the questionnaire the respondents were asked whether they had experienced the following adversities in their childhood: divorce or separation of the parents; long-term financial difficulties in the family; serious conflicts in the family; frequent fear of a family member; severe illness of a family member; and alcohol problem of a family member. The six-item question on childhood adversities was modified from the Finnish Survey on Living Conditions (Rahkonen et al. 1997). The preset response options were: no, yes, do not know or cannot say. A missing answer was classified as not having experienced the adverse childhood circumstance given that the respondent had replied to at least one of the other specific questions. The items were summed up and divided into four categories: 0, 1-2, 3-4 and 5-6 adversities. (Korkeila et al. 2004). The reliability of the answers concerning childhood adversities was tested and the kappa coefficient varied between 0.56 and 0.90 (Sumanen et al. 2005).

6.3 Statistical methods

The analyses in the present study were carried out using the SAS and SPSS statistical packages. In Study I and Study II the associations of mental and physical health functioning (SF-36: MCS, PCS), limiting longstanding illness, socioeconomic status, spouse's employment status and work and family related psychosocial factors with intentions to retire early were examined by using multinomial regression analyses. For each explanatory variable, those with weakest intentions to retire early were selected as the reference category. Women and men were pooled together since no statistically significant interaction effects were found between genders and other explanatory variables. The results of the multinomial regression models were presented as odds ratios (OR) and their 95% CIs. In addition, age adjusted prevalence percentages (with 95% CIs) were calculated. To study the possible buffering effect of social support in Study II, interaction of social network size with mental health functioning was checked.

A multinomial logistic regression model was used since the dependent variable included more than two categories. Polytomous logistic regression can be divided into two types: ordinal response (the dependent variable is ordinal) and nominal response (the dependent variable is a nominal categorical variable). For ordinal response, cumulative logits can be modeled with the proportional odds model, which has a rather strong underlying assumption, 'the proportional odds assumption'. After testing this assumption (the Score Test for the Proportional Odds Assumption), the null hypothesis (the odds ratios between adjacent outcome categories are not different) had to be rejected. This meant that the dependent variable could not be treated as an ordinal response.

In Study III the associations of childhood adversities and adult risk factors (depression [BDI-21]), poor somatic health, health related risk behaviour and socioeconomic status) with the risk of disability retirement were examined. The association between childhood adversities and the risk of disability retirement was analysed using binary response logistic regression models with additional adjustments for adult risk factors of disability retirement. Women and men were pooled together because no statistically significant interaction effects were found between genders and other explanatory variables. The results were presented as odds ratios (OR) and

their 95% CIs. Respondents who were retired due to disability at follow-up (year 2003) but not at any form at baseline (year 1998) were included as incident cases of disability retirement.

In Study IV the associations of intentions to retire early and life dissatisfaction with the risk of disability retirement were examined. Age and gender standardised incidence rates per 1000 person years and their 95% CIs for disability retirement were first calculated. Direct standardisation was obtained using age and gender specific proportions of the participants in the study data. Exact 95% CIs were obtained assuming the number of cases to follow Poisson distribution. Women and men were pooled together. Associations between intentions to retire early, life dissatisfaction and other explanatory variables (common mental disorders [GHQ-12]), limiting longstanding illness, occupational and marital status) with disability retirement event times were analysed using Cox regression. Hazard ratios (HR) and approximate 95% CIs were reported.

Four dimensions of life dissatisfaction were assessed based on both theoretical evaluation and the information from the principal component analysis (PCA): subjective well-being (perception of yourself, health), work life (work, combining paid employment and family), leisure time (standard of living, hobbies) and marital life (marriage or relationship, family life, sexual life). The Cronbach alpha coefficients were, respectively, 0.70, 0.66, 0.54 and 0.88. The Kaiser-Meyer-Olk -test was calculated, showing appropriateness of the correlation matrix for PCA (test value: 0.83).

7. RESULTS

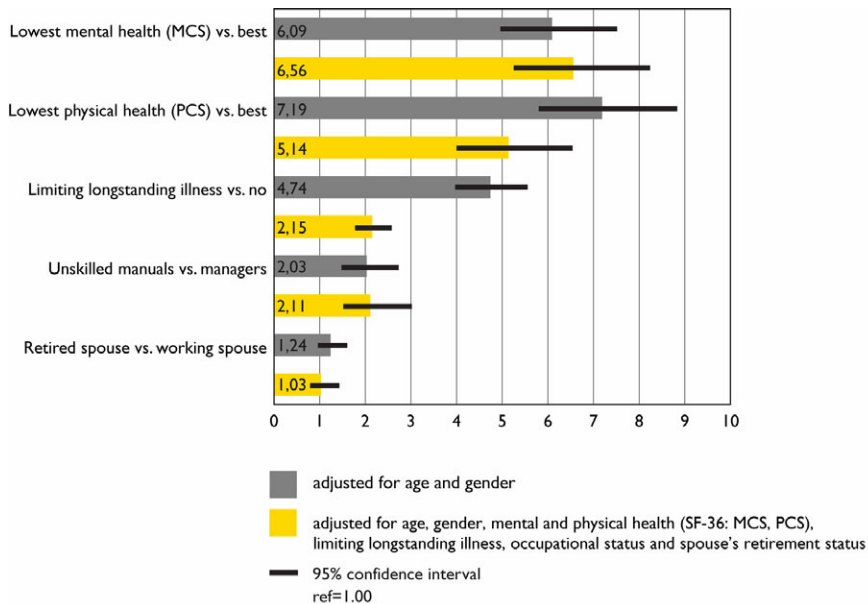
7.1 Factors related to increased intentions to retire early: mental health, work and family related factors (Study I & Study II)

The baseline characteristics and age adjusted prevalence rates for intentions to retire early (95% CI) are shown in the Appendix Tables 2a and 2b. About half of the women and men reported no intentions to retire early. About one-third had weak intentions and 15% of the women and 18% of the men reported strong intentions. The prevalence of strong intentions was highest at the age of 55 and lowest at the age of 40. Intentions to retire early were strongest for employees with the lowest mental and physical health functioning (SF-36, MCS, PCS) and those with limiting longstanding illness (LLI). Both in women and in men a socio-economic gradient was found in strong intentions indicating that the higher the employee's socio-economic status (SES), the less prevalent the strong intentions to retire early. Only in women spouse's retirement seemed to increase slightly own intentions to retire early. A higher prevalence of strong intentions to retire early was equally associated with all work and home related psychosocial factors, including high job demands and low job control, low procedural and relational justice and strong conflicts between work and family life. Only among women, a higher prevalence of strong intentions to retire early was associated with smaller social network size.

Associations (adjusted ORs) of mental and physical health and occupational status with strong intentions to retire early are shown in Figure 7. Poor mental and physical health functioning (SF-36, MCS, PCS), limiting longstanding illness (LLI) and low occupational status were associated with increased intentions to retire early. Age and gender adjusted ORs of strong intentions to retire early were higher for those with the lowest mental health functioning (6.09 95% CI 4.97-7.47), the lowest physical health functioning (7.19 95% CI 5.84-8.85) and for those with limiting longstanding illness (4.74 95% CI 4.02-5.60). ORs of strong intentions to retire early were 2-fold higher for unskilled manual workers as compared to managers (unskilled manuals 2.03 95% CI 1.49-2.76). No statistically significant associations were found between intentions to retire early and spouse's retirement status.

The association between low mental health functioning and strong intentions to retire early remained over 6-fold (OR 6.56 95% CI 5.23-8.22) after simultaneous adjustments for physical health functioning, limiting longstanding illness, socioeconomic status and spouse's employment status. Also physical health functioning (OR 5.14 95% CI 4.03-6.56), limiting longstanding illness (OR 2.15 95% CI 1.76-2.64) and occupational status (OR for unskilled manuals 2.11 95% CI 1.49-3.00) maintained their associations with strong intentions to retire early even when all indicators were adjusted for simultaneously.

Figure 7. The associations of mental and physical health functioning (SF-36: MCS, PCS), limiting longstanding illness, occupational status and spouse's retirement status with strong intentions to retire early. ORs. (Study I, the Helsinki Health Study)

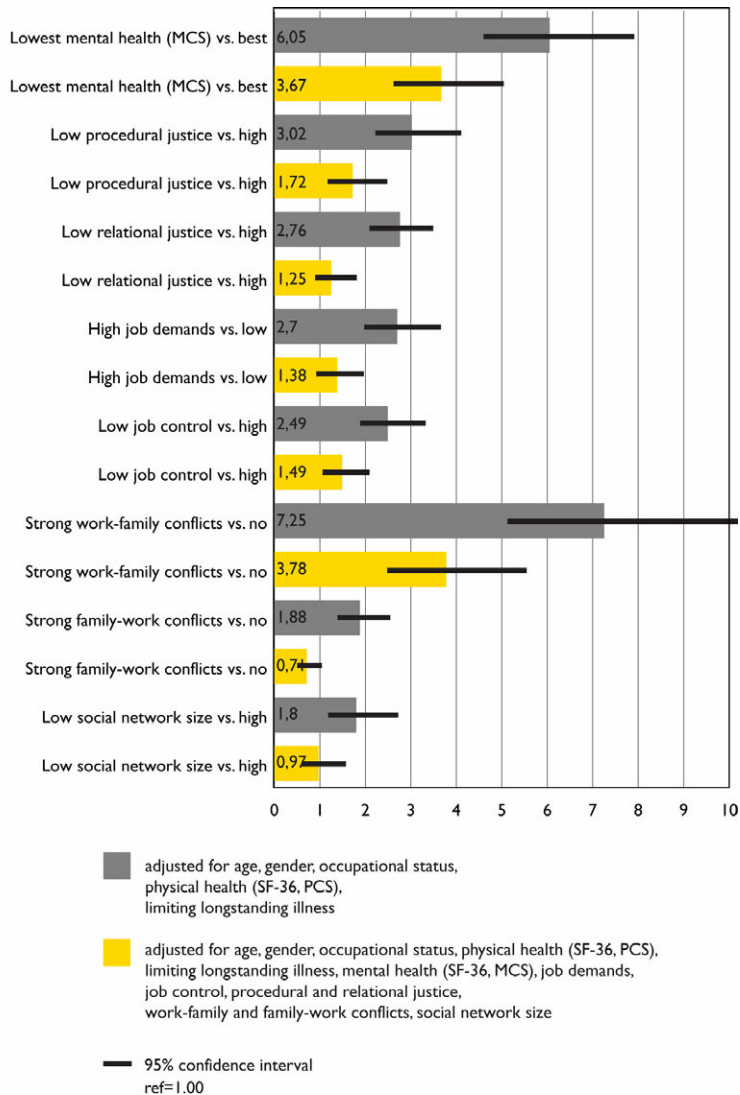


Associations (adjusted ORs) of mental health functioning (SF-36, MCS) and work and family related psychosocial factors with strong intentions to retire early are shown in Figure 8. High job demands, low job control, low procedural and relational justice and conflicts between work and family life were associated with increased intentions to retire early. Employees with high job demands (OR 2.70 95% CI 2.00-3.65) and low job control (OR 2.49 95% CI 1.88-3.30), low procedural justice (OR 3.02 95% CI 2.24-4.08) and low relational justice (OR 2.76 95% CI 2.11-3.60) were more likely to report strong intentions to retire early than those with better psychosocial working conditions. The association between work-to-family conflicts and strong intentions to retire early was clearly stronger (OR 7.25 95% CI 5.13-10.27) than the association between family-to-work conflicts and intentions to retire early (OR 1.88 95% CI 1.37-2.57). Small social network size was associated with increased intentions to retire early when age, gender, occupational status, physical health and limiting longstanding illness were adjusted for

(OR 1.80 95% CI 1.20-2.71), but the association changed to non-significant after further adjustments for mental health and work and family related factors.

After simultaneous adjustments for all explanatory health related and work and family related psychosocial factors, the association between mental health functioning and strong intentions to retire early weakened but still remained almost 4-fold (OR 3.67 95% CI 2.69-5.01). Especially work-family conflicts showed a clear own association with strong intentions to retire early. After simultaneous adjustments for health related factors, socioeconomic status and other work and family related psychosocial factors the association between strong work-family conflicts and strong intentions to retire early attenuated but remained almost 4-fold (OR 3.78 95% CI 2.53-5.65). Also low procedural justice (OR 1.72 95% CI 1.14-2.58) and low job control (OR 1.49 95% CI 1.07-2.08) maintained their associations with increased intentions to retire early in the final adjusted model.

Figure 8. The associations of mental health functioning (SF-36: MCS), work and family related psychosocial factors and social network size with strong intentions to retire early. ORs. (Study II, the Helsinki Health Study)



The interactions of age with mental and physical health functioning were analysed in Study I. Statistically significant interaction was found between age and physical health functioning (p-value 0.04). Aging strengthened the association between physical health functioning and intentions to retire early. To examine the possible buffering effect of social support in Study II, the interaction of social network size with mental health functioning was also checked, but no statistically significant interactions were found.

The associations of mental health functioning and work and family related psychosocial factors with weak intentions to retire early were quite similar, but weaker than the associations found with strong intentions to retire early. After further adjustments the associations of health and work and family related psychosocial factors with weak intentions to retire early attenuated and were no longer necessarily statistically significant (not shown in the Figures).

7.2 Risk factors of disability retirement: childhood adversities, poor mental health, life dissatisfaction, health behaviours (Study III & Study IV)

The distribution of baseline characteristics of Study III according to subsequent disability retirement status (the Health and Social Support Study) is shown in the Appendix Table 3. During the 5-year follow-up, 318 (3,6%) retired due to disability. A higher incidence of disability retirement was found for men and for participants aged 50-54 than for women and those at age of 40-44 years at the baseline. Those with negative childhood experiences, with depression (BDI-21), with long-term regular medication due to somatic diseases and unhealthy behaviours (smoking, heavy alcohol consumption, obesity) and those with lower occupational training retired due to disability more often than respondents with no childhood adversities, better mental and somatic health, healthier behaviours and higher occupational training.

Among respondents, 37.4% had experienced no childhood adversity, 44.4% reported 1-2 adversities, 15.1% 3-4 and 3.2% 5-6 adversities. The associations of childhood adversities with the adult risk factors of disability retirement, depression (BDI-21), use of drugs for somatic diseases, health related risk behaviours and low socioeconomic status, are shown in Table 3. Odds for depression were 4.36 times higher for those with 5-6 childhood adversities than for those with no adversities. The corresponding OR was 1.70 for low SES, 1.59 for current smoking, 1.89 for heavy alcohol use and 1.26 for obesity.

Table 3. ORs (95% CI) for adult risk factors of disability retirement (depression, low SES, medication due to somatic diseases, health related risk behaviours) by number of childhood adversities. (Study III, the Health and Social Support Study)

No. of childhood adversities	Depression ¹	Low occupational training (SES) ²	Medication due to somatic diseases ³	Current smoking	Drunken once a week or more	Obesity (BMI ≥ 30)
0	1.00	1.00	1.00	1.00	1.00	1.00
1-2	1.62 (1.24-2.12)	1.14 (1.04-1.26)	1.24 (1.07-1.43)	1.10 (0.98-1.24)	1.14 (0.93-1.41)	1.21 (1.05-1.40)
3-4	3.39 (2.54-4.53)	1.28 (1.13-1.46)	1.31 (1.08-1.58)	1.45 (1.25-1.68)	1.60 (1.24-2.06)	1.02 (0.83-1.24)
5-6	4.36 (2.81-6.77)	1.70 (1.32-2.18)	1.25 (0.87-1.81)	1.59 (1.21-2.09)	1.89 (1.22-2.94)	1.26 (0.88-1.80)

¹ Moderate/severe depression (BDI>18)

² No training/short training course/lower occupational training

³ Use of analgesics, antihypertensives and heart drugs (over 6 months during the previous year)

The risk of subsequent disability retirement increased in a dose-response manner with an increasing number of childhood adversities. Age and gender adjusted ORs of the risk of disability retirement by number of childhood adversities, occupational training, health behaviours, somatic health and depression (BDI-21) are shown in Figure 9. Odds for disability retirement were 3.46 (95% CI 2.09-5.71) times higher for those respondents who had experienced multiple childhood adversities (5-6) than for those with no adversities. Low SES (occupational training), depression (BDI-21), use of drugs for somatic diseases, smoking, heavy alcohol consumption and obesity were also predictors of disability retirement. Those respondents with the lowest occupational training had a 4.5-fold greater risk of disability retirement as compared to those with a university or polytechnic degree. The OR was 6.32 for those respondents with at least moderate depression and 3.91 for respondents who had used medications regularly due to somatic diseases. Approximately 2-fold odds for disability retirement were found for current smokers, for those who had been drunk once a week or more and for those who were obese.

After adjusting for SES, the OR for the highest number of experienced childhood adversities decreased from 3.46 to 2.92. A corresponding decrease was found when health related risk

behaviours and depression were additionally adjusted for, but adjustment for regular use of medications due to somatic diseases had almost no effect on the association between childhood adversities and the risk of disability retirement. (Not shown in the Figures). After simultaneous adjustments for all studied risk factors, the association between childhood adversities and the risk of disability retirement further attenuated, but still remained almost 2-fold (OR 1.90, 95% CI 1.07-3.37). The ORs of the risk of disability retirement for childhood adversities, SES, health behaviours, somatic health and depression after simultaneous adjustments are shown in Figure 10.

Figure 9. Age and gender adjusted ORs of the risk of disability retirement by number of childhood adversities, occupational training, health behaviours (obesity, alcohol use, smoking), somatic health (regular use of drugs) and depression (BDI-21), Study III (the Health and Social Support Study)

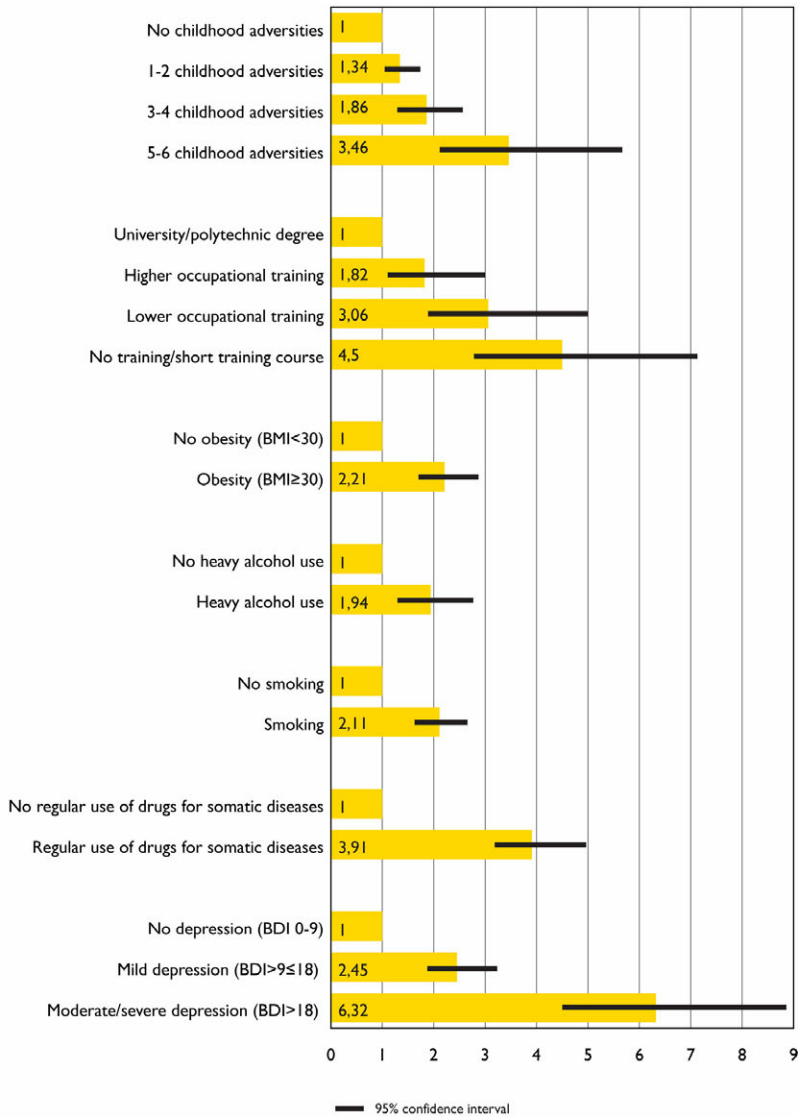
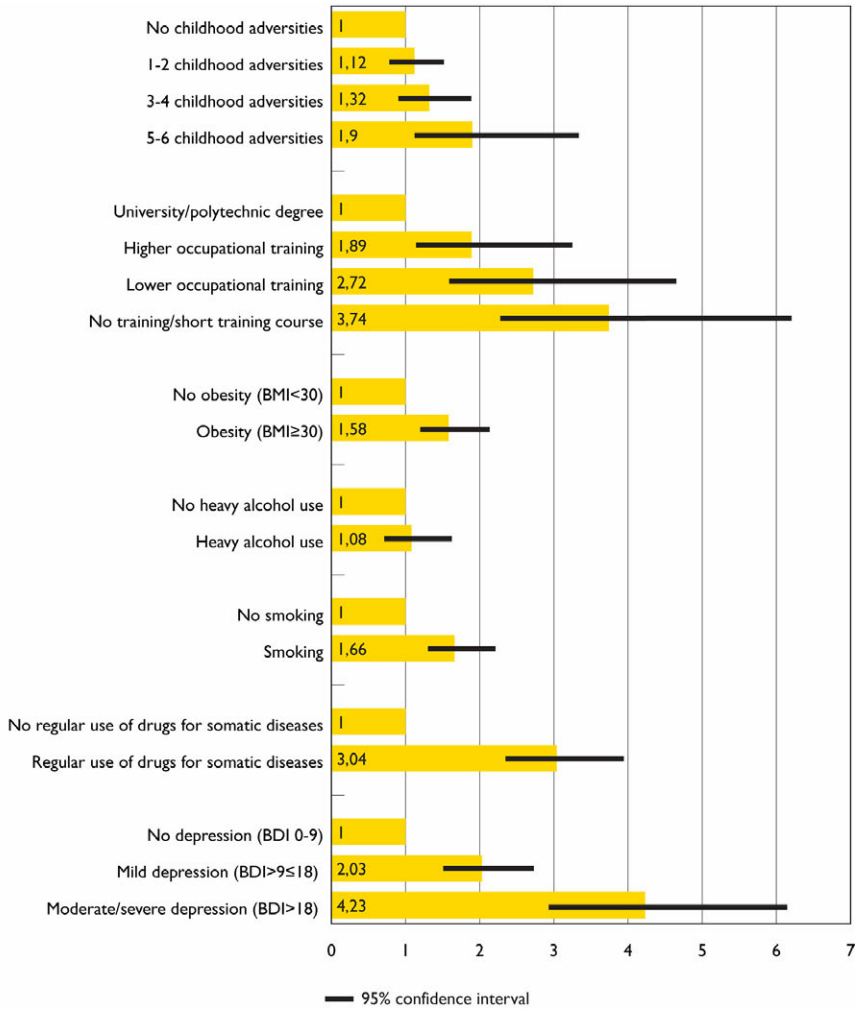


Figure 10. ORs of the risk of disability retirement by number of childhood adversities, occupational training, health behaviours (obesity, alcohol use, smoking), somatic health (regular use of drugs) and depression (BDI-21) after simultaneous adjustments, Study III (the Health and Social Support Study)



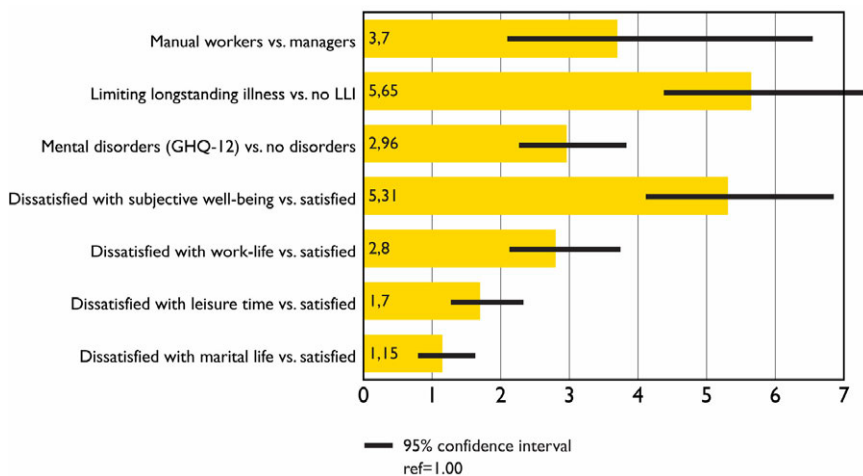
In the analyses of specific childhood adversities, frequent fear of a family member showed the strongest association (OR 1.94 95% CI 1.45-2.59), followed by severe illness of a family member (OR 1.55 95% CI 1.23-1.96), serious conflicts in the family (OR 1.53 95% CI 1.19-1.97), long-term financial difficulties in the family (OR 1.52 95% CI 1.20-1.92) and alcohol problem of a family member (OR 1.38 95% CI 1.07-1.80). Divorce or separation of the parents was not associated with the risk of disability retirement. We also tested the effects of job strain and interpersonal conflicts at work on the association between childhood adversities and the risk of disability retirement among those respondents regularly working at the baseline. Adjusting for job strain and interpersonal conflicts at work had almost no effect on the association between childhood adversities and the risk of disability retirement. In addition, we tested the associations among respondents with no significant depression. The associations were similar or closely similar to the ones among all respondents. (Not shown in the Figures)

Distribution of baseline characteristics of Study IV and age and gender adjusted incidence rates of disability pensions per 1000 person years (the Helsinki Health Study) are shown in Appendix Table 4. During the maximum 5-year follow-up, 232 (3,6%) participants were granted a disability pension (includes permanent, temporary and part-time disability pensions). The incidence rate of granted disability pensions was highest in the oldest age group and in men as compared to younger ones and women. Employees who were dissatisfied, especially with their subjective well-being and work life, had higher incidence rates of disability pensions. Higher incidence rates of disability pensions were also found for common mental disorders (GHQ-12), low occupational status and limiting longstanding illness.

Associations (age and gender adjusted HRs) of life dissatisfaction, occupational status, limiting longstanding illness (LLI) and common mental disorders (GHQ-12) with the risk of disability retirement are shown in Figure 11. Life dissatisfaction was found to be a strong predictor of subsequent disability retirement. The hazard ratio (HR) of disability pensions was 5.31 (95% CI 4.11-6.87) for those who were dissatisfied with their subjective well-being, 2.80 (95% CI 2.08-3.77) for those who were dissatisfied with work life and 1.70 (95% CI 1.25-2.32) for those who were dissatisfied with their leisure time. No statistically significant association was found between dissatisfaction with marital life and the risk of disability retirement. Manual workers had

almost a 4-fold greater risk (HR 3.70 95% CI 2.07-6.62) of disability retirement as compared to managers. Higher risks of disability retirement were also found for those with limiting longstanding illness (HR 5.65, 95% CI 4.35-7.34) and for those with common mental disorders (HR 2.96, 95% CI 2.28-3.84).

Figure 11. Age and gender adjusted HRs of the risk of granted disability pensions by occupational status, limiting longstanding illness (LLI), common mental disorders (GHQ-12) and life dissatisfaction, Study IV (the Helsinki Health Study)



After simultaneous adjustments for all studied risk factors, dissatisfaction with subjective well-being (HR 2.14, 95% CI 1.52-3.00), limiting longstanding illness (HR 2.91, 95% CI 2.14-3.96) and low occupational status (HR for manuals 2.69, 95% CI 1.46-4.94) maintained their associations with the elevated risk of granted disability pensions (not shown in the Figures).

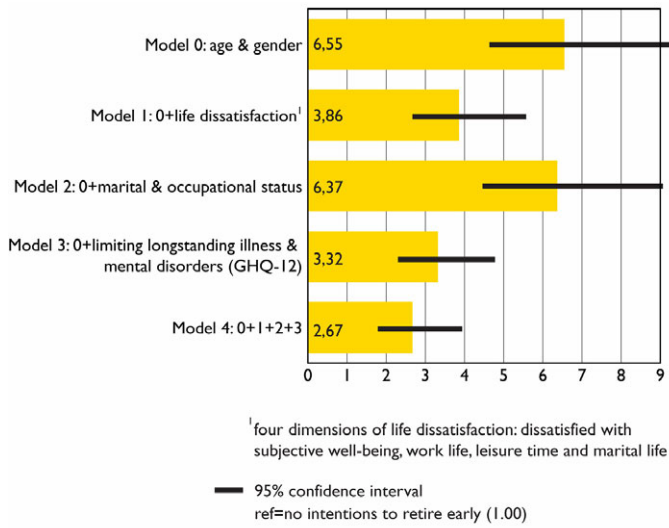
7.3 Predictive value of intentions to retire early (Study IV)

In Study IV the association between intentions to retire early and the risk of disability retirement was examined with data derived from the Helsinki Health Study. Strong intentions to retire early clearly predicted subsequent disability retirement in the maximum 5-year follow-up time.

Adjusted HRs of disability retirement for strong intentions to retire early are shown in Figure 12. In Model 0 (the age and gender adjusted) HR of granted disability pensions was 6.55 (95% CI 4.64-9.26) for those who had strong intentions to retire early at baseline. After adjustment for life dissatisfaction in Model 1, the HR of disability retirement for strong intentions to retire early attenuated from 6.55 to 3.86 (95% CI 2.66-5.62). Occupational status and marital status had almost no effect on the association between intentions to retire early and the risk of disability retirement (Model 2). The HR for strong intentions to retire early weakened to 3.32 (95% CI 2.28-4.83) when common mental disorders (GHQ-12) and limiting longstanding illness were adjusted for in Model 3. After simultaneous adjustments for all studied risk factors (Model 4) the association between strong intentions to retire early and the risk of disability retirement attenuated but remained almost 3-fold (HR 2.67, 95% CI 1.80-3.96).

Those with weak intentions to retire early at baseline also had a higher risk of subsequent disability retirement as compared to those with no intentions to retire early, but the associations were weaker. The age and gender adjusted HR of granted disability pensions was 1.97 (95% CI 1.35-2.88) for those with weak intentions to retire early. After adjustment for life dissatisfaction, the HR attenuated to 1.67 (95% CI 1.14-2.44). Adjustment for marital status and occupational status had no effect on the association between weak intentions to retire early and disability retirement. After further adjustments for limiting longstanding illnesses and common mental disorders, the association changed to non-significant. (Not shown in the Figures)

Figure 12. HRs of granted disability pensions for strong intentions to retire early with additional adjustments (Models 0-4), Study IV (the Helsinki Health Study)



8. DISCUSSION

The purpose of this study was to examine the factors related to increased intentions to retire early, the risk factors of disability retirement and the predictive value of intentions to retire early on the process of disability retirement. Attention was mainly given to the effects of poor mental health and various psychosocial factors, including adverse childhood experiences, work and family related factors and the experience of subjective well-being. The main findings and methodological issues of the study are discussed in the following sections.

8.1 Main findings

About half of the women and men reported no intentions to retire early; one-third had weak intentions; and 15% of the women and 18% of the men reported strong intentions to retire early. The main attention in the present study was given to strong intentions to retire early. The prevalence rate of strong intentions to retire early is in line with previous studies conducted in Finland. Maximum of the 5-year follow-ups showed 3.6% incidence rates of disability retirement, which is also considered to be in line with the general incidence rates of new sickness based pensions (e.g., about 1% of municipal employees retire due to disability per year) (*Statistics of the Local Government Pensions Institution 2005*). The prevalence of strong intentions to retire early and the risk of disability retirement were higher in men than in women and higher among those with lower socioeconomic status as compared to their higher status counterparts. These findings are also in accordance with most of the previous studies conducted in Finland (Hytti 1993a; 1993b; Gould 2001; Janatuinen 2001; Hakola 2002; Elovainio et al. 2003; Savioja 2005).

Based on the four substudies included in this dissertation, the following main findings are presented:

1. Poor mental health showed strong and independent associations with strong intentions to retire early. Also poor physical health and limiting longstanding illnesses clearly increased intentions to retire early.
2. Stressful working conditions, e.g., low job control and low procedural justice at work and especially work-to-family conflicts, were independently associated with increased intentions to retire early.
3. Depression showed strong and independent association with a higher risk of disability retirement. Also health related risk behaviours, such as heavy alcohol consumption and smoking, were predictors of disability retirement.
4. The risk of disability retirement increased in a dose-response manner with increasing number of childhood adversities (divorce or separation of the parents, long-term financial difficulties in the family, serious conflicts in the family, frequent fear of a family member, severe illness of a family member and alcohol problem of a family member).
5. Clear predictive value of disability retirement was found for strong intentions to retire early. Life dissatisfaction also showed an independent association with a higher risk of disability retirement and contributed to the association between intentions to retire early and disability retirement.

8.2 Interpretation of main findings

Factors related to increased intentions to retire early

A principal finding of this study concerning retirement intentions was that poor mental health was strongly and independently associated with increased intentions to retire early. Poor physical health and limiting longstanding illnesses also showed independent associations with higher intentions to retire early. However, controlling for poor physical health, limiting longstanding illnesses and low socioeconomic status did not substantially affect the found clear association

between poor mental health and intentions to retire early. These findings are in line with earlier research findings on poor mental health and intentions to retire early (e.g., Uusimäki 1995; Huhtaniemi 1995; Janatuinen 2001; Forma 2004a).

Another important finding of this study concerning intentions to retire early was that unfavourable psychosocial working conditions and conflicts between work and family life were clearly related to strong intentions to retire early. High job demands and low control, low procedural and relational justice at work and conflicts between paid work and family life increased intentions to retire early. These findings are supported by previous studies. In a study by Elovainio et al. (2005), low job control was found to increase intentions to retire early, especially among those employees with high job demands. In a study of hospital physicians Sutinen et al. (2005) found that low job control, poor teamwork and unjust supervision were associated with increased intentions to retire early. Recent studies have also indicated that difficulties in reconciling work and family life increase intentions to retire among employees (Raymo & Sweeney 2006; Forma 2007).

In a previous prospective study of retirement behaviour among Norwegian employees (Blekesaune & Solem 2005), especially men in jobs with low autonomy were more likely to retire early than men with more control over their work. In the present study, no significant gender difference was found in the association between low job control and higher intentions to retire early. Also in our study, interestingly enough, strong work-to-family conflicts were related to increased intentions to retire early equally among men and women. This finding suggests the great importance of family life today for both genders. The association between family-to-work conflicts and intentions to retire was weaker. Previous studies have also shown that work is more likely to influence family life than vice versa (Chandola et al. 2004).

After simultaneous adjustments for all work and family related psychosocial factors, low job control, low procedural justice at work and work-family conflicts maintained their associations with strong intentions to retire early. The association between poor mental health and intentions to retire early attenuated, but remained after full adjustments giving support to the findings from recent and earlier studies that poor health, but also stressful working conditions and work-family

conflicts are important factors contributing to the retirement process (Beehr et al. 2000; Elovainio et al. 2005; Blekesaune & Solem 2005; Raymo & Sweeney 2006; Siegrist et al. 2007).

Somewhat surprising was the finding of the present study that no statistically significant association between intentions to retire early and a spouse's employment status was found. In previous Finnish studies a retired spouse has quite often been shown to increase intentions to retire early and actual early retirement (Gould & Takala 1993; Hytti 1993b; Gould 2001; Seitsamo 2005). The impact of a spouse's employment status was studied with data derived from the Helsinki Health Study (HHS), where the majority of participants are educated working women. This might have influenced the found weak and not significant association between a spouse's retirement status and intentions to retire early. A further potential explanation is provided by the distinctive features of the Finnish pension system, where the municipal sector has its own characteristics, such as longstanding and stable careers, relatively high pension levels and occupation specific lowered pension ages. However, our findings on the impact of a spouse's employment status do not exclude the possible influence of a spouse on the retirement decision-making process, e.g., spousal support. In addition, using only a single item-measure may have led to an underestimation of the relationship between spouse and retirement intentions.

Lack of social support or small network size can be considered as potential risk factors for early retirement. Likewise social support from significant others can be seen as a potential protective factor against such things as poor mental health and early retirement (Williams et al. 1981; Sarason et al. 1983; Cohen & Wills 1985; Dalgard et al. 1995; Huhtaniemi 1995; Krause et al. 1997; Frese 1999). In the present study the association between low social network size and increased intentions to retire early was only modest and changed to non-significant after further adjustments. In addition, no statistically significant interaction effect was found between social network size and mental health. Thus, no evidence on the possible 'buffering effect of social support' was obtained. These findings on the association between social network size and intentions to retire are nevertheless supported by similar results in the previous study by Elovainio et al. (2003), where no connections between low social network size and increased intentions to retire early were found.

Risk factors of disability retirement

Concerning the risk factors of disability retirement, studies on the effect of childhood adversities are scarce, and no studies on the potential cumulative effects of multiple childhood adversities on the risk of disability retirement have been conducted before. Our findings showed that adverse experiences in childhood are associated with a higher risk of disability retirement in adulthood. Childhood adversities increased the risk of subsequent disability retirement in a dose-response manner. In the analyses of specific childhood adversities, frequent fear of a family member showed the strongest association, followed by severe illness of a family member, serious conflicts in the family, long-term financial difficulties in the family and alcohol problem of a family member.

Three possible mechanisms on the effect of negative early-life psychosocial experiences to adult health have been suggested: the latency model suggests the direct effect of childhood conditions on adult health regardless of conditions during adult life; the pathway model proposes an indirect effect, maintaining that childhood conditions affect adult health through adult conditions; and the cumulative model assumes that both childhood and adulthood conditions and experiences are important to adult health (Hertzman 1999; Kuh et al. 2003; Mäkinen et al. 2006).

After simultaneous adjustments for various adult risk factors (low socioeconomic status, depression, medication due to somatic diseases, health related risk behaviour), the association between childhood adversities and the risk of disability retirement attenuated, but remained significant thus supporting the latency model. Additional adjustments for depression and health related risk behaviour decreased the odds of disability retirement for childhood adversities more than any other adult risk factor, giving support to the pathway model. Since multiple adult risk factors also remained significant predictors of disability retirement, this study was also in line with the cumulative model.

Depression and related disorders as diagnosed cause of disability retirement has increased significantly during the last decades. Recent research evidence has shown that vulnerability to

depression is influenced by early life experiences, such as negative emotional life events, childhood maternal nurturance and relationship with the caregivers (e.g., Kendler et al. 2002; Korkeila et al. 2005; Jokela et al. 2007). Thus, the findings of the present study on the effect of adverse childhood adversities are highly relevant when considering determinants of early retirement and identifying groups at risk. Exposure to negative psycho-emotional events during childhood may also affect ways of coping with negative life-events in adulthood (Korkeila et al. 2004), increasing the risk of disability retirement, but this potential mechanism was not testable in our study.

Another principal finding here was that depression showed a strong and independent association with a higher risk of disability retirement. An elevated risk was also found for those employees with common mental disorders. These findings on the effect of low mental health to the risk of disability retirement are supported by previous studies (e.g., Klockars et al. 1998; Gjesdal et al. 2004; Rytönen et al. 2004; Karpansalo et al. 2005) and also by the official statistics on the causes of new disability pensions from the 1990s (Järvisalo et al. 2005). Important finding of the present study was also the association found between health related risk behaviours (heavy alcohol consumption, smoking and obesity) and the risk of disability retirement. These findings on the negative effects of health related risk behaviours give support to the findings from previous and recent studies on the risk factors of disability retirement (e.g., Klockars et al. 1998; Månsson et al. 1999; Hagen et al. 2002; Husemoen et al. 2004; Karnehed et al. 2007; Albertsen et al. 2007).

Life satisfaction as a measure of subjective well-being has been suggested as being useful, especially when identifying groups of people with increased risk of having or developing depression (Cummins & Lau 2006; Koivumaa-Honkanen et al. 2004b). In our study life dissatisfaction was associated with a higher risk of disability retirement. This finding is supported by the previous longitudinal studies on the risk factors for disability retirement (Appelberg et al. 1996; Koivumaa-Honkanen et al. 2004a). It should be noted that in our study, life dissatisfaction was measured by the modified version of the domain specific LiSat-11 with the 9-item life-satisfaction scale (Fugl-Meyer et al. 1991; Melin et al. 2003). Four dimensions of life dissatisfaction were assessed based on both theoretical evaluation and the information from the

principal component analysis (PCA). Especially dissatisfaction with subjective well-being clearly increased the incidence of disability retirement, also showing independent association after simultaneous adjustments for various other risk factors of disability retirement. Thus, the significant impact of the subjective experience of well-being in the process of disability retirement was suggested.

In the previous longitudinal studies conducted with the Finnish Twin Cohort data (Appelberg et al. 1996; Koivumaa-Honkanen et al. 2004a; 2004b) the 4-item life satisfaction scale was modified from the questionnaire developed for measuring the quality of life for research purposes in the Nordic countries (Allardt 1973). In a 15-year follow-up study with a nationwide sample of healthy Finnish adults (the Finnish Twin Cohort data) a strongly increased risk of depression (BDI-21) was found among the dissatisfied as compared with the satisfied (Koivumaa-Honkanen et al. 2004b). In Australian national surveys (Cummins & Lau 2006), the Personal Well-Being Index (PWI), which averages life satisfaction across seven domains, has shown clear correlates with depression (DASS, Depression, Anxiety and Stress Scale).

Predictive value of intentions to retire early

One of the principal findings of this study was also the found strong and independent relationship between intentions to retire early and actual retirement. The finding that employees with strong intentions to retire early also retire more often than those with no intentions is in line with the results of previous studies (e.g., Gould 1994; Huhtaniemi 1999; HUUHTANEN & TUOMI 2006). After adjustment for life dissatisfaction the association between strong intentions to retire early and the risk of disability retirement clearly attenuated, indicating the important contribution of subjective well-being in the process of disability retirement. After simultaneous adjustments for all studied risk factors, the association between strong intentions to retire early and the risk of disability retirement further attenuated but remained significant. The strong impact of own intentions to the actual retirement, especially within the pension system where the final decision of disability retirement is made by the insurance institutions, also highlights the importance of the subjective experience of well-being.

8.3 Methodological considerations

Biases and sources of errors in the epidemiological studies can occur because of the different selection effects, e.g., healthy worker effect, inadequate study designs and reversed causality, unmeasured confounding factors, bias in reporting (over- or underestimation), measurements bias and bias of follow-up, e.g., an inadequate follow-up period, inappropriate statistical methods and wrong conclusions of the results. The present study succeeded in answering the main questions presented. Possible sources of biases and limitations of the study are discussed below.

Cross-sectional study design, problems of causality and generalisation

The data in the two first substudies were derived from cross-sectional surveys (the Helsinki Health Study) where intentions to retire early were asked along with questions concerning health functioning and work and family related psychosocial factors. Therefore, strict causal judgements cannot be made. The data in Study I, Study II and Study IV included three occupational cohorts of the City of Helsinki, which makes this study population unique; generalisations of the research findings to other working populations in Finland can be made only with due caution. Employees in the City of Helsinki are better educated and might also be healthier than employees in general (80% of the respondents were women). In addition, occupational health care with high quality is available for all employees working in the City of Helsinki.

The measures used

Especially self-reports of work related psychosocial stressors and strain might be the source of under- or over reporting bias caused by, e.g., social desirability confounding, personality differences and individual differences in the ability to recognise and report psychosocial work related conditions (Hurrell et al. 1998). It is also possible that reporting of work related adversities is affected by other problems outside the workplace, e.g., stressful life events and family problems.

Mental and physical health functioning were measured by the Short Form 36 (SF-36) mental (MCS) and physical (PCS) component summaries in the first two substudies. The SF-36 is widely used and is considered to be a well validated generic health measure, which is suitable for the study of the relative burden of ill-health in both general and patient populations (Hemingway et al. 1997; Keller et al. 1998; Ware 2000). Based on the factor solution, eight subscales of SF-36 have been summarised into physical and mental functioning summary components (PCS and MCS). PCS is correlated with the Physical Functioning, Role-Physical and Bodily Pain scales, while MCS is correlated with the Mental Health, Role-Emotional and Social Functioning scales. Vitality, General Health and Social Functioning scales are closely correlated with both component summaries. However, based on the consistent research evidence on the association between chronic pain and depression (e.g., Fishbain et al. 1997), it might be a problem that bodily pain is considered to be correlated with physical health functioning. In addition, there has been discussion on the factor solutions of these two component summaries (Taft et al. 2001).

The retrospective nature of the question on childhood adversities may also be considered a potential source of reporting bias. The reliability of the answers concerning childhood adversities was tested in a previous study conducted with the same population sample in the years 1998 (baseline) and 2003 (follow-up) (Sumanen et al. 2005). Based on this previous study the kappa coefficient varied between 0.56 and 0.90, indicating that retrospective data on childhood adversities were likely to be reliable.

Related to the measurement of somatic diseases by the regular use of medication, misclassification due to undiagnosed morbidity and morbidity not requiring medication might represent a potential source of error leading to underestimation of associations. However, long-term regular use of medication has been shown to be a reliable measure of chronic diseases (Klaukka 1988); in our study the regular use of medication was also strongly associated with the risk of disability retirement.

Response rates and follow-up

The baseline response rate of the Helsinki Health Study was 67% (2000-2002), with women and those in higher socioeconomic groups being somewhat more likely to respond. However, non-response analyses showed that the data represent the target population well (Lallukka et al. 2002). The baseline response rate of the Health and Social Support Study was 40.0% (1998). A careful non-response analysis at baseline indicated that the most important demographic and physical health related differences between respondents and non-respondents were small (Korkeila et al. 2001). The response rate of the follow-up questionnaire in 2003 was high, 80.2%. According to a non-response analysis at follow-up (in 2003), loss to follow-up was higher in men, in younger age groups, in lower socioeconomic groups and among those with at least moderate depression, current smoking and heavy alcohol consumption. The differences between respondents and non-respondents were, however, relatively small, and thus a major follow-up bias was considered unlikely.

In Study III no information about the medical reasons for disability retirement and deaths during the follow-up period was available. In 2003, according to the official statistics on pensions (*Statistical Yearbook of Pensioners in Finland 2003*), the main reasons for disability retirement in the same age groups used in Study III were musculoskeletal (35%), mental (26%) and cardiovascular diseases (11%). The lack of mortality data presumably attenuated the associations found in this study.

In Study IV the linkage of questionnaire data to the pension register data including the new illness based pensions was made at the individual level by using the unique person numbers given to all citizens of Finland. The maximum follow-up time was 5 years (average 3.5 years). Disability retirement included permanent, temporary and part-time disability pensions, which might be considered as weakness of the study. However, the majority of the granted temporary disability pensions change to permanent ones during the following 4-5 years (Peltonen 2004). Those who had sent a pension application and those already retired at the beginning of the follow-up period were excluded. However, it might have been justified to eliminate the first 12

months of the follow-up in order to exclude any ongoing cases in the process of disability retirement.

Also in Study IV disease-specific analyses of the risk of disability retirement could not be made, due to the relatively short follow-up period and the small number of disability retirement events. The information on mortality during the follow-up (years 2000-2004) was obtained from the personnel registers of the City of Helsinki, not from the national statistics of Finland. Thus, extensive information on deaths was not available. However, possible error mainly concerning the calculation of the person years was considered to be only minor.

Residual confounding

The strengths of the present study include the data from two highly qualified studies with large study populations. The comprehensive questionnaires with a broad variety of measures offered excellent opportunities to take into account a number of significant covariates including mood-related measures, various work and family related psychosocial factors and health behaviours. In addition, prospective study designs with repeated measures and pension register linkages offered the opportunity to study the process of disability retirement. However, the possibility of residual confounding by inaccurately measured factors cannot be totally eliminated.

8.4 Conclusions

Since mental health problems have become major causes of sickness absence and disability pensions, the focus of the present study is highly relevant and yields novel scientific evidence on the determinants and the process of disability retirement, including both intentions to retire early and actual retirement events. Poor mental health and especially work-to-family conflicts were shown to be important factors in the process of disability retirement, increasing significantly employees' intentions to retire early. This is the first study in which the cumulative effects of multiple childhood adversities on the risk of disability retirement have been examined. In addition, the contribution of life dissatisfaction to the association between intentions to retire early and the risk of disability retirement has not been studied before. Thus, new evidence on the

process and the predictors of disability retirement was produced. Such evidence can be applied in identifying groups at risk and in promoting early recognition of lowering work ability and well-being of employees, especially in health care services and in personnel administration.

The findings of the present study highlight the importance of childhood adversities, poor mental health and the impact of conflicts between work and family life on the process of disability retirement. Work and family are the two highly important domains of life, which can act as protective sources of well-being against ill health and risk behaviour, but also as possible sources of stress, increasing the risk of ill health and work disability. Thus, possibilities for more flexible and individually tailored ways of arranging work conditions, including work tasks, worktime control and balance between work and family life should be promoted.

High job demands, low job control and experiences of organisational injustice were shown to increase intentions to retire early. Thus, opportunities to develop one's own occupational and educational skills as well as procedural and relational justice at work are important when considering preventive strategies against early retirement. Work life, in both the public and private sectors in Finland, is changing rapidly due to structural changes and globalisation. Social skills and adjustability to the changes are more important 'skills' in work life today than a few decades ago. Good management of change and social support from supervisors are evidently factors that affect the well-being of employees, their motivation and intentions to stay at work, even in situations of rapid organisational changes.

Early life experiences and psychosocial circumstances during childhood and adolescence may have profound effects on the development of personality, ways of coping with different life events and mental well-being through out an individual's life course. Early stage recognition and prevention of adverse childhood circumstances should be promoted, e.g., in the health and social care services. This requires understanding on the impact of a safe and supportive childhood when making political decisions concerning work and family life. Childhood should be seen as a major important stage of life, which has long-lasting effects on adult health and functioning. Insecurity of work life and problems in reconciling work and family life not only affect the well-being of working-age parents, but also affect the well-being of the whole family

unit, including the children. Promoting the well-being of families is an important issue when making decisions concerning labour markets and social policy. In the treatment and rehabilitation of patients especially with depression, childhood psychosocial problems and negative emotional experiences should be taken into account.

The impact of both work (e.g., balance between job demands and control, organisational justice) and non-work related factors (family roles, social support, health behaviours, life events) on the process of disability retirement should be recognised. Work life has a major impact on family life and vice versa. In the present study strong intentions to retire early showed a clear and independent association with a higher risk of disability retirement. Preventive actions against early retirement should be launched before the strong subjective experiences of ill health, work disability and intentions to retire early emerge.

To understand better the complex mechanisms on how psychosocial factors affect the health of individuals and the process of disability retirement due to different medical causes, further studies are needed. Prospective studies with longer follow-up periods on the risk factors and the protective factors against strong intentions to retire early and disability retirement are also needed. In addition, we lack studies on the effects of genetic liability to environmental factors throughout the life course on the risk of chronic diseases and work disability.

ACKNOWLEDGEMENTS

This study was carried out in the Department of Public Health, University of Helsinki and in the Local Government Pensions Institution during the years 2004-2007. I owe my deepest gratitude especially to my supervisors: Professor Eero Lahelma, Docent Ossi Rahkonen, Professor Markku Koskenvuo and Docent Pekka Martikainen. I wish to express my sincere thanks and appreciation to Professor Jaakko Kaprio, Director of the Department of Public Health for allowing me to use the facilities of the department, as well as to Heads of the Local Government Pensions Institution: Managing Director Markku Kauppinen, PhD, Director of Medical Affairs, Professor Esko Matikainen and Director of Research and Development, Docent Pauli Forma. Pauli Forma was actually the first person who encouraged me to start this academic dissertation on work disability. I also wish to thank Janne Väänänen in his role as Head of Research and for his support when I came back from my leave of absence in 2006.

My warm thanks go to all my co-authors, in addition to my supervisors mentioned above, of the original publications: Docent Karri Silventoinen, Katariina Korkeila, MD, PhD, Professor Jussi Vahtera, Professor Mika Kivimäki, Professor Sakari Suominen, Lauri Sillanmäki, MSc, Janne Pitkäniemi, MSc and Tuomo Halmeenmäki, MSc. I'm greatly indebted to the official reviewers Docent Marko Elovainio and Professor Clas-Håkan Nygård for their careful evaluation of this thesis. I am also grateful to Glenda Goss for revising the English language of this thesis. All researchers and friends from HHS and HeSSup Study groups and personnel at the Department of Public Health and at the Local Government Pensions Institution, especially my close workmate, researcher Pirjo Saari, are warmly thanked and acknowledged. I express my deep thanks to Kirsi Kokki for her encouraging friendship, support and optimistic attitude.

Finally, my deepest gratitude goes to my family and friends, my dear husband Markus and all my precious children Mikael, Kaarina and deeply missed Laura, my always loving and supporting parents Irja and Antti, my dear twin sister Henriikka with her family and my dearest friend Erika. My dear father, Professor Antti Huunan-Seppälä, has not only been a great source of support and loving understanding, but also has shared his great knowledge and skills when ever needed.

Helsinki, September 2007

Karoliina Harkonmäki

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APPENDICES

Appendix tables

Appendix table 1. The most important amendments to the legislation in the pension schemes as of 1950s in Finland (Hietaniemi & Vidlund 2003).

Decade	Amendments to the legislation
1950s	1956: the Seamen's Pension Act (MEL) 1957: the new National Pensions Act (KEL) (the first in 1937)
1960s	1962: the Employees' Pensions Act (TEL) and the Temporary Employees' Pensions Act (LEL, TyEL in 2007). Ordinary old-age pension, age limit 65 in the private sector, age limit in general 63 in the public sector (occupation specific retirement ages) 1964: the Local Government Employees' Pensions Act (KVTEL, KuEL in 2003, except those insured employees born before the year 1940) 1967: the State Employees' Pensions Act (VEL, VaEL in 2007); the Evangelical-Lutheran Church Pensions Act (KiEL). The survivors' pension was included in the pension benefits (earnings-related pension scheme) 1969: the Survivors' Pension Act (PEL), the State Employees' Survivors Pensions Act
1970s	1970: the Self-Employed Persons' Pensions Act (YEL), the Farmers' Pensions Act (MYEL) 1971: the unemployment pension (requires long-term unemployment) 1973: the partial disability pension
1980s	1980-85: the structure of the national pension was changed, the national pension became taxable income 1986: the Freelance Employees' Pension Act (TaEL, in 1998 the Pensions Act for Performing Artists and Certain Groups of Employees, TyEL in 2007) 1986: the individual early retirement pension (YVE, age limit 55) and the early old-age pension in the national pension scheme and the earnings-related pension scheme in the private sector, age limit 60. 1987: the part-time pension in the private sector (age limit 60)

	<p>1989: the individual early retirement pension (YVE, age limit 55), the early old-age pension (age limit 58) and part-time pension (age limit 58) in the public sector</p>
1990s	<p>1990: reform of the survivors' pension, also the male widow was granted the right to a survivors' pension.</p> <p>1992: pensioners also started to pay national pension contribution</p> <p>1993: the employee's pension contribution was introduced; in the public sector the retirement age (in general 65), the period of accrual and target level were made similar than to those in the private sector</p> <p>1994: the lower age limit in the individual early retirement pension was raised from 55 to 58; the age limit for the part-time pension in the private sector was reduced from 60 to 58; over the age of 60 the pension accrual rate 2.5% per year.</p> <p>1996: the pension reform of the earnings-related pensions: the pensionable wage started to calculate on the basis of the earnings from the last ten years of each contract of employment; the temporary disability pension was changed into a cash rehabilitation benefit; the national pension was made proportional to the earnings-related pension.</p> <p>1998: the age limit for the part-time pension was reduced to 56; pension started to accrue from temporary employment of less than one months duration</p>
2000	<p>2000: the age limit for the individual early retirement pension was raised to 60 (in the public sector if an employee was born in 1944-1946/1947, the age limit might also be 58/59).</p> <p>2003: the age limit for the part-time pension was raised to 58.</p> <p>2005: the pension reform:</p> <p>The age span for accrual of an earnings-related pension was broadened so that the pension accrues on wages earned between the ages of 18 and 68.</p> <p>Retirement on an old-age pension is possible in ages 63-68. It is also possible to take an early old-age pension at the age of 62. Between the ages of 18 and 52 a pension will accrue at the rate of 1.5% of annual wage. For a persons aged between 53 and 62 years the accrual rate will be 1.9%. If a person does not retire at the age of 63 and continues working, the pension will accrue at an</p>

	<p>accelerated annual rate of 4.5%. The individual early retirement pension and the unemployment pension were in general abolished and therefore the remaining pension forms will be old-age, disability, part-time and survivors' pensions.</p>
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Appendix table 2a. Distribution of baseline characteristics and age adjusted prevalence rates for intentions to retire early by age, mental health functioning (MCS), physical health functioning (PCS), limiting longstanding illness (LLI), occupational status and spouse's employment status (95% CI). Study I.

Data: the Helsinki Health Study (Study I)	Women		Men		Distribution, %	
	Weak intentions	Strong intentions	Weak intentions	Strong intentions	Women	Men
Age						
40	33 (30-35)	7 (6-9)	33 (27-38)	13 (9-17)	27	31
45	34 (32-37)	11 (9-12)	38 (33-43)	15 (11-19)	25	25
50	38 (36-40)	16 (14-18)	40 (35-44)	19 (15-23)	25	23
55	34 (32-37)	24 (22-26)	34 (29-38)	24 (21-28)	23	21
MCS						
1 st quartile of MCS=lowest mental health	37 (34-39)	28 (26-29)	39 (35-44)	33 (29-37)	25	26
2 nd quartile of MCS	37 (35-39)	14 (13-16)	36 (32-41)	19 (15-22)	26	25
3 rd quartile of MCS	34 (32-37)	9 (7-10)	35 (31-40)	11 (8-15)	25	26
4 th quartile of MCS	32 (29-34)	8 (7-10)	32 (27-37)	9 (5-13)	24	23
PCS						
1 st quartile of PCS=lowest physical health	39 (37-42)	29 (27-30)	43 (37-48)	33 (29-38)	25	18
2 nd quartile of PCS	39 (36-41)	14 (12-15)	43 (38-48)	20 (16-24)	25	24
3 rd quartile of PCS	33 (30-35)	9 (7-11)	33 (28-38)	15 (11-18)	25	28
4 th quartile of PCS	29 (27-32)	8 (6-10)	29 (24-33)	12 (8-15)	25	30
LLI						
No	34 (32-35)	12 (11-13)	35 (32-38)	15 (13-18)	84	84
Yes	41 (38-44)	30 (28-32)	40 (34-46)	34 (29-39)	16	16
Occupational status						
Managers	31 (26-36)	11 (7-14)	37 (30-43)	15 (10-20)	6	15
Professionals	33 (30-35)	14 (12-16)	37 (32-42)	16 (12-20)	20	26
Semi-professionals	35 (32-38)	15 (13-17)	36 (31-42)	15 (11-20)	19	19
Routine non-manuals	35 (34-37)	15 (14-16)	31 (24-39)	18 (12-24)	43	11
Skilled manual	41 (34-48)	20 (15-25)	44 (36-52)	21 (14-27)	3	9
Unskilled manual	35 (31-39)	18 (15-21)	32 (26-37)	25 (21-30)	9	20
Spouse's employment status						
No spouse	33 (31-35)	14 (12-16)	37 (31-43)	20 (15-24)	26	18
Spouse at work	36 (35-38)	15 (14-16)	37 (34-41)	18 (16-20)	64	74
Spouse unemployed/ at house work	33 (27-39)	14 (10-19)	25 (15-35)	20 (12-28)	4	6
Spouse retired	35 (29-40)	19 (15-22)	30 (15-46)	20 (8-32)	6	3
Total	34	15	35	18	100 (6251)	100 (1514)

Appendix table 2b. Distribution of baseline characteristics and age adjusted prevalence rates for intentions to retire early by work and family related psychosocial factors (95% CI), Study II.

	Women		Men		Distribution, %	
	Weak intentions	Strong intentions	Weak intentions	Strong intentions	Women	Men
Data: the Helsinki Health Study (Study II)						
Low job demands						
Rather low	35 (31-39)	10 (8-13)	36 (29-43)	12 (6-17)	17	17
Rather high	35 (32-38)	11 (8-13)	40 (34-46)	12 (7-17)	24	26
High	37 (33-40)	16 (14-18)	38 (33-43)	20 (15-24)	35	35
High job control						
Rather high	36 (33-39)	22 (19-24)	32 (26-39)	29 (23-34)	24	22
Rather low	35 (32-38)	10 (9-12)	33 (28-39)	15 (11-20)	34	32
Low	37 (34-40)	14 (12-16)	35 (29-40)	16 (12-21)	30	31
High procedural justice						
Rather high	37 (34-40)	18 (16-20)	40 (33-47)	19 (13-25)	21	18
Rather low	36 (32-40)	24 (21-27)	42 (35-49)	26 (20-31)	16	19
Low	34 (30-37)	9 (6-11)	36 (29-44)	10 (4-17)	18	15
High relational justice						
Rather high	37 (34-40)	12 (10-14)	36 (30-42)	9 (5-14)	30	29
Rather low	39 (36-41)	15 (13-17)	37 (32-43)	22 (18-27)	31	31
Low	33 (30-37)	25 (23-27)	37 (31-44)	27 (23-32)	22	24
No work-family conflicts						
Rather high	35 (32-38)	10 (8-12)	31 (24-37)	13 (8-18)	25	22
Rather low	37 (34-39)	13 (11-15)	38 (32-43)	12 (8-16)	30	31
Low	37 (34-40)	17 (14-19)	40 (34-46)	19 (14-24)	24	26
Work-family conflicts						
Rather high	35 (32-39)	23 (21-26)	38 (31-44)	31 (26-37)	20	21
Rather low	28 (25-32)	5 (2-7)	27 (20-34)	13 (7-19)	18	20
Low	38 (36-40)	13 (12-15)	39 (35-43)	16 (12-19)	64	60
Strong conflicts						
Rather high	40 (36-43)	30 (27-32)	38 (31-45)	29 (24-35)	18	20
Rather low	34 (32-36)	12 (11-14)	35 (30-39)	17 (13-20)	47	51
Low	38 (36-40)	15 (14-17)	38 (33-43)	16 (12-20)	42	40
Strong conflicts						
Rather high	42 (37-47)	21 (17-24)	41 (30-51)	29 (21-38)	10	9
Rather low	35 (32-38)	11 (9-13)	29 (21-37)	18 (11-24)	24	15
Low	38 (35-41)	14 (12-16)	42 (36-48)	17 (12-22)	29	26
Network size I I-						
7-10	35 (33-37)	18 (16-20)	37 (32-41)	18 (15-22)	43	51
4-6	39 (32-45)	21 (16-26)	31 (21-42)	23 (14-32)	5	8
0-3						
Total	36	16	36	19	100 (4071)	100 (966)

Appendix table 3. Distribution of baseline characteristics according to subsequent disability retirement status (Study III, the Health and Social Support Study)

Data: the Health and Social Support Study (Study III)	Total number of participants (%)	Disability pension, N (%)	p-value (Kχ^2)
Age			<0.001
40-44	4534 (51.4)	69 (1.5)	
50-54	4283 (48.6)	249 (5.8)	
Gender			<0.001
Women	5149 (58.4)	148 (2.9)	
Men	3668 (41.6)	170 (4.6)	
Number of childhood adversities			<0.001
0	3285 (37.4)	90 (2.7)	
1-2	3901 (44.4)	146 (3.7)	
3-4	1323 (15.1)	60 (4.5)	
5-6	278 (3.2)	21 (7.6)	
Occupational training (SES)			<0.001
University/polytechnic degree	1551 (17.7)	21 (1.4)	
Higher occupational training	2824 (32.2)	63 (2.2)	
Lower occupational training	1874 (21.4)	73 (3.9)	
No training/short training course	2519 (28.7)	161 (6.4)	
Depression (BDI-21)			<0.001
No depression (BDI 0-9)	6960 (79.5)	176 (2.5)	
Mild depression (BDI>9≤18)	1403 (16.0)	84 (6.0)	
Moderate/severe depression (BDI>18)	389 (4.4)	51 (13.1)	
Medication due to somatic diseases			<0.001
No	7735 (87.9)	195 (2.5)	
Yes	1067 (12.1)	122 (11.4)	
Current smoking			<0.001
No	6906 (78.3)	210 (3.0)	
Yes	1911 (21.7)	108 (5.7)	
Drunken once a week or more			<0.001
No	8002 (93.9)	270 (3.4)	
Yes	522 (6.1)	34 (6.5)	
Obesity (BMI ≥30)			<0.001
No	7682 (87.7)	236 (3.1)	
Yes	1078 (12.3)	78 (7.2)	
Total	8817 (100)	318 (3.6)	

Appendix table 4. Distribution of baseline characteristics and age and gender adjusted incidence rates of disability pensions per 1000 person years (Study IV, the Helsinki Health Study)

Data: the Helsinki Health Study (Study IV)	Total number of participants (%)	Disability pensions, rates per 1000 person years (95% CI)
Age		
40	1306 (20.1)	1.6 (0.7-3.2)
45	1399 (21.6)	2.7 (1.5-4.5)
50	1396 (21.5)	8.1 (5.9-11.0)
55	1639 (25.3)	17.6 (14.3-21.4)
60	744 (11.5)	34.0 (26.3-43.3)
Gender		
Women	5091 (78.5)	9.8 (8.4-11.2)
Men	1393 (21.5)	11.2 (8.3-14.2)
Marital status		
Married/cohabiting	4539 (70.3)	9.7 (8.1-11.2)
Single	811 (12.6)	9.0 (5.3-12.8)
Divorced/separated	961 (14.9)	11.7 (8.1-15.2)
Widowed	142 (2.2)	25.0 (1.2-48.8)
Occupational status		
Managers	622 (9.6)	6.0 (2.5-9.5)
Professionals	1442 (22.3)	5.4 (3.4-7.4)
Semi-Professionals	1265 (19.5)	11.1 (7.7-14.4)
Routine non-manuals	2227 (34.4)	10.6 (7.8-13.4)
Manuals	920 (14.2)	18.1 (13.5-22.7)
Limiting longstanding illness (LLI)		
No	5380 (83.0)	5.3 (4.3-6.4)
Yes	1104 (17.0)	30.7 (25.5-35.9)
Mental disorders (GHQ-12)		
No	4852 (75.3)	6.8 (5.6-8.1)
Yes	1593 (24.7)	20.3 (16.6-24.1)
Intentions to retire early		
No intentions	3240 (50.4)	4.2 (3.0-5.5)
Weak intentions	2206 (34.3)	8.4 (6.4-10.4)
Strong intentions	985 (15.3)	27.2 (22.1-32.2)
Dissatisfied with subjective well-being		
No	5473 (84.4)	6.1 (5.0-7.1)
Yes	1011 (15.6)	32.1 (26.4-37.8)
Dissatisfied with work-life		
No	5590 (86.2)	8.4 (7.2-9.7)
Yes	894 (13.8)	25.1 (17.9-32.4)
Dissatisfied with leisure time		
No	5228 (80.6)	9.1 (7.8-10.5)
Yes	1256 (19.4)	14.7 (10.6-18.9)
Dissatisfied with marital life		
No	5445 (84.0)	9.9 (8.5-11.2)
Yes	1039 (16.0)	11.7 (7.8-15.5)
Total	6484 (100)	10.1 (8.8-11.4)

Assessment of retirement intentions, health, work and family related factors

The questions used in the present study (in Finnish, from the questionnaires), including assessment of retirement intentions, childhood adversities, health related factors and work and family related factors:

The Health and Social Support Study (HeSSup): childhood adversities, depression (BDI-21), use of medication due to somatic diseases

The Helsinki Health Study (HHS): intentions to retire early, mental and physical health functioning (SF-36), common mental disorders (GHQ-12), life satisfaction, job demands and control, organisational justice, work-to-family conflicts

HeSSup: childhood adversities, depression (BDI-21), use of medication due to somatic diseases

Childhood adversities:

Kun ajattelet lapsuuttasi, niin:

	ei	kyllä	en tiedä/ en osaa sanoa
Erosivatko omat vanhempasi (avioero tai vastaava) ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliko perheelläsi pitkäaikaisia taloudellisia vaikeuksia?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Esiintyikö perheessäsi vakavia ristiriitaisuuksia?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pelkäsitkö usein jotakuta perheenjäsenistä?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliko joku perheesi jäsenistä vakavasti tai pitkäaikaisesti sairaana?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliko jollakin perheenjäsenelläsi ongelmia alkoholin vuoksi?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Depression (BDI-21):

Lue huolellisesti jokainen väittämä ja merkitse se vaihtoehto, joka parhaiten kuvaa tuntemuksiasi juuri tällä hetkellä.

- En ole surullinen
 - Tunnen itseni alakuloiseksi
 - Olen alakuloinen jatkuvasti enkä pääse siitä
 - Olen niin onneton, etten kestä enää
-

- En sultaudu tulevaisuuteen toivottomasti
 - Tulevaisuus tuntuu minusta masentavalta
 - Minusta tuntuu, ettei minulla ole tulevaisuudelta mitään odotettavaa
 - Tulevaisuus tuntuu minusta toivottomalta, enkä jaksa uskoa, että asiat muuttuisivat parempaan päin
-

- En tunne epäonnistuneeni elämässä
 - Minusta tuntuu, että olen epäonnistunut pyrkimyksissäni tavallista useammin
 - Elämäni on tähän saakka ollut vain sarja epäonnistumisia
 - Tunnen epäonnistuneeni täydellisesti ihmisenä
-

- En ole erityisen tyytymätön
 - En nauti asioista samalla tavalla kuin aikaisemmin
 - Minusta tuntuu, etten saa enää tyydytystä juuri mistään
 - Olen täysin tyytymätön kaikkeen
-

- En tunne itseäni erityisemmin syylliseksi mihinkään
 - Minulla on syyllisyyden tunteita
 - Nykyään tunnen itseni arvottomaksi melkein aina
 - Olen kerta kaikkiaan arvoton
-

- Minua ei mielestäni rangaista
 - Minusta tuntuu, että jotain pahaa saattaisi tapahtua minulle
 - Tunnen, että ansaitsen rangaistuksen
 - Haluan että minua rangaistaan
-

- En ole pettynyt itseni suhteen
- Olen pettynyt itseni suhteen
- Minua inhottaa oma itseni
- Vihaan itseäni

- Minusta tuntuu, että olen yhtä hyvä kuin kuka muu tahansa
 - Suhtaudun melko arvostelevasti itseeni heikkouksieni ja erehdysteni tähden
 - Moitin itseäni kaikesta, mikä "menee vinoon"
 - Pidän itseäni täysin kelvottomana
-

- En ole koskaan halunnut vahingoittaa itseäni
 - Olen joskus ajatellut vahingoittaa itseäni, mutta en kuitenkaan aio tehdä sitä
 - Minulla on tarkat suunnitelmat itsemurhasta
 - Tekisin itsemurhan, jos vain voisin
-

- En itke tavallista enempää
 - Itken nykyisin enemmän kuin ennen
 - Itken nykyisin jatkuvasti, enkä voi lopettaa sitä
 - Ennen kykenin itkemään, mutta nyt en voi vaikka haluaisinkin
-

- En ole sen ärtyneempi kuin tavallisesti
 - Ärsynnyn nykyisin helpommin kuin aikaisemmin
 - Tunnen itseni ärtyneeksi koko ajan
 - Asiat, jotka saivat minut ennen raivostumaan, eivät enää ärsytä minua
-

- Olen jatkuvasti kiinnostunut muista ihmisistä
 - Toiset ihmiset eivät enää kiinnosta minua niin paljon kuin ennen
 - Olen melkein menettänyt mielenkiintoni sekä tunteeni toisia ihmisiä kohtaan
 - Olen menettänyt mielenkiintoni muihin ihmisiin, enkä välitä heistä lainkaan
-

- Pystyn tekemään päätöksiä samoin kuin ennenkin
 - Varmuuteni on vähentynyt ja yritän lykätä päätösten tekoa
 - Nykyisin tarvitsen apua päätösten teossa
 - En pysty lainkaan tekemään ratkaisuja
-

- Luulen, että ulkonäköni on pysynyt ennallaan
 - Pelkään näyttäväni vanhalta ja epämiellyttävältä
 - Minusta tuntuu, että ulkonäköni on muuttunut pysyvästi ja näytän rumalta
 - Olen varma, että näytän rumalta ja vastenmieliseltä
-

- Työkykyäni on pysynyt suunnilleen ennallaan
 - Työn aloittaminen vaatii minusta ylimääräisiä ponnistuksia
 - Minun on väkisin pakotettava itseni työhön
 - Minun on täysin mahdotonta tehdä mitään työtä
-

- Nukun yhtä hyvin kuin ennenkin
 - Herätessäni aamuisin olen paljon väsyneempi kuin ennen
 - Herään 1-2 tuntia tavallista aikaisemmin ja minun on vaikea nukahtaa uudelleen
 - Herään aikaisin joka aamu, enkä pysty nukkumaan 5 tuntia kauempaa
-

- En ole väsyneempi kuin tavallisesti
- Väsyn nopeammin kuin ennen
- Vähäinenkin työ väsyttää minua
- Olen liian väsynyt tehdäkseen mitään

- Ruokahaluni on ennallaan
- Ruokahaluni on huonompi kuin ennen
- Ruokahaluni on paljon huonompi kuin ennen
- Minulla ei ole lainkaan ruokahalua

- Painoni on pysynyt ennallaanin
- Olen laihtunut enemmän kuin 2 kg
- Olen laihtunut enemmän kuin 4 kg
- Olen laihtunut enemmän kuin 6 kg

- En ajattele terveyttäni tavallista enempää
- Kiinnitän tavallista enemmän huomiota särkyyn ja kipuun sekä muihin epämiellyttäviin tuntemuksiin itsessäni
- Seuraan niin tarkasti, mitä tuntemuksia minulla on, ettei muille ajatuksille jää paljon aikaa
- Terveysteni ja tuntemuksieni ajatteleminen on kokonaan vallannut mieleni

- Kiinnostukseni sukupuolielämään on pysynyt ennallaan
- Kiinnostukseni sukupuolielämään on vähentynyt entisestä
- Kiinnostukseni sukupuolielämään on huomattavasti pienempi kuin ennen
- En ole enää lainkaan kiinnostunut sukupuolielämästä

Use of medication due to somatic diseases:

Miten usein olet käyttänyt seuraavia lääkkeitä tai tuotteita viimeisen vuoden aikana?

	en ole käyttänyt	alle 10 päivänä	10 - 59 päivänä	60 - 180 päivä- nä (2-6 kk)	yli 180 päi- vänä (yli 6 kk)
särkylääkkeitä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
verenpainelääkkeitä.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
sydänlääkkeitä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

HHS: intentions to retire early, mental and physical health functioning (SF-36), common mental disorders (GHQ-12), life satisfaction, job demands and control, organizational justice, work-to-family conflicts

Intentions to retire early:

Oletteko ajatellut lähteä eläkkeelle jo ennen virallista vanhuuseläkeikääne?

- en ole ajatellut
- olen ajatellut joskus
- olen ajatellut usein
- olen jo jättänyt eläkehakemuksen

SF-36:

Yleisesti ottaen sanoisitteko, että terveytenne on:

- erinomainen
- erittäin hyvä
- hyvä
- kohtalainen
- huono

Verrattuna tilanteeseen vuosi sitten, onko terveydentilanne nyt yleisesti ottaen:

- paljon parempi kuin vuosi sitten
- jonkin verran parempi kuin vuosi sitten
- suunnilleen samanlainen kuin vuosi sitten
- jonkin verran huonompi kuin vuosi sitten
- paljon huonompi kuin vuosi sitten

Seuraavat toiminnot koskevat jokapäiväisiä toimintojanne. Rajoittaako nykyinen terveydentilanne niiden tekemistä? Jos rajoittaa niin kuinka paljon?

	Ei rajoita lainkaan	Kyllä, rajoittaa hieman	Kyllä, rajoittaa paljon
Rasittavat toiminnot, kuten juokseminen, painavien tavaroiden nostaminen, osallistuminen rasittaviin urheilulajeihin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kohtalaisen raskaat toiminnot, kuten pöydän siirtäminen, pölynimurin käyttäminen, reipas tasamaakävely tai puutarhatyöt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ostoskassin nostaminen tai kantaminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Portaiden nousu useita kerroksia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yhden kerrosvälän portaiden nousu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kumartuminen, polvistuminen tai kyykistyminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yli yhden kilometrin kävely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noin puolen kilometrin kävely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noin sadan metrin kävely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peseytyminen tai pukeutuminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Onko teillä viimeksi kuluneiden neljän viikon aikana ollut ruumiillisesta terveydentilastanne johtuen seuraavia ongelmia työssänne tai muissa jokapäiväisissä toiminnoissanne?

	Kyllä	Ei
Olette vähentänyt työhön tai muihin toimintoihin käyttämääne aikaa	<input type="checkbox"/>	<input type="checkbox"/>
Olette saanut aikaan vähemmän kuin olisitte halunnut	<input type="checkbox"/>	<input type="checkbox"/>
Olette joutunut rajoittamaan määrättyjä työtehtäviänne tai muita toimintojanne	<input type="checkbox"/>	<input type="checkbox"/>
Teillä on ollut vaikeuksia töittenne tai muiden tehtävien suorittamisessa (esimerkiksi työnteko on vaatinut lisäponnistelua)	<input type="checkbox"/>	<input type="checkbox"/>

Onko teillä viimeksi kuluneiden neljän viikon aikana ollut tunne-elämään liittyvien ongelmien johdosta (esimerkiksi masennus tai ahdistuneisuus) seuraavia ongelmia työssänne tai muissa päivittäisissä toiminnoissanne?

	Kyllä	Ei
Olette vähentänyt työhön tai muihin toimintoihin käyttämääne aikaa	<input type="checkbox"/>	<input type="checkbox"/>
Olette saanut aikaan vähemmän kuin olisitte halunnut	<input type="checkbox"/>	<input type="checkbox"/>
Ette ole pystynyt suorittamaan töitänne tai muita toimintojanne yhtä huolellisesti kuin tavallisesti	<input type="checkbox"/>	<input type="checkbox"/>

Missä määrin ovat viimeksi kuluneiden neljän viikon aikana ruumiillinen terveytenne tai tunne-elämänne ongelmat häirinneet normaalia kanssakäymistäne perheen, ystävien, naapurien tai muiden ryhmien kanssa?

- ei lainkaan
- vähäisessä määrin
- kohtalaisesti
- melko paljon
- erittäin paljon

Kuinka paljon ruumiillista kipua tai särkyä olette tuntenut viimeksi kuluneiden neljän viikon aikana?

- ei lainkaan

- hyvin lievää
- lievää
- kohtalaista
- vaikeaa
- erittäin vaikeaa

Kuinka paljon kivut tai säryt häiritsivät normaalia työtänne (mukaan lukien sekä kotityöt että työ kodin ulkopuolella) viimeksi kuluneiden neljän viikon aikana?

- ei lainkaan
- vähäisessä määrin
- kohtalaisesti
- melko paljon
- erittäin paljon

Seuraavat kysymykset koskevat mielialaanne ja sitä, miltä teistä on tuntunut viimeksi kuluneiden neljän viikon aikana. Antakaa jokaisen kysymyksen kohdalle se vastaus, joka lähinnä vastaa sitä, mitä olette tuntenut.

Kuinka suuren osan viimeksi ajankuluneiden neljän viikon ajasta:	Koko ajan	Suurimman osan aikaa	Jonkin aikaa	Pienen osan aikaa	En lainkaan
Olette ollut täynnä elämää ja puhtia?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olette ollut hyvin hermostunut?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olette ollut niin mieli maassa, ettei mikään ole voinut piristää teitä?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olette tuntenut itsenne rauhalliseksi ja levolliseksi?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olette ollut hyvin tarmokas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olette ollut alakuloinen ja synkkä?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olette tuntenut itsenne uupuneeksi?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olette ollut onnellinen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olette ollut väsynyt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kuinka suuren osan ajasta viimeksi kuluneiden neljän viikon aikana ruumiillinen terveydentilanne tai tunne-elämäne ongelmat ovat häirinneet sosiaalista kanssakäymistänne (esimerkiksi ystävien tai sukulaisten tapaaminen jne.)?

- koko ajan
- suurimman osan aikaa
- jonkin aikaa
- vähän aikaa
- ei lainkaan

Kuinka tosia tai vääriä seuraavat väittämät ovat teidän kohdallanne?

	Täysin tosi	Melkein tosi	En osaa sanoa	Melkein väärä	Täysin väärä
Sairastun jonkin verran herkemmin kuin muut ihmiset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olen yhtä terve kuin muutkin tuntemani henkilöt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Oletan terveyteni heikkenevän
Terveyteni on erinomainen

GHQ-12:

Oletteko viime aikoina pystynyt keskittymään tehtävienne?

- paremmin kuin tavallisesti
- yhtä hyvin kuin tavallisesti
- huonommin kuin tavallisesti
- paljon huonommin kuin tavallisesti

Oletteko viime aikoina valvonut paljon huolien takia?

- en ollenkaan
- en enempää kuin tavallisesti
- jonkin verran enemmän kuin tavallisesti
- paljon enemmän kuin tavallisesti

Onko teistä viime aikoina tuntunut siltä, että teistä on hyötyä asioiden hoidossa?

- enemmän kuin tavallisesti
- yhtä paljon kuin tavallisesti
- vähemmän kuin tavallisesti
- paljon vähemmän kuin tavallisesti

Oletteko viime aikoina tuntenut pystyväne tekemään päätöksiä?

- paremmin kuin tavallisesti
- yhtä hyvin kuin tavallisesti
- huonommin kuin tavallisesti
- paljon huonommin kuin tavallisesti

Oletteko viime aikoina tuntenut olevanne jatkuvasti yllirasittunut?

- en ollenkaan
- en enempää kuin tavallisesti
- jonkin verran enemmän kuin tavallisesti
- paljon enemmän kuin tavallisesti

Onko teistä viime aikoina tuntunut, että ette voisi selviytyä vaikeuksistanne?

- ei ollenkaan
- ei enempää kuin tavallisesti
- jonkin verran enemmän kuin tavallisesti
- paljon enemmän kuin tavallisesti

Oletteko viime aikoina kyennyt nauttimaan tavallisista päivittäisistä toimistanne?

- enemmän kuin tavallisesti
- yhtä paljon kuin tavallisesti
- vähemmän kuin tavallisesti
- paljon vähemmän kuin tavallisesti

Oletteko viime aikoina kyennyt kohtaamaan vaikeuksia?

- paremmin kuin tavallisesti

- yhtä hyvin kuin tavallisesti
- huonommin kuin tavallisesti
- paljon huonommin kuin tavallisesti

Oletteko viime aikoina tuntenut itsenne onnettomaksi ja masentuneeksi?

- en ollenkaan
- en enempää kuin tavallisesti
- jonkin verran enemmän kuin tavallisesti
- paljon enemmän kuin tavallisesti

Oletteko viime aikoina menettänyt itseluottamustanne?

- en ollenkaan
- en enempää kuin tavallisesti
- jonkin verran enemmän kuin tavallisesti
- paljon enemmän kuin tavallisesti

Oletteko viime aikoina tuntenut itsenne arvottomaksi?

- en ollenkaan
- en enempää kuin tavallisesti
- jonkin verran enemmän kuin tavallisesti
- paljon enemmän kuin tavallisesti

Oletteko viime aikoina tuntenut itsenne kaiken kaikkiaan kohtalaisen onnelliseksi?

- enemmän kuin tavallisesti
- yhtä paljon kuin tavallisesti
- vähemmän kuin tavallisesti
- paljon vähemmän kuin tavallisesti

Life satisfaction:

Kuinka tyytyväinen tai tyytymätön olette seuraaviin elämäalueisiinne? Vastatkaa soveltuvin osin.

	Erittäin tyytyväinen	Tyytyväinen	Jokseenkin tyytyväinen	Ei tyytyväinen eikä tyytymätön	Jokseenkin tyytymätön	Tyytymätön	Erittäin tyytymätön
Avoliitto tai parisuhde	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vapaa-ajan harrastukset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elintaso	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työn ja perheen yhteensovittaminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perhe-elämä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sukupuolielämä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Terveys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Käsitys omasta itsestä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Job demands & job control:

Seuraavassa esitetään joitakin omaa työtänne koskevia väittämiä. Vastatkaa kunkin kohdalla, oletteko väittämän kanssa täysin samaa mieltä, samaa mieltä, eri mieltä vai täysin eri mieltä.

	Täysin samaa mieltä	Samaa mieltä	Ei samaa eikä eri mieltä	Eri mieltä	Täysin eri mieltä
Minun on oltava nopea työssäni	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työni vaatii erittäin kovaa työntekoa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minulta ei edellytetä kohtuutonta työmäärää	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minulla on tarpeeksi aikaa saada työni tehdyksi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toiset eivät kohdistu minuun ristiriitaisia vaatimuksia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työni on erittäin kiivastahtista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työtehtäväni vaativat pitkäaikaista kiinteää keskittymistä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Työtehtäväni keskeytetään usein niin, että joudun palaamaan siihen myöhemmin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työtäni hidastaa usein muilta työntekijöiltä tai osastoilta tulevien työtehtävien odottelu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työssäni minuun kohdistetaan usein päällekkäisiä, samanaikaisia tai ristiriitaisia vaatimuksia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Miten hyvin seuraavat väittämät kuvaavat työtänne?

	Täysin samaa mieltä	Samaa mieltä	Ei samaa eikä eri mieltä	Eri mieltä	Täysin eri mieltä
Voin tehdä paljon itsenäisiä päätöksiä työssäni	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työni edellyttää minulta luovuutta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työni vaatii, että opin uusia asioita	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työhöni kuuluu paljon samanlaisina toistuvia tehtäviä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minulla on paljon omiin töihini liittyvää sananvaltaa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työni vaatii pitkälle kehittyneitä taitoja	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työssäni saan tehdä paljon erilaisia asioita	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minulla on mahdollisuus kehittää minulle ominaisia erityiskykyjäni	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minulla on hyvin vähän vapautta päättää, miten teen työni	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Organisational justice

Relational justice:

Tässä osassa käsitellään lähiesimiehenne toimintaa. Laittakaa rasti vastausvaihtoehtoon, joka parhaiten kuvaa omaa mielipidettänne.

	Täysin samaa mieltä	Samaa mieltä	Ei samaa eikä eri mieltä	Eri mieltä	Täysin eri mieltä
Esimiehemme kuuntelee alaistensa mielipiteitä tärkeissä asioissa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Esimiehemme henkilökohtaiset mieltymykset eivät vaikuta häiritsevästi hänen päätöksiinsä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Esimiehemme kohtelee alaisiaan ystävällisesti ja huomaavaisesti	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Esimiehemme voi luottaa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Procedural justice:

Seuraavat väittämät käsittelevät johtamista työyhteisössänne/työpaikallanne. Laittakaa rasti vastausvaihtoehtoon, joka parhaiten kuvaa nykyistä mielipidettänne työyksiköstänne.

	Täysin samaa mieltä	Samaa mieltä	Ei samaa eikä eri mieltä	Eri mieltä	Täysin eri mieltä
Työyhteisössämme päätökset tehdään oikean tiedon perusteella	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaikilla on oikeus sanoa mielipiteensä itseään koskeissa asioissa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tehdyt päätökset ovat työyhteisössämme olleet johdonmukaisia (säännöt ovat kaikille samat)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työyhteisössämme epäonnistuneet päätökset voidaan purkaa tai niitä voidaan muuttaa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Work-to-family conflicts:

Missä määrin perhe-elämäne ja vastuunne perheestä häiritsevät työtehtävienne suorittamista?

	Ei lainkaan	Jossain määrin	Suuressa määrin	Minulla ei ole perhettä
Perheasiat vähentävät aikaa, jonka voitte omistaa työllenne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perhehuolet ja ongelmat häiritsevät teitä työssänne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perheasiat estävät teitä nukkumasta tarpeeksi suoriutuaksenne työstänne hyvin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perheeseen liityvät velvollisuutenne vähentävät aikaa, jonka tarvitsette rentoutumiseen tai itsellenne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Entä missä määrin työtehtävänne häiritsevät perhe-elämäännne?

	Ei lainkaan	Jossain määrin	Suuressa määrin	Minulla ei ole perhettä
Työnne vähentää aikaa, jonka voitte viettää yhdessä perheenne kanssa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ongelmat työssä saavat teidät ärtyisäksi kotona	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työhönnne liittyy paljon matkustamista kodin ulkopuolella	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työnne on niin raskasta, että ette jaksate tehdä kaikkea tarvittavaa kotonanne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>