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Work conditions for workers with good long-term health

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Abstract

Purpose – The aim of this paper is to investigate which work- and private life factors are associated with long-term health, operationalized as low sickness absence and low sickness presence.

Design/methodology/approach – A representative sample of 2,297 individuals responded to a questionnaire on two occasions at an interval of one year. In total, 28 percent were classified as having good long-term health.

Findings – Univariate and multivariate analyses showed that some quality-related work environment factors were rather strongly associated with long-term health. For some variables women showed a clear dose-response pattern on the three-level scale alternatives in relation to health, while men had a more asymmetric response pattern. The results are discussed in relation to the symmetry in the work environment factors, i.e. if there are different factors that explain health and illness.

Practical implications – Issues concerning health and health-enhancing factors are of considerable interest to practitioners concerned with management issues, organizational structure, and rehabilitation.

Originality/value – The paper shows the importance of including a positive health variable within the health research paradigm to supplement the dominance of variables focusing on illness and disease.

Keywords Sick leave, Personal health, Lifestyles, Gender, Workplace, Sweden

Paper type Research paper

1. Introduction

Notwithstanding its name, work-related health research has largely focused on illness and disease and the forms that they take in the workplace. Less effort has been devoted to trying to define and operationalize health and to generate knowledge about improving health and health-promoting circumstances in the workplace, even if there are some exceptions. The focus on ill health is international (Nelson and Simmons, 2002). One likely reason for this is that a concept like health is more difficult to handle in empirical studies than other more or less specified forms of disease and ill health. Issues concerning health and health-enhancing factors are of considerable interest to practitioners concerned with management issues, organizational structure, and rehabilitation.

Many philosophical and theoretical scientific discourses have focused on the concept of health, and various perspectives and definitions have been formulated (Nelson and Simmons, 2002; Nordenfeldt, 1987). In empirical studies, however, health,

The project was supported by a grant from AFA, an insurance company owned by Sweden's labor market parties (Dnr 2000-0173). The authors would like to thank biostatistician Tomas Lindh for his statistical advice and support.

Equal contributions were made by the authors to the article.

International Journal of Workplace Health Management
Vol. 3 No. 2, 2010
pp. 160-172

1753-8351
DOI 10.1108/17538351011055041

with a few exceptions, (Lindberg, 2006; Mackenbach, 1994) tends to be equated with the absence of medical disease. In the more philosophical approaches, it is assumed that the individual's physical health is only one aspect of health, and that health also includes psychological and existential features; in other words, good health is something more than just the absence of disease (WHO, 1948). Broader definitions of health include a greater element of empirically oriented health psychology, although the links with working life still tend to be relatively weak (Quick and Tetrick, 2002). Interesting research is being conducted with a special focus on the importance of emotions for good health (Ryff and Singer, 1998). In the stress research arena, fairly extensive studies have been designed to examine the physiological substrata for pleasure and the experiencing of wellbeing, including investigations of their protective roles and relevance to recuperation from illness. The concept of "healthy work" has also emerged in work-related stress research, and refers to those situations in which job demands constitute positive challenges that lead to an enjoyable learning process (Karasek and Theorell, 1990).

In this study, we have defined health in behavior-related or action-oriented terms, and have not explicitly adopted any specific stress or health psychology theory. Our operationalization involves a combination of low sickness-absence and low sickness-presence measures over a defined period of time (sometimes also the term presenteeism is used but that term has more and more been reserved for on-the-job-productivity loss studies from the USA, while most sickness presence studies come from Europe and concerns health). In applying the sickness-presence concept, those individuals who showed low absence due to ill-health, despite having a poor health record, were not included, since these individuals went to work while sick and therefore would have constituted false-positives (Aronsson *et al.*, 2000; Aronsson and Gustafsson, 2005). Since the period covered in this study is a full two years, people who had very limited or no sickness absence and sickness presence within these years are classified as having good long-term health. Two recent longitudinal studies have shown the importance of sickness presence in relation to future health and to future sickness absence (Bergström *et al.*, 2009a; Bergström *et al.*, 2009b).

Long-term health, in this sense, may be related to analyses of both workplace structures and individual- and collective control strategies (with an emphasis on one or the other), or to the interaction between structures and the individual or the collective regulation of such structures. This study focuses on the structural perspective and the following questions:

RQ1. How do the working conditions of people who enjoy long-term health compare with those who are less healthy?

RQ2. What working conditions contribute to good health and predict whether people will have long-term good health?

RQ3. Is good health and ill-health associated to different sets of work conditions?

The last question, which this study tries to address on a tentative basis, involves whether the effects of a work- and private life factors extend in a linear way from the health pole to the ill-health pole on some sort of scale, or are certain factors only relevant to one pole or the other on a health scale.

There are a handful of studies that have addressed this question. In a major population-based study from the Netherlands, Mackenbach *et al.* (1994) attempted to answer the question of whether the determining factors for excellent health (8.2 percent of the population studied) differed from those for ill health (10.5 percent of the population studied). The conclusion drawn was that the processes generating excellent health have a great deal in common with those resulting in ill health. The researchers concluded that the existing knowledge about health aspects and the factors that determine them was weaker than the knowledge about ill health. This conclusion was based, for example, on the fact that even if the effects of the variables analyzed extended in both directions, the variables selected for the study said more about variances on the ill-health front. In other words, the model employed was better suited to a study of ill health than good health.

A question that arises concerns the strength of the association between long-term good health (as defined in this context) and other measures of health, such as self-rated health. If it is assumed that both sickness-absence and sickness-presence behaviors include working conditions, *per se*, the association between self-rated estimates of health and long-term good health could not be perfect. From a pure medical perspective, the concept of long-term good health may therefore be somewhat misleading. If someone is classified as having long-term good health in the sense employed in this study, it is not necessary that he or she had perfect physical health. There may be il health that affects work capability to a minor extent, and thus is not manifested as sickness absence or sickness presence. One hypothesis, which is tested in the present study, concerns whether people with the combination of low sickness presence and low sickness absence have relatively good health status, in that any diseases or complaints they might have do not constitute functional obstacles at work. According to the illness flexibility hypothesis (Johansson and Lundberg, 2004) it can also be assumed that the long term healthy group has work conditions which are relatively adaptable to their personal state of health.

The present study examines which work- and private life factors increase the likelihood that individuals will enjoy long-term good health. It takes an explorative approach to the question whether the effects of a work or private life factor extend in a linear way from the health pole to the ill-health pole or if certain work factors only are relevant to one pole of the assumed health scale.

2. Method

2.1 Participants and procedure

The analyses in this study are performed on a representative population-based sample from Sweden (Hallsten, 2005; Hallsten *et al.*, 2005). Data were gathered on two separate occasions. The first questionnaire was administered in the late autumn of 2000 (Time 1), and was responded to by 4,997 persons, giving a response rate of 69 percent. During the autumn of 2001 (Time 2), a follow-up questionnaire was sent to the same people who had responded to the first, which produced 4,318 responses and a response rate of 86 percent.

The current analysis has been restricted to those respondents who were, on both measurement occasions, in full-time paid employment and within the age range of 20 to 65 years. Owing to the design of the study and the nature of the items in the questionnaire, people in temporary (time-restricted) employment, students and people

receiving labor-market assistance of any kind were unsuitable for the purposes of the study and were therefore excluded. The final group for analysis was reduced somewhat further due to attrition with regard to the study's outcome variable, representing a combination of sickness absence and sickness presence, i.e. between time 1 (T1) and time 2 (T2). The final study group comprised 2,297 persons.

2.2 The outcome variable

Two items, sickness presence and sickness absence, provided the basis for the sample (described above) and represented the study's dependent variable, long-term health. Sickness presence was measured with the item "Has it happened over the previous 12 months that you have gone to work despite feeling that you really should have taken sick leave because of your state of health?", using a five-point response scale (Not relevant, haven't been sick over the previous 12 months (1); Never (2); Yes, once (3), Yes, two-five times (4), Yes, more than five times (5)). The responses Not relevant, haven't been sick over the previous 12 months (1) and Never (2) were merged for the logistic regression.

Days of sickness absence was measured with the item "How many days in total have you been away from work and on reported sick leave over the previous 12 months?", using a five-point response scale (None (1); Less than six days (2), six-ten days (3); 11 to around 23 days (4), More than 24 days (5)). The response scale was dichotomized for analysis of days of sickness absence into None (1) and Less than six days or more (2).

A long-term-health outcome variable was thus created by combining sickness presence and sickness absence (measured in days) at TI and T2. Since a limited amount of sickness presence (when one has a mild cold or ailment, for example) is not at all uncommon, those subjects who had been present while sick on just one occasion a year were included among those with long-term good health. Thus, the designation of long-term good health applies to those who had no more than one occasion of sickness presence per year and no more than one occasion of sickness absence (of a maximum of five days) per year. After excluding these groups and applying the above-mentioned criteria for the outcome variable, we obtained a study group of 2,297 persons, of which 641 (28 percent) belonged to the group with long-term good health and 1,656 (72 percent) to the less healthy group. Due to missing data for some of the independent variables, the study groups were reduced by between 70 and 120 persons in the different analyses.

In addition, self-rated health was included (Singh-Manoux *et al.*, 2006), measuring general self-rated health (How would you rate your general state of health?, with responses on a five-point Likert scale ranging from bad to good), pain in muscles and joints and stomach complaints (replied on a five-point Likert scale ranging from never to every day).

2.3 Independent variables

The independent variables used in the study and consisted of background variables (gender, age, education etc.), a number of labor market and work-environment variables (e.g. resources for good performance of work, control, time pressure, conflicting demands, social support), as well as private life variables (financial situation, having children at home and energy consuming domestic tasks). These

variables were formulated as questions, e.g. "Do you have enough resources to do a good job?", and replied on a four-point Likert scale format, ranging from "Never" to "Always" or as statements, e.g. "I have home demands that require all my energy" and replied on four-point likert scale format, ranging from "strongly disagree" to "strongly agree".

2.4 Statistical analyses

Long-term good health, as described above, is the study's dependent variable. In a multivariate logistic-regression model, the odds ratios (OR) for being healthy in the long term were computed, after adjusting for the possible confounding of all other variables (22 items) at T1. For the analyses, response options were merged so that most variables had a three-point scale, which was coded with dummy variables. A couple of questions had only a two-point scale, which meant that, for scaling reasons, they were inadequate for making assessments of linearity. The full multivariate model came to comprise a total of 35 variables.

A slimmed-down multivariate model that included only the most important confounders was also tested. The reduced model was obtained by removing variables from the full model. Its results were not remarkably different from those of the full model except that the ORs and accompanying CIs had shifted by just under 15 percent. The results reported below are based on the full model.

3. Results

3.1 Associations to work- and private life factors

Table I shows the simple proportions of people in long-term good health in relation to the selected variables as well as the results of the univariate and multiple logistic regressions. As is indicated in the table, the associations are usually linear and substantial. The results are separated according to personal conditions, labor market position, and workplace variables.

The work environment and labour market variables that most clearly differentiate with regard to long-term good health relate to a cluster of quality aspects, including being satisfied with the quality of one's own work and having the resources to perform work tasks well. Other differentiating variables were support from management, being able to determine one's pace of work, time pressure, and being subject to conflicting demands at work. In regard to the whole sample, the multivariate analyses demonstrated that, after statistical control, a number of the above mentioned variables remained associated to long-term good health. The variable of being in one's preferred occupation and desired workplace generated an OR of 1.34 in the multivariate analysis, and thus was the most important labor market aspect for long-term health.

Among the individual-related variables, good private finances produced the highest ratio in the multivariate analysis (2.28). Other values of variables that had a clear effect are "good relations to close relatives and acquaintances" as well as "domestic workload". "Having many children at home" seemed to increase the likelihood of long-term good health.

3.2 Gender differences

Somewhat more men than women were categorized as having long-term good health (31 percent of men and 26 percent of women). Separate univariate analyses were

Table I.
Number of persons for each response category (n) and the proportion of people in long-term good health by category; results of univariate and multivariate logistic regressions with long-term good health as outcome variable

Independent variables	Scale	*n*	%	Univariate OR	Univariate 95% CI	Multivariate OR	Multivariate 95% CI
Background							
Age	20-34	556	23	1.0		1.0	
	35-54	1,345	28	1.28	1.01-1.60	1.20	0.91-1.59
	55-65	396	35	1.77	1.33-2.36	1.29	0.89-1.87
Sex	Female	1,216	26	1.0		1.0	
	Male	1,081	31	1.28	1.06-1.54	1.01	0.79-1.28
Education	< 2 years of high school	1,119	24	1.0		1.0	
	> 2 years of high school	1,176	32	1.52	1.27-1.83	1.80	1.41-2.29
Work conditions							
Resources for good performance	Never	355	12	1.0		1.0	
	Usually	1,592	30	3.21	2.28-4.52	1.65	1.07-2.54
	Always	334	39	4.88	3.30-7.23	1.61	0.95-2.72
Satisfied with the quality of the work you perform	Never	184	12	1.0		1.0	
	Usually	1,729	28	2.90	1.84-4.59	1.02	0.58-1.80
	Always	362	36	4.08	2.49-6.68	1.30	0.69-2.44
Clear goals	No	360	19	1.0		1.0	
	Yes	1,905	30	1.83	1.38-2.43	0.86	0.60-1.22
Time pressure – miss lunch, work late, etc.	>3/4 of time	447	16	1.0		1.0	
	Sometimes	510	26	1.77	1.29-2.44	1.59	1.05-2.40
	<1/4 of time	1,318	33	2.52	1.91-3.31	2.25	1.48-3.42
Control – determining pace of work	<1/4 of time	652	18	1.0		1.0	
		690	27	1.65	1.27-2.14	1.20	0.88-1.62
	>3/4 of time	934	35	2.43	1.92-3.09	1.43	1.06-1.92
Conflicting demands	>3/4 of time	342	15	1.0		1.0	
	Sometimes	561	22	1.60	1.12-2.28	1.05	0.69-1.59
	<1/4 of time	353	34	2.86	2.09-3.93	1.33	0.89-1.99
Opportunity to get managerial support during difficult time	Never	853	20	1.0		1.0	
	Usually	1,080	30	1.79	1.45-2.22	1.31	1.01-1.69
	Always	279	42	3.01	2.25-4.03	1.99	1.38-2.86

(*continued*)

Table I.

Independent variables	Scale	*n*	%	Univariate OR	Univariate 95% CI	Multivariate OR	Multivariate 95% CI
Labour market							
Desired occupation and workplace	No	976	19	1.0		1.0	
	Yes	1,246	35	2.30	1.88-2.80	1.34	1.00-1.77
Seriously considered finishing current work	Yes	849	19	1.0		1.0	
	Yes, before	403	24	1.35	1.02-1.80	0.97	0.68-1.38
	No	1,011	37	2.49	2.01-3.08	1.26	0.92-1.72
Sector of main employment	Private	1,357	30	1.0		1.0	
	County Council	226	29	0.96	0.70-1.96	0.89	0.59-1.33
	Municipality	543	21	0.64	0.51-0.81	0.68	0.50-0.94
	Government	150	37	1.38	0.97-1.96	1.33	0.88-2.01
Number of employees	1-10	442	29	1.0		1.0	
	11-49	690	24	0.78	0.50-1.02	0.85	0.62-1.18
	50-499	763	28	0.96	0.74-1.25	0.99	0.73-1.35
	500-	382	33	1.21	0.90-1.62	1.07	0.74-1.54
Private life							
Have domestic tasks requiring all energy	Agree	754	20	1.0		1.0	
	Partially agree	1,020	32	1.87	1.50-2.33	1.54	1.18-1.99
	Not at all	466	32	1.86	1.43-2.42	1.33	0.96-1.85
Relations to close kin and acquaintances	Varied/poor	479	20	1.0		1.0	
	Quite good	515	22	1.16	0.86-1.58	0.96	0.67-1.37
	Good	1,292	33	2.04	1.59-2.63	1.33	0.98-1.81
Accessibility to cash	No	436	15	1.0		1.0	
	Yes	1,848	31	2.62	1.97-3.48	2.28	1.62-3.20
Number of children at home	None	1,137	28	1.0		1.0	
	1 child	418	27	0.93	0.73-1.20	1.14	0.83-1.56
	2 children	533	27	0.95	0.76-1.20	1.01	0.75-1.36
	3-5 children	209	31	1.13	0.82-1.55	1.64	1.09-2.46
Living alone with child at home	Yes	110	20	1.0		1.0	
	No	2,187	28	1.58	0.98-2.54	1.17	0.64-2.13

Independent variables	Scale	Women OR	Women 95% CI	Men OR	Men 95% CI
*Work conditi*ons					
Resources for good performance	Never	1.0		1.0	
	Usually	3.08	1.87-5.08	3.31	1.92-5.70
	Always	6.92	3.87-12.35	3.64	1.98-6.71
Satisfied with the quality of the work you perform	Never	1.0		1.0	
	Usually	3.54	1.76-7.11	1.91	0.98-3.73
	Always	7.48	3.49-16.03	1.95	0.95-4.01
Clear goals	No	1.0		1.0	
	Yes	2.63	1.66-4.16	1.17	0.79-1.73
Time pressure - miss lunch, work late etc.	<3/4 of time	1.0		1.0	
	Sometimes	2.62	1.55-4.43	1.30	0.82-2.05
	<1/4 of time	3.17	1.99-5.04	2.27	1.54-3.36
Control – determining pace of work	<3/4 of time	1.0		1.0	
	Sometimes	1.63	1.14-2.34	1.76	1.13-2.77
	<1/4 of time	2.46	1.74-3.48	2.64	1.75-3.98
Conflicting demands	<3/4 of time	1.0		1.0	
	Sometimes	1.27	0.73-2.18	1.73	1.02-2.93
	<1/4 of time	2.49	1.57-3.95	3.23	2.00-5.24
Opportunity to get managerial support during difficult time	Never	1.0		1.0	
	Usually	1.73	1.25-2.40	1.77	1.29-2.43
	Always	4.30	2.82-6.57	2.03	1.30-3.18

Note: Coded 1 = Sick, 2 = Healthy

Table II.
Results of univariate logistic regressions divided in women and men with long-term health as outcome variable

performed for women and men (see Table II). For some aspects and variables, remarkable differences arose, which suggests that some conditions operate differently in relation to men and women with regard to our measure of long-term health.

Beginning with what can be considered the quality aspects (resources, satisfied with the quality, clarity of goals), the ORs for these aspects were found to be high for the study group as a whole. Men were shown to be subject to a threshold effect in that those who claimed to "always" have resources and be satisfied with the quality did not receive any benefits in terms of healthiness compared with those who responded "usually". By contrast, women showed a dose-response pattern, with "always" responses generating a substantial rise in OR compared to the scale step below "usually". For the resource item, the value rose from OR 3.08 to OR 6.92 and, for the quality item, from 3.54 to 7.48. Clear goals seemed to have a stronger health-inducing impact on women than on men. The difference in OR was so great that the confidence intervals scarcely overlapped. Also, support from supervisors and managers showed a very clear dose-response pattern among women but a threshold effect among men.

The sex-related pattern that emerged in this study could be due to men and women having different positions in the labor market or in the organizational hierarchy, or it may be a result of differences in person-related variables. This was tested by controlling for these variables but the differences remained. However, since the

measures used were not designed for this purpose, the result may be different if more suitable variables are used.

3.3 Associations to self-rated health

As mentioned above, it is relevant to examine the association between the study's measure of healthiness and individuals' ratings of their global health and various complaints. As is shown in Table III, there are clear relationships between the behavioral measures and the self-ratings. Of the two intermediate alternatives, the group with low sickness presence/high sickness absence have a somewhat better health situation than the group with high sickness presence/low sickness absence. In order to test the stability of this ranking, the study material was divided into seven broad occupational groups, and the analyses produced identical ranking in all the seven groups. Pearson's chi-square showed a significant relationship between sickness absence/sickness presence combinations and self rated general health ($\chi^2 = 285.9$, df $= 3$, $p < 0.000$), muscle pain ($\chi^2 = 160.9$, df $= 3$, $p < 0.000$) and stomach pain ($\chi^2 = 100.6$, df $= 3$, $p < 0.000$).

4. Discussion

In this study, we have turned a typical question examined in work-environment studies on its head by constructing a measure of long-term health and trying to identify the factors associated with it. The measure was operationalized by combining two measures of behavior – sickness absence and sickness presence – over a two-year period. As a result, the measure of long-term good health acquires a strong element of functional capability in relation to the work situation. Using this definition, in this national study, roughly 28 percent of the participating employees in Sweden classified as being in long-term good health.

The independent variables in this study were organized under the categories of work conditions, labor market, and private life. The univariate analyses indicate that the chances of enjoying long-term good health are improved if certain criteria are met, both at work and in private life.

4.1 Work life

The study shows considerable health effects related to qualitative aspects of work, such as resources to do a good job, satisfaction with the quality of tasks performed, and

Table III.
Percentage of the individuals in each sickness absence (SA)/sickness presence (SP) group who enjoy good general state of health, have pain in muscles and stomach complaints

	Low SP/low SA ($n = 820$)	Low SP/high SA ($n = 200$)	High SP/low SA ($n = 772$)	High SP/high SA ($n = 442$)
Good or rather good general self-rated health	57	34	26	12
Pain in muscles/joints every day or several days a week	14	2	34	51
Stomach complaint every day or several days a week	6	11	19	27

Note: Based on T1 2000, $n = 2{,}234$

clear goals. A strictly quantitative workload may be seen as an obstacle to satisfactory work performance, but is not as strongly related to health effects as the qualitative aspects of work. The substantial drop in the ORs in the multivariate analyses could be due to that the work condition variables are interrelated and also have strong correlations with the outcome variable.

The possibility of obtaining support from a supervisor/manager when there is a difficulty at work was strongly associated to long-term health. Previous studies have found that supervisor support leads to positive effects, such as job involvement (Bakker *et al.*, 2003) and work engagement (Xanthopoulou *et al.*, 2007). The result in the present study further underlines its importance. We used a global measure of support, and in future studies it would be interesting – from both a practical and theoretical viewpoint – to be able to evaluate different dimensions of support (emotional, evaluative, instrumental, and informative).

4.2 Private life

It is not surprising to find that workload in the home environment is an important factor. If household tasks require considerable energy, there is less likelihood that the person concerned will qualify for the long-term good health category. Further, the individual's relationship to close relatives was associated with being healthy, which indicates that social support is important both at work and outside of it.

In this study there is a close correlation between the socioeconomic cash-margin resource variable and long-term good health. In a previous study of temporary (time-restricted) employees, the converse situation was investigated, i.e. the association between economic stress and ill health (Aronsson *et al.*, 2005). That study and other "economic stress studies" indicate that financial strain carries with it uncertainty and a lack of control over one's own life, which are well-known stressors in working life research.

4.3 Gender differences and dose response pattern

Gender differences were not a primary topic in this study, but the univariate analyses for men and women produced results that give rise to additional and new questions. This applies, in particular, to the qualitative work aspects. The findings indicate that the advantages of having sufficient resources and being satisfied with the quality of work carried out level off at an earlier stage for men than for women. For women, there was a tangible health effect of moving from the "usually" to the "always" category, but this did not apply for men. Generally, men did not appear to be influenced by the differences between "usually" and "always". There was no such asymmetric pattern in some of the other well-known ill-health-related variables, such as control and time pressure, where both men and women had a dose-response pattern.

Explanations of the factors underlying these gender differences need further analysis. They may be attributable to measurement problems: questions may have been perceived differently or the questionnaire response pattern may be different for women and men in the same work situation. On the other hand, the results may also reflect genuine gender differences that can lead to new research questions. It may, for example, be worthwhile to look at whether men and women are socialized into gender-specific attitudes. There may also be external explanatory factors at play, relating to, for example, the labor market sector in question or one's position in the

operational workplace hierarchy. There is also a possibility that the observed gender differences are related to differences in the private life workloads of men and women. As mentioned in the results section, we did control for certain labor-, organization- and person-related variables in our analyses, but this had no effect on the sex-related pattern. However, the design and the measures used for control were not intended for this purpose, and further research, which is able to utilize a clear and relevant hypothesis as well as an appropriate design and sampling approach, is recommended.

4.4 Associations to self rated health and symptoms

When sickness presence and sickness absence were dichotomized and combined into four groups, the gradient found was relatively strong, but there are also a number of people in the long-term good health group who reported ill health. As already pointed out, sickness absence may be regarded as a relational variable; it reflects the relationship between the individual's state of health and his or her job demands. That some people with health problems still ended up in the long-term good health category is probably because their ill-health or possible illnesses did not constitute a functional obstacle to the performance of their tasks or a matter of personality, which can be investigated in future studies. In the two intermediate categories, people with high sickness presence/low sickness absence have a more problematic health situation than the group with low sickness presence/high sickness absence.

4.5 Limitations and future research

There are some limitations in this study. There are supposedly individual differences in when you consider yourself ill, which is a problem that arises from the self-reported sickness presence measured by a single item. A further method-related issue involves the criteria for belonging to the long-term good health group. In practical terms, it may appear slightly strange to draw very narrow boundaries and end up with only a very small number of people in this group. In a research context such as this, however, stiffer criteria – which focus on "excellent health" in Mackenbach's (1994) terminology – may provide a better basis for identifying potential health-promoting factors. In Mackenbach's study, just 8 percent were assigned to the "excellent health" category.

Despite these limitations, we believe that the present study makes some contributions to the areas of positive health and positive psychology research, especially through its exploration of certain quality aspects in the work environment. The gender differences in dose response pattern that appear in this study are of interest and deserve further investigation. Differences in how women and men react to work conditions should be valuable knowledge to, e.g. supervisors and human resource departments who work to promote health at the workplace. As mentioned above, it may be interesting to investigate the impact of personality variables in relation to these gender differences, in particular, it would be fruitful to include a contingent self-esteem dependent upon performance and others' approval, labelled performance-based self-esteem, which is shown to be significantly higher in women and associated to work related health (Johnson and Blom, 2007; Hallsten *et al.*, 2005).

In general, future working life research would benefit from putting a greater focus on identifying salutogenic variables, as their incorporation into the research agenda would supplement the pathogenic variables that currently predominate. This is supported by the Mackenbach (1994) study, from which it can be concluded that if

working life research is to better succeed at explaining health, it is not enough to only rely on the traditional, ill-health-related work condition variables or outcomes. If further progress is to be made regarding if there are different factors that contribute to health and ill-health in general and also among men and women, we need deeper insight into salutogenic or health psychology mechanisms, which may help to increase the variance explained in the "health poles". To determine which positive psychological mechanisms may be involved or activated in conjunction with people feeling that they can do a good job or feeling that their resources and demands are in concordance would certainly be a valuable contribution. Other potentially interesting lines of research, in this regard, include the further investigation of positive emotions (see, e.g. Ryff and Singer, 1998; Lazarus, 1999). The study contributes with knowledge about health and health-enhancing factors of interest to practitioners concerned with management issues, organizational structure, and rehabilitation.

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