EDUCATION AS RELATED TO JOB SATISFACTION AND HEALTH

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In Sweden, there are considerable health differences between social groups and between women and men. Regardless of social position, women often report more symptoms than men. The aim of this study was to investigate how education is related to job satisfaction and to different aspects of well-being and symptoms in a nationally representative cohort of middle-aged women and men with children. Moreover, the study aimed to investigate the associations between education, job satisfaction, working-hours, partner status, number of children and various aspects of health. Regardless of gender, a long education was associated with significantly higher levels of general job satisfaction, sense of coherence, self-acceptance, purpose in life, personal growth and fewer physical and mental symptoms. General job satisfaction was a significant predictor of all health-related measures, apart from purpose in life. On the whole, men reported a better health compared to women who reported significantly more physical as well as psychological symptoms.

In Sweden, like other industrialized countries, there are significant health differences between social groups and between women and men (Statistics Sweden, 2004; 2008). Stepwise descent in socioeconomic position predicts an increase in the incidence of numerous diseases, such as heart disease, diabetes and mental illness (Sapolsky, 2005). Regardless of social position, women often report more health problems, such as muscle pain, depression, headaches and sleeping problems than men. Women also consume more medication and are on sick-leave more often, especially single mothers and low-skilled women (SCB, 2004). There is growing evidence supporting the relationship between work environment experiences and the impact they have on an individual's physical and psychological health. Educational level is an important factor because it often leads to different occupational positions with different tasks and rewards. An individual's position in society influences, for example, the degree to which they are exposed to jobs characterised by high demands and low control (Taylor, Repetti, & Seeman, 1997). In general, blue-collar workers have a lower level of job decision latitude compared with officials whereas women have a reduced amount of decision-making authority compared with men (Theorell, 2003b). Karasek and Theorell (1990) provides evidence that employees facing high job strain, that is high demands without adequate resources to meet the demands, face the greatest risk of physical and psychological ill-health.

Another explanation to health differences between men and women is the downturn in the early 1990s that resulted in an unemployment crisis in Sweden with the consequence that many companies were reorganised and downsized. High unemployment, restructuring in both the private and public sectors, a reduced number of public employees are some aspects of this transformation. The changes were most notable in the public sector whereas demands and hazards have increased for jobs employing many women, such as health care personnel and teachers (Westerlund, Ferrie, Hagberg, Jeding, Oxenstierna, & Theorell, 2004). Today women work equally in the public (women 50 percent, men 18 percent) and the private sector (women 50 percent, men 82 percent) while men work primary in the private sector (Statistics Sweden, 2008). It is well-known that men and women have different concerns in vocational

choice (Betz & Fitzgerald, 1987) and due to a gendered labor market, the majority of women and men work in different occupational fields: women are overrepresented in the public sector (e.g., education, human service work) and men in the private sector (e.g., technical work, manufacturing). The largest occupations for women are assistant nurses, hospital ward assistants, preschool teachers and childcare workers. In contrast, men are most commonly found within occupations like electricians, computer technicians and managers of smaller enterprises (SCB, 2008).

Gender, work and health

At present, there are especially two diagnoses that dominate the health problems, muscular disorders and psychological symptoms (Astvik, Mellner & Aronsson, 2006). Work-related upper extremity disorders are frequent in jobs characterized by static load and monotonous tasks, such as traditional assembly line work, cashiers and data entry at computer input devices. These occupations are often held by women and the psychophysiological stress levels are relatively high both during and after work (Lundberg, 2002). Psychiatric diseases on the other hand are suggested to be more common among jobs regarded as flexible and boundless, such as teaching or nursing (Astvik et al., 2006). These individuals often experience stress from work overload and feel that the demands continue to rise at the expense of their vacations. The stress from work overload results in different stress reactions like sleeping problems and fatigue. Aronsson and Göransson (1999) found that the tendency of highly educated individuals to report upper back pain was found to be half of that group of individuals with a lower education, whereas the chance of career development and learning opportunities being reported was more than three times as great among individuals with a longer education as among individuals with a shorter education. In addition, the highly educated group was three times as likely to report themselves of being involved in control of self-determination, i.e. involved in deciding the arrangement of their own work.

Gender differences in health are also influenced by the fact that women still spend more time on childcare and household tasks than do men (Lundberg, 1996). Employed women living in partner relationships with children also have the main responsibility for unpaid work at home and thus carry a double workload. Research has demonstrated that double exposure is a risk factor among women (Lindfors, Berntsson & Lundberg, 2006; Lundberg, 1996) and may contribute to a variety of stress-related symptoms. Parents with children (0-6) spend most time on unpaid work; women spend more than 40 hours and men nearly 28 hours per week on different household tasks (SCB, 2008). A study of Swedish families shows that women with three children or more have a total workload of 90 hours per week, whereas that of men was only about 70 hours (Lundberg, Mårdberg & Frankenhaeuser, 1994). The increased strain is reflected in womens elevated psychophysiological arousal both on and off work, which is considered to be manifested in a higher prevalence of ill health like cardiovascular and musculoskeletal disorders (Lundberg, 1996). Recent stress research suggests that a lack of recovery after episodes of strain makes up an important mediating mechanism in the link between stress and ill health (Lundberg, 2002).

According to the *allostatic load model* (McEwen, 2005), which takes into account the ability to achieve stability through change, a healthy response to stress involves the rapid activation of bodily systems that help the individual to cope with the stressor. But it is important to be able to shut off these responses as soon as the stress is over to allow the systems to recover. Frequent activation or the allostatic systems will increase the wear and tear on the organism and may cause the dysregulation of bodily systems and the inability to cope adequately with new demands. Over time, additional stress can be manifested in physical and psychological

symptoms. Studies also reveals that mental stress, as reflected in electromyographic activity (EMG), contributes to increased muscle tension, especially in the trapezius muscle (Lundberg, Forsman, Zachau, Eklöf, Palmerud, Melin, & Kadefors, 2002).

Traditional theories of gender and multiple roles have posited that multiple roles will lead to role conflicts and stress reactions (Barnett & Baruch, 1985). Role-strain models posit that the multiple roles held by a person compete for resources such as time, energy, and psychological involvement, and therefore generate strain. In the long run this may increase the risk for ill health, such as increasing symptom reports in women (Lundberg, 1996). Such theories have, however, been contradicted by empirical evidence showing that multiple roles in certain circumstances may be beneficial to health (Barnett & Hyde, 2001). Role enhancement models claims that multiple roles can serve as a buffer against stress. It emphasizes the potential of multiple roles to enrich the individual's life and to promote individual growth and functioning in different life domains. Problems in one sphere are thought to be compensated for by success in the other. Studies show that employees, especially employed women, are healthier than homemakers and the unemployed and these results support the role enhancement model (Lindfors et al., 2006). Paid work has also been suggested to provide daily structure and social contacts that promote positive functioning in terms of increased self-esteem, satisfaction and personal development (Barnett, 1998; Ryff & Singer, 1998).

A study of managers and professional specialists demonstrated that both women and men experienced their jobs as challenging and stimulating but women were more stressed by their greater unpaid workload (Lundberg & Frankenhaeuser, 1999).Women with children at home had significantly higher levels of norepinephrine levels after work than other participants. Furthermore, due to childbirth and the fact that women still carry the main responsibility for childcare and work in the home (Lundberg et al., 1994; Krantz, Berntsson, & Lundberg, 2005), their careers become more diverse. Grönlund (2007) suggest that gender differences in health may be influenced by the fact that women generally have lower positions and less control over their own work. Since women often carry the main responsibility for childcare and housework, they seem to need a higher degree of control than men at the workplace. Lack of control over working-hours has been shown to have a strong association to work-related ill-health in women (Sandmark, 2007). Another study shows that family demands are associated with distress only among women whose jobs are characterized by little work autonomy (Lennon & Rosenfield, 1992). An elevated level of control seems to be necessary to deal with the obligations at work and in the household.

Job satisfaction

Locke (1976) defined job satisfaction as a pleasurable or positive emotional response toward various facets of one´s job or job experiences. In an effort to identify variables to improve working conditions, job satisfaction studies have been conducted throughout the 20th century (Robert, Young & Kelly, 2006). Researchers have studied how work and non-work factors affect workers job satisfaction. Social support from colleagues and supervisors, pay and promotion, as for job task factors like job autonomy, skill variety and task identity have repeatedly been shown to be related to job satisfaction among workers (Hagihara, Tarumi, Babazono, Nobutomo, & Morimoto, 1998). Job satisfaction is also positively associated with motivation, job involvement, life satisfaction and mental health as well as negatively related to absenteeism and perceived stress (Sangmook, 2005). In addition, Robert et al., (2006) found out that existential well-being explained 20.9 percent of the variance in job satisfaction. Studies which have examined gender differences in job satisfaction have not found any consistent results; some studies have shown women to be more satisfied than men whereas

others studies have shown men to be more satisfied than women (Chiu, 1998).

According to the value-percept theory (Locke, 1976), the values of employees determine what satisfies them at work. Discrepancies between what is desired and what is received are considered to be dissatisfying if the job factor is important to the person. Sangmook (2005) argues that men and women may value different characteristics in a job. In a study of public employees in Seoul, promotion was found to be the most important goal in men´s working life while women thought that worth-while work achievement was most important. These findings are in line with the results from a study conducted in the United States, where men were more likely to value promotion opportunities while women were more prone to value meaningful work content (Tolbert & Moen, 1998). Tolbert et al. (1998) used data from national surveys of workers for the years 1973 to 1994 to study changes by age over time in women´s and men´s preferences for different job characteristics. Age effects were shown in preferences for jobs that give a sense of accomplishment and opportunities for promotion. Age had a positive association to preferences for jobs that provide a sense of accomplishment and a negative association to the importance of promotion opportunities in both men and women. But interestingly, since the recession years in the 1990-1994 fewer men assigned a top rank to having a meaningful job in favour for prioritizing security compared to workers in the 1970s. However, women were more prone to value jobs that provides accomplishment and less likely to give priority to jobs with promotion opportunities or security than men. Overall, the result indicates that women value intrinsic reward higher than do men, while men are more likely to value extrinsic rewards.

Nevertheless, experiences of work arise from an interaction between objective and subjective components of both work and the person (French, Caplan, & Harrison, 1982). To understand the relationship between work characteristics and the impact they have on an individual's health we also have to consider the personal characteristics of employees. A number of traits have been developed to describe different personality factors. Positive affect reflects the ability that individuals have to experience enthusiasm, joy and feelings of trust (Arvey, Bouchard, Segal, & Abraham, 1989). In contrast, negative affect reflects a tendency to experience feelings like fear, suspiciousness and dissatisfaction. The structure of the Big Five (Goldberg, 1990) consists of the dimensions of Neuroticism, Extraversion, Agreeableness, Openness and Conscientiousness. Arvey et al. (1989) examined to what extent genetic factors influence job attitudes. The findings indicated that 30 percent of the variance in general job satisfaction could be explained by genetic factors. Regarding the genetic variance in job satisfaction, the mediation effect of the affectivity model was almost twice as large as the effect of the five-factor model (45 percent vs. 24 percent) (Ilies & Judge, 2003). Judge, Heller and Mount (2002) conducted a meta-analysis regarding the relationship between the Big Five traits and job satisfaction. The findings demonstrate that neuroticism and extraversion display moderate associations with job satisfaction, -.29 for neuroticism and .25 for extraversion.

Models of job satisfaction and job stress

Earlier studies of job satisfaction and job stress emphasized womens domestic situation as the primary determinant of how conditions at work may contribute to ill health whereas job characteristics have been studied in relation to the effects of work on men (Lennon et al., 1992). Today, different job models emphasize different work conditions as being important for determining the effects of employment. Minnesota Satisfaction Questionnaire (MSQ) (Weiss, Dawis, England, & Lofquist, 1967) represents the result of research conducted within the Work Adjustment Project at the University of Minnesota. The framework states that "work adjustment depends on how well an individual´s abilities correspond to the ability

requirements in work, and how well his needs correspond to available reinforces in the work environment" (Weiss et al., 1967). Individuals high in intrinsic orientation are considered to value opportunities for satisfaction with the work itself, feelings of self-determination and personal development. In contrast, individuals high in extrinsic orientation priority factors like financial compensation, promotion and prestige. General job satisfaction refers to people´s positive attitude toward work and the extent to which their current job meets their needs and values. MSQ has been used widely in the study of job satisfaction in different occupational groups (Cook, Hepworth, Wall, & Warr, 1981).

In 1981, Karasek suggested that individuals in occupations with high work demands and low control are at an increased risk for developing physical and psychological symptoms. The job demand-control model (Karasek et al., 1990) has dominated the research field of the psychosocial work environment and its effects regarding stress for more than 25 years. Control is defined as the extent to which employees can control the pace of their work, decide when and how to perform different tasks and have the opportunity to influence the outcome of policy decisions. Theorell (2005) argues that a stress reaction is mobilized when we are about to lose control. A job with high demands and low control is considered as "high strain", while a job high in control and low in demands is "low strain". High strain jobs, which are characterised by constant stress, are supposed to inhibit learning causing strain to accumulate. The combination high job demands and a high degree of control are considered to be optimal for learning, because employees will develop effective strategies when dealing with the demands. The job demand-control model has primarily been used to analyse the relationship between the psychosocial work situation and stress-related problems such as cardiovascular disease and musculoskeletal symptoms.

In addition to the demand-control model, a second theoretical concept is proposed to assess adverse health effects of stressful experiences at work. According to the effort-reward model (Siegrist, 1996), high efforts (e.g., work pressure) in association with low rewards (e.g., lack of promotion prospects, low status) predict ill-health. The imbalance between effort spent and reward received is supposed to be stressful as this imbalance violates expectations about reciprocity. The perceived incongruence cause a state of emotional distress with reference to autonomic arousal and associated strain reactions. Over committed people are considered to have an increased risk of developing stress-related symptoms. The demand-control model and the effort-reward model can be used complementary when studying risk factors regarding ill-health (Theorell, 2003a).

Positive aspects of human functioning

The definition of overall wellness according to the World Health Organization (1948) reads: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". However, research on stress and health has for the most part focused on negative aspects of human functioning, such as stress, physical disease and psychological disorders (Lindfors & Lundberg, 2002). A concept relating to adaptive coping is Sense of Coherence (SOC) (Antonovsky, 1987). Antonovsky developed a theory that he called salutogenesis when he tried to identify the origin of health. Sense of coherence consists of three components: comprehensibility (whether or not inner and outer stimuli make sense to us), manageability (the extent to which we feel resources are available to help meet the daily demands) and meaningfulness (whether we perceive difficulties as challenges or a burden). Meaningfulness is the motivational component of the theory. Antonovsky define sense of coherence as:

> a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that the stimuli deriving from one´s internal and external environments in the course of living are structured, predictable, and explicable (*comprehensibility*); the resources are available to one to meet the demands posed by these stimuli (*manageability*) and these demands are challenges, worthy of investment and engagement (*meaningfulness*) (Antonovsky, A., 1987, p. 19).

According to Antonovsky, a strong SOC leads to enhanced health, particularly during times of adversity. But wellness-illness should be seen as a continuum. The salutogenic perspective means that individuals are on different locations in relation to the continuum depending on the circumstances at a specific time. Several studies have supported Antonovsky´s theory in showing that SOC is negatively associated to various types of ill health. A strong sense of coherence has been significantly linked to health related biomarkers such as lower levels of systolic blood pressure and total cholesterol (Lindfors, Lundberg, & Lundberg, 2005). Lindfors et al. (2005) suggest that a strong SOC may constitute a buffer against ill health because these individuals do not evaluate stimuli as stressful as individuals with a weak SOC. In a longitudinal study, Poppius, Tenkanen, Kalimo and Heinsalmi (1999) followed a group of middle-aged men and found a negative relationship between SOC and coronary heart disease.

Other findings regarding the positive aspects of human functioning suggest that there is an interaction between psychological well-being and physiological processes which effect long-term health (Ryff & Singer, 1998). Ryff et al. (1998) have focused on studying what features of positive human health that contributes to well-being and their protective role in resistance to and recovery from illness. On the basis of earlier frameworks of positive functioning, like Maslow´s (1968) conception of self-actualization and Rogers's (1961) formulation of the fully functioning person, a multidimensional model of well-being was formed. Purpose in life, quality connections with others, self-esteem and mastery are considered to influence happiness and well-being. The theoretical conceptualization of Ryff´s psychological well-being (RPWB) covers six different dimensions including self-acceptance (positive evaluations of oneself), positive relations with others (possession of positive relations with others), autonomy (level of self-determination), environmental mastery (capacity to manage one´s life), purpose in life (the belief that life is meaningful) and personal growth (sense of continued personal development). In validation studies, women had higher levels of positive relations with others and personal growth than men (Ryff & Keyes, 1995).

Lindfors et al. (2006) investigated how paid and unpaid work is related to well-being and found a negative relation between unpaid work and self-acceptance and environmental mastery in women. Paid work, on the other hand, was associated with increasing levels of personal growth in both men and women. Another study demonstrated a link between high psychological well-being and significantly less general and musculoskeletal symptoms and lower cortisol levels (Lindfors et al., 2002).

The present study

The objective of this study was to investigate the relationship between educational level and job satisfaction as well as other aspects of health including positive psychological functioning, individual resources and health problems in middle-aged women and men with children being part of a nationally representative cohort born in the 1950: ies. Moreover, the study aimed to investigate the associations between education, job satisfaction, working-hours, partner status,

number of children and various aspects of health in Swedish women and men with children. The decision to focus on parents in the study was based on the assumption that they might value different aspects of job characteristics than adults without children. Previous studies on women belonging to this cohort have shown that there is a tendency for individuals in higher socioeconomic positions to exhibit better health than those with a lower social position (Johansson, Huang, & Lindfors, 2007; Mellner, Krantz, & Lundberg, 2006). The analyses revealed that financial worries and job strain were significantly associated with a high level of symptoms. A short education, unemployment, low income, financial worries and job strain were all significantly associated with poor self-rated health. For the women carrying a high domestic work burden while in a job strain situation, there was an increased risk of common symptoms as well as of poor self-rated health. No corresponding studies have been performed on men, but drawing on previous research it was hypothesized that adverse work factors, characterized by low control (responsibility, creativity), less compensation and fewer career opportunities, that are linked to a short education, as well as being a single parent and the number of children are associated with an increased risk of poor health among 49-year-old women and 47-48-year old men.

Method

The project Individual Development and Adaptation (IDA)

Data were taken from the longitudinal research program Individual Development and Adaptation (Lindfors, 2004; Trost & Bergman, 2004). The IDA-program includes all children at the age of 10 attending the third grade at a compulsory school in a middle-sized Swedish urban community during 1964-1965. Most of the children in the study were born in 1955. The main group comprised 682 girls and 710 boys and this cohort has been followed to adult age. During 2002/2003 a data collection for men was initiated on the remaining (n = 479) sample. At that time the men were approximately 47-48 years old and the data collection consisted of a personal interview and questionnaires. The aim was to provide information concerning developmental processes in males leading to good or bad adjustment with reference to different aspects of work, mental and physical health, social relations and family life. The participation rate was 82 % and a certain partial dropout occurred (Trost & Bergman, 2004).

In 2004, when the participants were about 49 years of age a new data collection was conducted and 629 women were included in the study. The purpose of the study was to collect information about womens life situation, life satisfaction and health. The response rate was 81.6 percent (Lindfors, 2004) and the possibilities of generalizing to a Swedish population have been considered to be quite good (Bergman, 2000). This study includes women from the data collection performed in 2004 and men participating in the data collection 2002/2003.

General characteristics of the sample

The data collection included 518 women and 264 men. Table 1 presents descriptive statistics for the samples. Everyone was categorized into one of two groups based on the participant's years of education: short education, grade 9/upper secondary school (9 to 12 years) or long education, university (> 15 years). The reason behind dichotomizing education was partly due to the fact that the groups with the lowest educational level (grade 9) were small for both women and men. However, studies show that significant differences in health are related to individuals who have attained a university degree and those who are not (Statistics Sweden, 2004). Occupational status was determined by dividing the participants into one of three groups: employed part-time (< 35 hrs), full-time (35-40 hrs) or being an entrepreneur (> 40 hrs) while cohabitation status was dichotomized into having or not having a partner.

Table 1. Demographic data for women (n = 518) and men (n = 264) with children.

	Women		Men	
Demographics	n	(%)	n	(%)
Children				
One child	104	20.1	64	24.2
Two children	235	45.4	144	54.5
Three children	129	24.9	46	17.4
Four children or more	50	9.6	10	3.8
Education				
Grade 9/Upper secondary school	322	62.3	146	55.3
University	195	37.7	118	44.7
Cohabitation status				
Partner	420	81.1	234	88.6
No partner	98	18.9	30	11.4
Occupational status				
Employed full-time	281	69.7	128	60.1
Employed part-time	100	24.8	73	34.3
Entrepreneurs	22	5.5	12	5.6

Job satisfaction

General job satisfaction was measured with Minnesota Satisfaction Questionnaire (MSQ) (Cook et al., 1981) and it included ten items: supervision ("The way my boss handles his/her workers"), moral values ("Being able to do things that don't go against my conscience"), social service ("The chance to do things for other people"), compensation ("My pay and the amount of work I do"), advancement ("The chances for advancement on this job"), responsibility ("The freedom to use my own judgement"), creativity ("The chance to try my own methods of doing the job"), working conditions ("The working conditions"), co-workers ("The way my co-workers get along with each other") and achievement ("The feeling of accomplishment I get from the job"). All items were rated along a five-point scale ranging from Very dissatisfied = 1 to Very satisfied = 5. Scores on all items were added and averaged into an index with higher scores indicating higher general job satisfaction.

Individual resources

Antonovsky´s Sense of Coherence scales (SOC) (Lundberg & Nyström Peck, 1995) was used for assessment of individual resources. This measure consists of three questions, each corresponding to the components *manageability*, *meaningfulness* and *comprehensibility*: Do you usually see solutions to problems and difficulties that other people find hopeless (manageability)?, Do you usually feel that your daily life is a source of personal satisfaction (meaningfulness)?, Do you usually feel that the things that happen to you in your daily life are hard to understand (comprehensibility)? Answers are indicated in a three-point response format including "yes, scored as 1, "yes sometimes", scored as 2 and "no" scored as 3. After reversing the scores on the third question, an additive index was calculated with high scores indicating a weak SOC. The short form of this self-report inventory has been evaluated in a representative sample of the Swedish population aged 25-74 years (Lundberg et al. 1995) and a strong association (r = 0.66) has been reported between the three-item measure and the original scale.

Psychological well-being

Ryff´s Psychological Well-Being Scales (Ryff & Keyes, 1995) cover six dimensions of psychological well-being: *self-acceptance, environmental mastery, purpose in life, autonomy*

positive relations with others and *personal growth*. The psychometric properties of the Swedish version of Ryff scaled are similar to those of the original version (Lindfors et al., 2006) The dimensions are included in a single 18-item measure and items are rated along a six-point format with response alternatives including agree or disagree strongly, moderately or slightly. Scores on all dimensions were summed into six indexes and a higher score indicated higher psychological well-being.

Self-reported symptoms

Symptom frequency was measured by a checklist including physical and mental symptoms commonly reported by women in the general population (Krantz & Östergren, 1999). The women were asked to report the frequency of the symptoms they had experienced during the last three months (1 = daily, 2 = several times a week, 3 = occasionally, 4 = never) while the men reported symptoms that had occurred during the last 3-4 weeks (1 = daily, 2 = several times a week, 3 = occasionally, 4 = never). The physical symptoms (stomach aches, headache, palpitations, sleeping problems, breathing difficulties, chest pain, dizziness, nausea, pain in arms, legs, neck, shoulders, back problems, itch and skin problems) and the psychological symptoms (feeling depressed, restless, anxious, tired and exhausted, difficulties unwinding, powerless, passive, not wanting to meet other people) were added together to produce indexes with higher scores indicating fewer symptoms.

Statistical analyses

Given the educational, occupational and health differences between women and men it was considered to be reasonable to carry out separate analyses. The decision is also motivated by the fact that women reported symptoms during the last 3 months while men only reported symptoms for a period of 3-4 weeks. The groups consisting of men and women were matched with reference to age, children and employment status (having a job). Analyses of group differences in general job satisfaction, sense of coherence, psychological well-being and health problems were performed using multivariate analyses of variance. Stepwise regression analyses were conducted to examine predictors for the outcome variables. In all analyses, the significance level was set to $p < .05$.

Results

Table 2. Descriptive statistics, correlations (r_p) and internal consistency coefficients (Cronbach´s alpha) for women (n = 373) and men (n = 186) with children.

Measure	1	2	3	M	SD	∞
Women						
MSQ				3.64	.63	.82
RPWBS	.34 **			4.50	.55	.82
SOC	-37 **	-.62 **		1.56	.39	.41
SRS	.38 **	.40 **	-.46 **	3.43	.47	.90
Men						
MSQ				3.71	.57	.80
RPWBS	.36 **			4.56	.54	.82
SOC	-.30 **	-.46 **		1.43	.33	.27
SRS	.26 **	.42 **	-.33 **	3.63	.31	.84

** Correlation is significant at the 0.01 level (2-tailed).

Note: MSQ = Minnesota Satisfaction Questionnaire; RPWBS = Ryff´s Psychological Well-Being Scale; SOC = Antonovsky´s Sense of Coherence scale; SRS = Self-rated symptoms

Table 2 reveals that the associations between job satisfaction and different aspects of health for women and men follow the same trend; individuals having high job satisfaction reporting higher levels of psychological well-being, stronger sense of coherence and fewer symptoms. In general, the internal consistency coefficient was satisfactory.

Job satisfaction, well-being and symptoms

There was a significant main effect of gender for sense of coherence, F (1,709) = 14.88, p < .001, η^2 =.02; environmental mastery, F (1,693) = 14.79, p < .001, η^2 =.02; self-acceptance, F (1,693) =3.88, p < .05, η^2 =.006; personal relations with others, F (1,693) = 4.56, p < .05, η^2 =.007, personal growth, F (1,693) = 7.54, p < .01, η^2 =.01; autonomy, F (1,693) = 5.23, p < .05, η^2 =.007; physical symptoms, F (1,667) = 38.44, p < .001, η^2 = .05 and psychological symptoms, F (1,667) = 20.20, p < .001, η^2 = .03. Men reported stronger sense of coherence, environmental mastery, self-acceptance and autonomy whereas women showed more personal relations with others, personal growth as well as more physical and psychological symptoms.

A significant main effect regarding level of education was found in relation to general job satisfaction, F (1,573) = 30.35, p < .001, η^2 = .05; sense of coherence, F (1,709) = 26.03, p < .001, η^2 =.04; self-acceptance, F (1,693) = 7.74, p < .01, η^2 =.01; purpose in life, F (1,693) =15.14, p < .001, η^2 =.02; personal growth, F (1.693) = 37.52, p < .001, η^2 =.05; physical symptoms, F (1,667) = 34.92, p < .001, η^2 = .05 and psychological symptoms, F (1,667) = 3.98, p < .05, η^2 =.006. A high level of education was positively associated with general job satisfaction, sense of coherence, self-acceptance, purpose in life and personal growth, and negatively associated with physical and psychological symptoms. Table 3 shows differences between women and men ranking each job characteristic with reference to their level of education.

Table 3. Job satisfaction as related to education

	Women		Men	
	Grade 9/Upper secondary school	University	Grade 9/Upper secondary school	University
Dimension	M (SD)	M (SD)	M (SD)	M (SD)
	(n = 220)	(n = 158)	(n = 109)	(n = 90)
Supervision	3.51 (1.21)	3.74 (1.06)	3.31 (1.04)	3.77 (.97) **
Moral values	3.89 (.90)	4.15 (.74) **	3.64 (.95)	4.03 (.98) **
Social service	4.25 (.86)	4.52 (.56) ***	4.18 (.78)	4.21 (.79)
Compensation	2.50 (1.26)	2.77 (1.14) *	2.78 (1.16)	3.39 (1.03) ***
Advancement	2.86 (1.03)	3.08 (.93) *	2.95 (.93)	3.28 (1.03) *
Responsibility	3.88 (1.01)	4.17 (.76) **	4.00 (.79)	4.20 (.89)
Creativity	3.64 (1.07)	4.15 (.81) ***	3.80 (.93)	4.13 (.78) **
Working conditions	3.43 (1.10)	3.71 (.97) **	3.30 (1.03)	3.76 (1.04) **
Co-workers	4.02 (.91)	4.15 (.72)	4.00 (.87)	4.09 (.77)
Achievement	3.76 (1.04)	4.16 (.75) ***	3.71 (.90)	3.94 (.81)

* p < 0.05; ** p < 0.01; *** p < 0.001

Highly educated women reported significantly less moral conflicts, F (1, 376) = 9.29, p < .01, η^2 =.02; perceived their tasks as being more meaningful, F (1,376) = 12.31, p < .001, η^2 =.03; higher contentment concerning the payment, F (1,376) = 4.28, p < .05, η^2 = .01; better career opportunities, F (1,376) = 4.20, p < .05, η^2 =.01; more potential to use their own judgement, F (1,376) = 9.55, p < .01, η^2 =.03; more opportunities of being creative, F (1,376) = 26.01, p < .001, η^2 =.07; higher satisfaction regarding the work environment, F (1,376) = 6.62, p < .01, η^2 =.02 and a higher sense of accomplishment F (1, 376) = 16.93, p < .001, η^2 =.04. Highly

educated men reported significantly more contentment with supervision, F (1,197) = 9.97, p < .01, η^2 =.05; less moral conflicts, F (1,197) = 8.17, p < .01, η^2 =.04; more satisfaction with the payment, F (1,197) = 15.00, p < .001, η^2 =.07; better career opportunities, F (1,197) = 5.45, p < .05, η^2 =.03; more chances of being creative, F (1,197) = 7.37, p < .01, η^2 =.04 and a better work environment, F (1,197) =9.41, p < .01, η^2 =.05.

Relationships between health and symptoms

Regardless of gender, table 4 shows strong associations between physical and psychological symptoms; environmental mastery and psychological symptoms; environmental mastery and self-acceptance; environmental mastery and positive relations with others; and self-acceptance and positive relations with others. There was a strong relationship between self-acceptance and psychological symptoms in women and self-acceptance and personal growth in men.

Table 4. Bivariate correlations (r_p) women (n = 328) and men (n =150) with children.

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13
Women													
EDU													
MSQ	.18**												
WHR	-.13*	-.01											
PST	-.05	-.05	-.09										
NCH	.01	.02	.04	-.09									
PHS	.20**	.30**	.01	-.07	-.05								
PSS	.07	.35**	.03	-.10	-.05	.61**							
SOC	-.27**	-.37**	.04	.11*	.04	-.37**	-.44**						
EM	.04	.36**	.02	-.04	-.06	.37**	.56**	-.52**					
SA	.10	.35**	-.02	-13*	-.09	.33**	.50**	-.61**	.68**				
PR	.09	.27**	.04	-.18**	.01	.23**	.34**	-.38**	.50**	.61**			
PL	.17**	.09	-.06	-.11	-.02	.10	.17**	-.25**	.28**	.28**	.33**		
PG	.29**	.26**	-.11*	-.00	-.10	.13*	.16**	-.46**	.42**	.44**	.32**	.34**	
AU	.09	.07	.08	.03	-.05	16**	.10	-.28**	.27**	.31**	.26**	.10	.31**
Men													
EDU													
MSQ	.26**												
WHR	.10	.19*											
PST	-.11	-.09	-.09										
NCH	.11	.18*	.10	.00									
PHS	.11	.29**	.11	-.12	-.01								
PSS	-.06	.23**	-.04	.01	-.02	.56**							
SOC	-.18*	-.33**	.03	.03	-.08	-.29**	-.29**						
EM	-.07	.38**	-.00	-.14	.09	.45**	.54**	-.45**					
SA	.08	.31**	.01	-.23**	.08	.39**	.41**	-.41**	.51**				
PR	-.05	.28**	-.05	-.06	.03	.28**	.29**	-.32**	.50**	.50**			
PL	.02	.18*	-.08	.04	.20*	.18*	.17*	-.24**	.36**	.28**	.46**		
PG	.22**	.44**	.09	-.05	.13	.33**	.19*	-.40**	.42**	.51**	.49**	.30**	
AU	-.07	.16	-.01	-.08	.13	.19*	.18*	-.19*	.32**	.39**	.35**	.21*	.26**

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Note: EDU = Education; MSQ = Minnesota Satisfaction Questionnaire; WHR = Working-hours; PST = Partner status; NCH = Number of children; PHS = Physical symptoms; PSS = Psychological symptoms; SOC = Sense of coherence; EM = Environmental mastery; SA = Self-acceptance; PR = Positive relations with others; PL = Purpose in life; PG = Personal growth; AU = Autonomy.

Significant results from stepwise regression analyses that were aimed to investigate predictors of physical and mental symptoms, sense of coherence and the six dimensions of psychological

well-being are shown in table 5. The predictors included education, general job satisfaction, working-hours, partner status and number of children. For both women and men, general job satisfaction was associated with fewer physical and psychological symptoms as well as higher levels of sense of coherence, environmental mastery, self-acceptance, positive relations with others and personal growth. For women, the level of education was associated with fewer physical symptoms, higher sense of coherence, purpose in life and personal growth. For men, education was negatively associated with environmental mastery, where a low education predicted higher ratings. Partner status (not having a partner) was associated with more psychological symptoms and less self-acceptance, positive relations with others and purpose in life in women. Number of children was negatively associated with self-acceptance and personal growth. For men, the number of children was associated with higher purpose in life. Working-hours did not emerge as a significant predictor for either women or men.

Table 5. Regression analyses for women and men with children

	Women			Men		
Dependent variable Predictor	β	t	Adj. R^2	β	t	Adj. R^2
Physical symptoms		(n = 351)			(n=196)	
Education	.15	2.92 **	.043			
General job satisfaction	.29	5.61 ***	.079	.26	3.70 ***	.066
Psychological symptoms		(n = 363)			(n=194)	
General job satisfaction	.38	7.83 ***	.150	.19	2.64 **	.030
Partner status	-.10	-2.05 *	.007			
Sense of coherence		(n = 377)			(n=197)	
Education	-.18	-.3.64 ***	.056			
General job satisfaction	-.32	-.6.55 ***	.095	-.30	-4.41 ***	.086
Environmental Mastery		(n = 415)			(n=196)	
General job satisfaction	.38	8.22 ***	.139	.37	5.35 ***	.099
Education				-.19	-2.72	.028
Self-Acceptance		(n = 375)			(n=195)	
General job satisfaction	.34	6.95 ***	.112	.25	3.65 ***	.060
Number of children	-.12	-2.43 *	.009			
Partner status	-.10	-2.12 *	.009			
Positive relations with others		(n = 374)			(n=196)	
General job satisfaction	.25	4.92 ***	.060	.23	3.30 ***	.048
Partner status	-.15	-3.00 **	.020			
Purpose in life		(n = 449)			(n=259)	
Education	.19	4.14 ***	.037			
Partner status	-.11	-2.29 *	.009			
Number of children				.20	3.24 ***	.035
Personal growth		(n = 373)			(n=194)	
Education	.22	4.49 ***	.068			
General job satisfaction	.22	4.40 ***	.044	.38	5.61 ***	0.14
Number of children	-.10	-2.00 *	.007			

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.
Variables tested in each model: Education, general job satisfaction, working-hours, partner status and number of children.

Discussion

This study aimed to extend our current knowledge on social gradients in health by studying different aspects of job satisfaction, health and well-being in a nationally representative cohort of middle-aged women and men with children. In relating job satisfaction of employed women and men with at least one child to both positive and negative aspects of health, this study showed that the associations between job satisfaction and health are related to level of education. For both women and men, a short education was associated with decreasing levels of job satisfaction, sense of coherence, self-acceptance, purpose in life, personal growth and more physical and psychological symptoms. Regardless of gender, individuals with a long education reported significantly less moral conflicts in relation to their work tasks, they were more satisfied with their salaries, career opportunities and the potential of being creative as well as different facets of the work environment. Highly educated women with children considered their jobs as being more meaningful, including more responsibility and resulting in a higher sense of achievement compared to women with a short education. Well-educated men perceived their bosses to treat them better than men with a lower level of education. Social interactions between colleagues do not seem to improve in jobs that require a university degree. The lack of difference between the educational groups in men regarding the social service dimension can be understood by the fact that men generally does not have jobs that include caring for, helping, instructing or providing services to other people, at least not as often as women. The reason why the responsibility and achievement factors only demonstrate a significant difference in women are probably influenced by the fact that women generally have lower positions and less control over their own work. Overall, the results are consistent with previous findings showing that self-determination, career development and learning opportunities are more common in highly educated groups (Aronsson & Göransson, 1999).

General job satisfaction was a significant predictor of all of the health-related measures, except for purpose in life in both men and women. Job satisfaction especially seems to reduce psychological symptoms in women at the same time as it strengthens the components environmental mastery and self-acceptance. Low-educated women demonstrated significantly more physical symptoms than highly educated women. The result is expected because it is well documented that physically monotonous and repetitive work is associated with an increase in lower back, shoulder and neck pain (Lundberg 2002; Lundberg et al., 1999). In addition, earlier findings reveal that women with a low education in relatively unskilled jobs are less satisfied with work and life in general, and less healthy than women with higher education (Johansson et al., 2007). But as well as nature of work, there are a number of other factors that seems to influence the health of women. Another determinant for gender differences in health might be that occupationally active women find themselves in a challenging psychosocial situation, because they often have the responsibility for the family and household. Men are considered to generally respond with health problems in relation to conditions at work while womens responses are based on more complex interactions between their paid and unpaid work (Lundberg, 1996).

The result also reveals that education contributes to a stronger sense of coherence, purpose in life and personal growth in women. In contrast, education was only a significant predictor for environmental mastery in men whereas job satisfaction seems to be especially important for personal growth, environmental mastery and sense of coherence. Interestingly, men with a short education reported higher levels of environmental mastery compared to men with a long education. The findings may indicate that attaining a university degree is more important for

women in order to get a job that will generate feelings of self-realization and success at work. It also leads to a belief in having greater access to necessary resources for handling various demands in life which, in turn, reduces negative stress. This relationship may to some extent explain the link between education and a reduced amount of physical symptoms in women. Women with a university degree are also less likely to have a high strain job or work tasks characterized by static load for a longer period in life, factors that are known to contribute to the wear and tear of the body (Lundberg, 2002).

The fact that studies show that women´s job satisfaction generally is not lower than men´s has been considered as a paradox, given that women´s jobs often are inferior with respect to pay, autonomy and promotional opportunities (Chiu, 1998). But the results from this study indicate that job satisfaction has more to do with the level of education than of gender. However, this does not have to contradict previous findings demonstrating that women are more prone to be intrinsically motivated while men have a tendency to be extrinsically motivated (Sangmook, 2005; Tolbert et al., 1998). When considering job satisfaction, the most influencing factor was creativity in women and compensation in men. Moreover, men did not get significant results regarding social service, responsibility and achievement. This might indicate that women are more intrinsically oriented, having a higher public service motivation and more focused on serving citizens and community. For women, these kinds of jobs may lead to a sense of work accomplishment. Earlier research indicates that females are more likely to subscribe to statements that reflect compassion for others and a commitment to finding meaning of life (Sangmook, 2005). Men are considered to endorse statements reflecting the value of material benefits and to be more focused on individual accomplishment.

Having a partner was negatively associated to psychological symptoms while it was positively associated to self-acceptance, positive relations with others and purpose in life in women. No associations could be found regarding partner status in men. This indicates that social support is especially beneficial for women who are usually the one´s responsible for children and other unpaid household tasks. A partner may also mediate the relationship to a broader social network that can enrich life in different ways. Number of children was negatively associated to self-acceptance and personal growth in women whereas it showed positive associations to purpose in life in men. This suggests that women with children experience negative aspects of their unpaid work, whereas men with a comparable family situation report beneficial effects with respect to psychological well-being. The results support previous findings (Lindfors et al., 2006) where unpaid work was associated with decreasing levels of self-acceptance in women. Moreover, considering that women often have the main responsibility for children, raising a big family can be very time-consuming, which sometimes might take place at the expense of other self-fulfilling activities, such as getting an education that could lead to a stimulating job that include more autonomy. Thus, the role-strain model seems to be more valid when it comes to the situation of women while the role enhancement model better suits the circumstances of men. Working part-time, full-time or more did not affect any of the indicators of health included in this study, which indicate that other work characteristics influence well-being to a greater degree.

The men included in this study exhibited a better health compared to the women. Regardless of educational status, men showed significantly stronger sense of coherence, environmental mastery, self-acceptance and autonomy. In contrast, women had higher ratings of personal relations with others and personal growth which is consistent with the findings of Ryff and Singer (1995). The women also reported significantly more physical and psychological symptoms. Statistics show higher morbidity in terms of higher health service use and drug

consumption for women compared to those of men. Despite this, women outlive men by around five years in western industrialized countries (Krantz et al., 1999). The observed sex differences in health have been attributed to differences in biological factors, living/work conditions and lifestyle behaviors. Men seem to be disfavoured with respect to longevity in conjunction with biological risk factors, while psychosocial aspects seem to increase womens reported ill health.

The concern guiding this study is that women and men often suffer from an array of physical and psychological symptoms, which seems to be partially due to a general distress caused by the working conditions that are related to level of education. During the past decade, work-related stress has increased in many industrialized countries. An increasingly tough working climate and reorganisations in the public sectors have been suggested as possible reasons for the increase in long-term sickness absence. Members of occupational groups whose everyday tasks are to provide care, welfare services or teach are at higher risk of experiencing mental exhaustion in comparison to other occupational groups. A majority of these occupations are to be found in the public sectors, which were subjected to staffing cutbacks during the 1990s. Since then there has been increased sex segregation in the Swedish labour market. In areas where most women work time pressure has increased and there has been an increase in mental and physical workload in labour-intensive services and in human services (Westerlund et al., 2006). Evaluating the importance of different dimensions of work in job satisfaction is important from the occupational health promotion perspective. In future studies, we might need to explore the significance of factors such as meaning, purpose, moral values and creativity that have not gained much attention so far. Dorn (1992) suggests that our culture overemphasize the value of selecting career paths that offer a high degree of monetary reward instead of focusing on finding occupational environments that provide a high degree of congruence between the person's interests and the work tasks.

Several explanations can be proposed concerning the positive association between education and job satisfaction. The possibilities to achieve a desirable and full-filling job often increase with the level of education and highly educated individuals are less likely to be "locked into" a job which they do not wish for. Higher positions are also associated with self-management and flexibility which are important work characteristics from a stress-reduction perspective. Even so, different aspects of private life and individual characteristics are also potential sources of job satisfaction. Levels of education and occupational class also determine people's access to material resources. In addition, material resources may have an effect on health by affecting living conditions and other factors associated with financial disadvantage. Nevertheless, studies show that working conditions play an important role relative to job satisfaction (Weiss et al., 1967) and the implications of these findings are that job enrichment, as well as other interventions, possibly will enhance the health and well-being of individuals.

Strengths and limitations

The conclusions concerning the causal directions between job satisfaction and different health indices are limited due to the lack of longitudinal data. Another limitation could be that this study is based only on self-assessments which might be influenced by social desirability. The relatively small sample sizes, particularly due to partial dropout in men, included in the study also limit the possibility to generalise to a larger population. However, the results are based on middle-aged women and men who were part of a nationally representative cohort, and the health indices related to the level of education point in the same direction. Moreover, the samples in this study were matched with reference to gender, age, having children, level of education and occupational status, which reduces the number of confounders. This study also

included various indicators of health and well-being, ranging from self-ratings of sense of coherence, psychological well-being to physical and mental symptoms. No previous study has investigated the associations between gender, job satisfaction, health and well-being in relation to education. Regarding the psychometric properties of Antonovsky´s SOC scale, the internal consistency coefficient for men and women was low. The reason to include the scale is based on an evaluative study that demonstrates strong associations between the short form measure and the original scale (Lundberg et al. 1995).

In sum, the findings indicate that attaining a university degree can be considered as an investment in health because general job satisfaction was shown to be a strong predictor of different aspects of health and well-being in women and men with children. Highly educated individuals are more likely to find a job where they are involved in deciding the arrangement of their own work, they perceive less moral conflicts, are more satisfied with their salaries, work environment, career opportunities and the chances of being creative. Women primarily value jobs that include potential of being creative whereas men are more concerned about the payment. Even so, for a further understanding of how education affects health and human flourishing in adults with children; the present results need to be confirmed in a larger and more diversified sample. It would be interesting to consider other job characteristics as well, such as ability utilization, variety and job insecurity. But rather than just focusing on different aspects of job satisfaction, it would be meaningful to measure women and men's perceptions of different job attributes and relate them to professionals and job satisfaction.

References

Antonovsky, A. (1987). *Unravelling the mystery of health.* San Francisco: Jossey-Bass.

Aronsson, G., & Göransson, S. (1999). Permanent Employment but Not in a Preferred Occupation: Psychological and Medical Aspects, Research Implications. *Journal of Occupational Health Psychology, 4 (2),* 152-163.

Arvey, R. D., Bouchard, T. J., Segal, N. L., & Abraham, L. M. (1989). Job satisfaction: Environmental and genetic components. *Journal of Applied Psychology, 74,* 187-192.

Astvik, W., Mellner, C., & Aronsson, G. (2006). På väg - En kvalitativ studie av långtidssjukskrivning, arbete och rörlighet. *Arbete och Hälsa, 2005:3*.

Barnett, R. C., & Hyde, J. C. (2001). Women, Men, Work, and Family. *American Psychologist*, 56 (10), 781-796.

Barnett, R. C. (1998). Toward a review and reconceptualization of the work/family literature. *Genetic, Social and General Psychology Monographs, 124,* 125-153.

Barnett, R. C., & Baruch, G. K. (1985). Women´s Involvement in Multiple Roles and Psychological Distress. *Journal of Personality and Social Psychology, 49 (1),* 135-145.

Bergman, L. R. (2000). *Women´s health, work, and education in a life-span perspective.* Technical report 1: Theoretical background and overview of the data collection. Report from the project Individual Development and Adaptation. No. 70. Department of Psychology, Stockholm University.

Betz, N. E., & Fitzgerald, L. F. (1987). *The Career Psychology of Women*. Academic Press: London.

Chiu, C. (1998). Do professional women have lower job satisfaction than professional men? Lawyers as a case study. *Sex Roles, 38,* 521-537.

Cook, J. D., Hepworth, S. J., Wall, T. D., & Warr, P. B (1981). *The experience of work.* Academic Press Inc: London.

Dorn, F. J. (1992). Occupational wellness: The integration of career identity and personal identity. *Journal of Counselling & Development, 71,* 176-178.

French, J. R., Caplan, R. D., & Harrison, R. V. (1982). *The mechanisms of job stress and strain*. Chichester, England: Wiley.

Goldberg, L. R. (1990). An alternative "description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology, 59,* 1216-1229.

Grönlund, A. (2007). More control, less conflict? Job demand-control, gender and work-family conflict. *Gender, Work & Organization, 14,* 476-497.

Hagihara, A., Tarumi, K.., Babazono, A., Nobutomo, K.., & Morimoto, K. (1998). Work-versus non-work predictors of job satisfaction among Japanese white-collar workers. *Journal of Occupational Health, 40,* 285-292.

Ilies, R., & Judge, T. A. (2003). On the Heritability of Job Satisfaction: The Mediating Role of Personality. *Journal of Applied Psychology, 88 (4),* 750-759.

Johansson, G., Huang, Q., & Lindfors, P. (2007). A life-span perspective on womens careers, health, and well-being. *Social Science & Medicine, 65,* 685-697.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology, 87,* 530-541

Karasek, R., & Theorell, T. (1990). *Healthy Work. Stress, productivity, and the reconstruction of working life.* New York. Basic Books.

Krantz, G., Berntsson, L., & Lundberg U. (2005). Total workload, work stress and perceived symptoms in Swedish male and female white-collar employees. *European Journal of Public Health, 15 (2),* 209-214.

Krantz, G., & Östergren, P.-O. (1999). Women´s health: Do common symptoms in women mirror general distress or specific disease entities? *Scandinavian Journal of Public Health, 27,* 311-317.

Lennon, M. C., & Rosenfield, S. (1992). Women and mental health. The interaction of job and family conditions. *Journal of Health and Social Behavior, 33 (3),* 316-327.

Lindfors, P., Lundberg, U., & Lundberg, O. (2005). Sense of coherence and biomarkers of health in 43-year old women. *International Journal of Behavioral Medicine, 12 (2),* 98-102.

Lindfors, P. (2004). Questions on Womens Situation, Life Satisfaction and Health. The 2004 IDA Follow-up Survey on Women. Technical report: Reports from the Project Individual Development and Adaptation, No. 86. Stockholm: Stockholm University, Department of Psychology.

Lindfors, P., Berntsson, L., & Lundberg, U. (2006). Total Workload as Related to Psychological Well-Being and Symptoms in Full-Time Employed Female and Male White-Collar Workers. *International Journal of Behavioral Medicine, 13 (2),* 131-137.

Lindfors, P., & Lundberg, U. (2002). Is low cortisol release an indicator of positive health? *Stress and Health, 18,* 153-160.

Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational Psychology* (pp. 1297-1343). Chicago: Rand McNally.

Lundberg, O., & Nyström Peck, M. (1995). A simplified way of measuring sense of coherence. *European Journal of Public Health, 5,* 56-59.

Lundberg, U. (2002). Psychophysiology of Work: Stress, Gender, Endocrine Response, and Work-Related Upper Extremity Disorders, *American Journal of Industrial Medicine, 41,* 383-392.

Lundberg, U., Forsman, M., Zachau, G., Eklöf, M., Palmerud, G., & Melin, B et al. (2002). Effects of experimentally induced mental and physical stress on motor unit recruitment in the trapezius muscle. *Work and stress, 2,* 166-178.

Lundberg, U., & Frankenhaeuser, M. (1999). Stress and Workload of Men and Women in High-Ranking Positions. *Journal of Occupational Health Psychology, 4(2),* 142-151.

Lundberg, U. (1996). The influence of paid and unpaid work on psychophysiological stress responses of men and women. *Journal of Occupational Health Psychology, 1,* 117-130.

Lundberg, U., Mårdberg, B., & Frankenhaeuser, M. (1994). The total workload of male and female white collar workers as related to age, occupational level, and number of children. *Scandinavian Journal of Psychology, 35,* 315-327.

Maslow, A. (1968). *Toward a psychology of being*. New York: Van Nostrand.

McEwen, B. S. (2005). Stressed or stressed out: What is the difference? *Journal of Psychiatry and Neuroscience, 30,* 315-318.

Mellner, C., Krantz, G., & Lundberg, U. (2006). Symptom Reporting and Self-Rated Health Among Women in Mid-Life: The Role of Work Characteristics and Family Responsibilities. *International Journal of Behavioral Medicine, 13(1),* 1-7.

Poppius, E., Tenkanen, L., Kalimo, R., & Heinsalmi, P. (1999). The sense of coherence, occupation and the risk of coronary heart disease in the Helsinki Heart Study. *Social Science and Medicine, 49,* 109-120.

Robert, T. E., Young, J. S., & Kelly, V. A. (2006). Relationships Between Adult Worker´s Spiritual Well-Being and Job Satisfaction: A Preliminary Study. *Counseling and Values, 50,* 165-175.

Rogers, C. R. (1961). *On becoming a person*. Boston: Houghton Mifflin.

Ryff, C. D., & Singer, B. (1998). The contours of positive human health. *Psychological Inquiry, 9,* 1-28.
Maslow, A. (1968). *Toward a psychology of being*. New York: Van Nostrand.

Ryff, C. D., & Keyes, C. L. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69,* 719-727.

Sandmark, H. (2007). Work and family: associations with long-term sick-listing in Swedish women – a case-control study. *Public Health, 7,* 1-9.

Sangmook, K. (2005). Gender Differences in the Job Satisfaction of Public Employees: A Study of Seoul Metropolitan Government, Korea. *Sex Roles, 52,* 667-680.

Sapolsky, R. (2005). The influence of social hierarchy on primate health. *Science, 308,* 648-652.
Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology, 1,* 27-41.

Statistiska Centralbyrån, SCB (Statistics Sweden): Sjukfrånvaro och ohälsa i Sverige – en belysning utifrån SCB: s statistik 2004:3 (Sickness absence and ill-health in Sweden – in the light of statistics from SCB). 2004 [http://www.scb.se/Grupp/Sjukfranvaro/_Dokument/
Bfakta_analys.pdf]

Statistics Sweden: Women and Men in Sweden, Facts and Figures 2008.

Taylor, S. E., Repetti, R. L., & Seeman, T. (1997). HEALTH PSYCHOLOGY: What is an Unhealthy Environment and How Does It Get Under the Skin? *Annual Review of Psychology, 48,* 411-447.

Theorell, T. (2005). Att kunna utöva kontroll över sin egen situation – en förutsättning för hantering av upprepad och uttalad negativ stress. I R. Ekman, & B. Arnetz. (Red.), *Stress. Individen, Samhället, Organisationen, Molekylerna* (sid. 282-291). Stockholm: Liber.

Theorell, T. (2003a). Är ökat inflytande på arbetsplatsen bra för folkhälsan? Statens Folkhälsoinstitut 2003:46. Prinfo I&N: Bollnäs.

Theorell, T. (2003b). *Psykosocial miljö och stress.* Studentlitteratur: Lund.

Tolbert, P. S., & Moen, P. (1998). Men´s and women´s definitions of "good jobs": Similarities and differences by age and across time. *Work & Occupations, 25,* 168-194.

Trost, K., & Bergman, E. (2004). Men´s work and well-being in a lifespan perspective. The 2002-2003 IDA Follow-up Survey on Men. Technical report: Reports from the Project Individual Development and Adaptation, No. 85. Stockholm: Stockholm University, Department of Psychology.

Weiss, D. J., Dawis, R. V., England, G. W., & Lofquist, L. H. (1967). *Manual for the Minnesota Satisfaction Questionnaire.* Minneapolis: University of Minnesota.

Westerlund, H., Ferrie, J., Hagberg, J., Jeding, K., Oxenstierna, O., & Theorell, T. (2004). Workplace expansion, long-term sickness absence, and hospital admission. *Lancet, 363,* 1193-1197.

World Health Organization. (1948). WHO definition of health. Retrieved March 22, from http://www.who.int/about/definition/en/print.html