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ORIGINAL ARTICLE

Attitude and flexibility are the most important work place factors for working parents' mental wellbeing, stress, and work engagement

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Abstract

Aims: The need to combine active employment and parenthood is a reality for many parents today. Knowing more about which work place factors are associated with better or worse health could help employers to form a work environment that provides optimal conditions to maintain or increase health and work engagement in this group. The aim of this study was to explore possible associations between different subjective and objective work factors and benefits, and a range of outcome variables such as stress, symptom report, wellbeing, work-related fatigue, work engagement, and work–family conflict among working mothers and fathers with small children. *Methods*: Cross-sectional analyses of associations between work place factors categorised into three different dimensions; flexibility, benefits, and attitude and the outcome measures were performed, including questionnaire responses from 1562 working parents. *Results*: The results showed that work place factors related to flexibility and, especially among women, attitude to parenthood appear to have the strongest effect on working parents' subjective stress and wellbeing, while benefits appear to have less impact. Except regarding factors related to attitudes at the work place, most associations were similar among men and women. ***Conclusions*: Most likely, different factors are better suited or more important for some individuals than others depending on their total work, as well as family situation and also depending on individual factors such as personality and priorities. A positive attitude towards parenthood and a flexible work situation seem, however, beneficial for the general wellbeing and work engagement among working parents**.

Key Words: *Parenthood, stress, wellbeing, work engagement, work place factors*

Introduction

The need to combine active employment and parenthood is a reality for most parents in Sweden as the fraction of women in the work force is high. Among women aged 20–64 years, 76% were in active employment in year 2010, which places Sweden as one of the countries in the EU with the highest employment rate [1]. The mean employment rate in the EU was approximately 60%. The employment rate among Swedish women (16–64 years) has increased from 68% in year 1976 to 72% in year 2004. The difference in employment rate between men and women has, during the same period, decreased from a 20% lower employment rate among women in 1976 to only 3% lower in year 2004 [2]. Even higher employment rates are found among Swedish parents; in 2008, 83% of all children aged 0–17 years had an employed mother and 93% had an employed father [3]. Part-time work (<35 hours per week) was more common among mothers than among fathers (one-quarter vs. <5%).

Major reasons for the high employment rates among mothers are the relatively generous parents' insurance and the well-developed day care system. Together, these enable both mothers and fathers to continue their employment after the birth of their children. The parents' insurance means that either parent can stay home from work while getting paid up to 80% of their salary during a total of 480 full-length days in the 8 years after the child is born. This insurance is not exclusive for mothers; with the

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exception of 60 days that are bound to each parent, the parents are free to divide the days between them as best they see fit. However, although the father's use of parental leave has increased during recent years, the majority is still used by mothers and only 24% of the parental leave was used by fathers in 2011 [4].

When both parents return to work, the child is guaranteed a place in municipal day care during the parents' working hours. The fee per child for participation in such day care is fixed by law to be no higher than 3% of the parents combined brut income (or up to a maximum fixed amount). Moreover, from the age of 3, all children are allowed 525 hours per year of free child care at the same municipal day care. Once both parents have returned to work, either parent is allowed to stay home from work when the child is sick, with up to 80% of salary payment. Also, until the child turns 12 years, both parents are allowed to take unpaid part-time leave from work without losing their right to go back to full-time work whenever they choose.

The insurances described above apply to all Swedish citizens and are likely to enable the combination of parenthood and employment. Still, this combination may be challenging for many men and women. Previous studies show that even in couples where both the man and woman work full time, it is still often the woman who takes on the largest responsibility for children and household work [5]. Also, women report more work overload, stress, and conflict between work and family demands than men. These outcomes are found to increase significantly with the number of children at home, and peak between the ages of 35 and 39 [6]. An international study that compared the experience of inference between paid work and household demands among women in five different countries showed that the Swedish women reported the highest level of work–family conflict in the examined groups. This was supposed to be at least partly because Swedish women more often had more qualified and demanding jobs compared with women in other countries [7].

International studies have shown that high levels of conflict between paid work and household demands, so-called work–family conflict, are associated with increased sick leave and decreased mental wellbeing for both men and women [8,9]. Overtime work, change in number of work hours, and commuting time have been related to higher levels of work–home interference, while compensation for overtime work, familiarity with work roster, ability to take an occasional day off, and a decrease in work hours at own request were associated with less work–home interference [10,11]. However, work–family conflict may not necessarily have the same causes in men and women [11]. Also, the effect of work–family interference and work place experiences on health, wellbeing and parenthood seem to differ between men and women. A Swedish study showed that employed women's subjective symptom report was affected by the interaction between working conditions and household duties, whereas the men's health appeared to be more affected by long working hours (>50 hours/week) [12]. Women's work experience has also been shown to affect their parenting. After controlling for occupational status and general wellbeing, mothers who reported a more negative interpersonal atmosphere at work showed decreases in positive parenting and increases in negative personal parenting over time. The fathers' work experiences seemed, however, to be unrelated to their parenting [13].

Although previous studies have explored associations between work place conditions and work–family interference, and between work–family interference and health, not much focus have been on specific work place factors and the association with various health outcomes among working parents with small children. Knowing more about which work place factors are associated with better or worse health could help employers to form a work environment that provides optimal conditions to maintain or increase subjective health, wellbeing, and work engagement among working parents, a large and increasing group in many societies.

The aim of this study was to explore possible associations between different work factors and benefits, and a range of outcome variables such as subjective stress, symptom report, wellbeing, work-related fatigue, work engagement, and work–family conflict among working mothers and fathers with small children. A further aim was to explore if there were any gender difference in the associations between work place factors and the outcome variables.

Methods

Study sample and procedure

The study population was parents whose youngest child was either 2 or 7 years old. To locate these, we used the Perinatal Revision South (PRS), which is a medical birth registry that covers all births in Swedish southern healthcare region. Since only mothers are included in the registry, we sent both questionnaires to her, asking her to give one of them to the child's father, providing that they were cohabitating or had joint custody. The selection frame consisted of all women localised through PRS who fulfilled the

primary inclusion criteria (mothers to children who were born healthy with a normal delivery, i.e. full-time and single births, no malformations or traumas during delivery, and an APGAR score of 9 or 10), with a child aged either 2 or 7 years, and no registered deliveries since then. Through a computer-based randomisation process, 2000 mothers of 2-year-old children (between 2 and 2.5 years) and 2000 mothers of 7-year-old children (between 7 and 7.5 years) were randomly selected from the selection frame population. Of these, 85 were excluded since the family had emigrated, had protected identity, or either the child or mother had died. Invitations for both parents to take part in the study was sent to the remaining 3915 mothers (1970 with youngest child aged 2 years and 1945 with youngest child 7 years).

Inclusion and exclusion criteria were stated in the letters accompanying the two questionnaires. They stated that both parents had to work at least 50% of full time to be eligible for the study, and that the woman should not be pregnant or have given birth to any children during the last 2 years (there was some delay in the registry). Furthermore, the parents should be either cohabitating or have joint custody, and none of them should suffer from any serious disease or chronic illness. We have no data on the number of non-respondents who did not respond because they violated one or more of the inclusion and exclusion criteria. However, a record check (Statistics Sweden) showed that at the time of the mailing, 879 children had parents where either the mother or father, or both, were not in current labour work. Moreover, among those who responded to the study, 22 mothers were excluded since they were currently pregnant and 35 fathers were excluded since the parents did not have joint custody. Thus, the actual net study sample consisted of 3015 women and 3001 men, resulting in a total of 6016 persons.

Of the 6016 parents in the net sample, 1552 responded to the survey. Of these, 962 were women (mean±SD age 36.8±5.3 years) and 590 men (age 38.7±6.1 years). This corresponds to an overall response rate of 26%; for mothers 32%, for fathers 20%.

Measures

As measures of exposure, we considered the presence or absence of concrete and subjective work place conditions in two dimensions: flexibility and benefits. Furthermore, we assessed factors related to the experienced general work place attitude towards parenthood. To measure outcome variables, a number of well-established instruments for measures of subjective wellbeing, work–family conflict, and work stress and engagement were used. These are described in detail below. The questionnaire also contained information regarding type of work, work time (full- or part-time), work position (employee or owner of business with no employees, first line manager (e.g. group leader), middle-level manager (managing director or equivalent), educational level (five levels, from primary school to university >3 years), and household income (seven categories).

Subjective wellbeing. Subjective wellbeing was assessed by tools for measuring global stress (perceived stress scale (PSS) [14]), physical/psychosomatic symptoms (Lund Subjective Health Complaints (LSHC)), self-rated health (SRH-7 [15]), and work-related fatigue (the 20-items Swedish Occupational Fatigue Inventory, SOFI-20 [16]).

PSS contains 14 questions regarding the experience of different aspects of global stress during the last month [14]. Each question is rated from "never" (0) to "very often" (4). The mean score of the 14 items was used in the analyses, hence with a possible score range from 0 to 4. Chronbach's alpha for the scale was 0.85.

The LSHC is an inventory assessing the intensity of 13 common health complaints experienced during the last 30 days. These include headache, dizziness, forgetfulness, back pain, neck–shoulder pain, and stomach pain. The LSHC has been developed by the Department of Occupational and Environmental Medicine at the Lund University Hospital, and is rather similar to the UHI/SHC-scale [17]. For each health complaint, the parent was to indicate the frequency during the preceding month, from 1 ("never") to 5 ("always (almost every day)"). In the present study, a global measure representing the mean score of all items, was used (possible score range 0–5). Chronbach's alpha for the scale was 0.92.

SRH-7 is a single item asking about the subjective perception of current physical and mental wellbeing, measured from 1 ("very bad, could not feel any worse") to 7 ("very good, could not feel any better") [15].

SOFI-20 measures work-related fatigue from a multidimensional perspective including five different dimensions of fatigue: lack of energy, lack of motivation, physical exertion, physical discomfort, and sleepiness [16]. Each item was assessed for the end of a typical work day and rated from "not at all" (0) to "to a very high extent" (6). In the present study, a global measure of the mean score of the 20 items was used. Chronbach's alpha for the scale was 0.94.

Work stress and engagement. Work stress and engagement was assessed using the Utrecht Work Engagement Scale (UWES) [18] and QPS Nordic-36 [19].

Table I. The different conditions or benefits.

Type of factor	Work place condition/benefit	Short name
Flexibility	1. Flexible work time	Flex time
	2. Unregulated work time	Unreg. work time
	3. Possibility to work from home during some hours	Home work_hours
	4. Possibility to work from home during full days	Home work_days
	5. Possibility to leave work with short notice, for urgent matters, i.e. meeting with day care staff, etc.	Leave work
	6. Possibility to take a short break for urgent matters, i.e. make a phone call	Break
Benefit	1. Salary compensation during parental leave	Salary comp_parental leave
	2. Salary compensation during absence due to sick child	Salary comp_sick child
	3. Possibility to exercise during work time	Exercise
	4. Subsidisation of household work service	Household work subs
	5. Subsidisation of child care close to work	Child care subs
Attitude	1. Positive attitude to parenthood among managers	Attitude_managers
	2. Positive attitude to parenthood among colleagues	Attitude_colleagues
	3. Meeting policy, e.g. no meetings during early morning or late afternoon	Meeting policy
	4. Back up during absence, i.e. a clear strategy about whom to hand over to during absence due to e.g. sick child	Back up
	5. Possibility to bring children to work if needed	Bring child

UWES is a 17-item instrument measuring work engagement, including the three subscales vigour, dedication, and absorption. The mean score of each subscale was analysed in the present study, resulting in three subscale scores with a total score that range between 0 and 6. Chronbach's alpha for the subscale was for vigour (six items) 0.77, dedication (five items) 0.90, and absorption (six items) 0.80. QPS Nordic-36 is the short version (36 items) of the QPS Nordic [19]. This instrument has been developed in Sweden, Denmark, Finland, and Norway. It contains a wide variety of dimensions such as work-related demands and control, role expectations, social interaction, leadership, group work, organisational climate. Several of these dimensions correspond to our independent "work place factors" (see below), and hence we only used the work-related demands and control items as dependent variables in our analyses (mean scores), as a measure of work-related stress.

Work–family conflict. We used an eight-item inventory covering both time- and strain-based conflict between work and family. Two different dimensions of work–family interference were measured; work-to-family conflict (WFC), i.e. spillover effects from work on family life, and family-to-work conflict (FWC), i.e. spillover from effects from family obligation and demands on working life, with four items for each dimension [20]. Response alternatives ranged from "do not at all agree" (1) to "agree completely" (5). The mean score of the four items for each dimension was used in the present study, resulting in two subscores with a possible score range from 1–5.

Work place factors. The participants were asked to indicate how they experienced the general attitude towards parenthood (e.g. absence due to sick children, having to leave early or at a specific time point for pick up at kindergarten) among managers and colleagues. The response alternatives were: "positive towards both mothers and fathers", "more positive towards mothers than fathers", "more positive towards fathers than mothers", "negative towards both mothers and fathers", "neutral, no specific attitude", "I don't know", and "not applicable (do not have any colleagues/managers)". The response alternative "positive towards both mothers and fathers" was categorised as "positive attitude" whereas the others were categorised as "negative or neutral attitude".

The participants were also asked to indicate the presence or absence of 14 different work place conditions, as listed below. The presence of, or access to, the condition or benefit was categorised as "present", whether or not the respondent reported that they utilised it or not. The 14 different conditions or benefits were, together with the two "attitude" variables, categorised into three different dimensions: flexibility, benefits, and attitude. Internal missing on the individual items varied between 0.6% and 1.5%. The categorisation of the different conditions is presented in Table I.

Statistical analysis

The statistical analyses aimed to explore possible associations between different work place factors (independent variables) and subjective measures of stress and wellbeing (dependent variables). All analyses were

performed in PASW/SPSS version 20. Differences in outcome variables between persons with or without presence of/access to different work conditions or benefits were analysed using univariate analysis of variance (ANOVA). The 14 different work place conditions (present/not present) as well as the two attitude variables (positive/negative or neutral) were individually introduced as independent variables, while the outcome variables (PSS, SRH, SOFI, LSHC, QPS, UWES (three subscales), FWC and WFC) were individually introduced as dependent variables. All analyses were adjusted for age, gender, work position, work time, educational level, and household income. Potential effect modification from gender was assessed by including the interaction term group × gender. If the interaction showed a significant effect, gender-stratified analyses were performed in order to further evaluate the differences in the effect between men and women. In these cases, mean differences with accompanying 95% confidence intervals (CIs) are presented for men and women, respectively. All p-values ≤0.05 were considered significant.

Ethics. The study was approved by the Ethics Committee at Lund University (ref H15: 215/2008) and conformed to the provision of the Declaration of Helsinkki.

Results

Flexibility

With the exception of having the possibility to take short breaks for urgent matters, the flexibility dimension did not have any impact on the parents' subjective wellbeing as indicated by PSS, SHC, SRH, and SOFI-20 (Table II). However, several of the factors in the flexibility dimension seemed to have a beneficial effect, although not consistently large on work-related control and engagement (UWES and QPS). Also, some of them, such as home work (for hours or days), seemed to be associated with higher levels of work–family conflict while others, such as the possibility to take a break or leave the work place when needed, were associated with lower levels of work-to-family spillover. Home work and flexible or unregulated work time was associated with higher work-related demands.

For all three subscales of UWES, there were a significant interaction between unregulated work hours and gender, indicating different impacts for men and women. Stratified analyses showed that the significant effect was found among men only. Among women, there were no significant association between unregulated work hours and work engagement. Significant interaction effects and subsequent stratified analyses showed that also regarding home work, both for hours and full day, the association with work-to-family spillover was significant only among men.

Home work during days, however, was associated with larger increase in work-related control among women (Mean: 0.50, 95% CI, 0.40 to 0.60) than among men (Mean: 0.40, 95% CI, 0.29 to 0.52). There was also a significant interaction effect between the possibility to take a break when needed and work-related control. Stratified analyses showed that, although there was a significant effect for both men (mean 0.8, 95% CI, 0.61 to 1.08) and women (mean 0.54, 95% CI, 0.41 to 0.67), the effect was even stronger among men.

Benefits

There were only very few associations between benefits and subjective wellbeing and work–family conflict (Table III). The relationship between benefits and work stress and engagement was slightly more evident than for the other two outcome categories, but the effect was not consistent over the different factors or outcomes. The majority of the findings were for QPS control, where some of the benefits were found to have a beneficial effect.

Although there was no significant main effect of exercise time on work-to-family spillover, there was a significant interaction effect (p=0.008) with gender. However, stratified analyses showed that even though women who had the possibility to exercise during work time tended to have lower levels of work-to-family spillover (p=0.056; mean difference –0.13, 95% CI, –0.26 to 0.003), the effect was not significant among either men or women. Also, for child care subsidisation and work dedication there were no significant main effects; however, among men the presence of child care subsidisation was associated with significantly higher levels of work dedication (mean difference 0.60, 95% CI, 0.13 to 1.07) (UWES subscale).

Attitude

The beneficial impact of experienced work place attitude towards parenthood was consistent for all factors of the dimension and all outcome variables (Table IV). The association was strongest for subjective wellbeing, where there were statistically significant relationships between all attitude factors and almost all outcome measures, with the exception of meeting policy.

Significant interaction effects and subsequent stratified analyses showed that the beneficial effect of a positive attitude among managers on perceived

Table II. Associations between work place factors related to flexibility and outcome variables among men and women.

			Perceived stress (PSS)	Self-rated health (SRH)	Subjective health complaints (LSHC)	Occupational fatigue (SOFI)	Work-related control (QPS)	Work-related demands (QPS)	Work engagement – absorbtion (UWES)	Work engagement – dedication (UWES)	Work engagement – vigour (UWES)	Work-to-family spillover (WFC)	Family-to-work spillover (FWC)
Flex time	Yes 58.2% (*n*=896)	Mean	1.89	4.77	1.97	1.48	3.72	2.73	3.61	4.16	4.03	2.59	2.29
		95% CI	1.81–1.96	4.60–4.93	1.87–2.08	1.31–1.65	3.63–3.81	2.63–2.82	3.48–3.74	4.01–4.30	3.92–4.15	2.47–2.71	2.17–2.40
	No 41.8% (*n*=643)	Mean	1.86	4.74	1.95	1.50	3.46	2.58	3.48	4.06	3.96	2.63	2.18
		95% CI	1.78–1.94	4.57–4.92	1.84–2.06	1.32–1.68	3.36–3.55	2.48–2.68	3.34–3.62	3.91–4.21	3.83–4.08	2.50–2.76	2.06–2.30
		p	0.385	0.768	0.624	0.695	**<0.001**	**<0.001**	**0.013**	0.106	0.125	0.426	**0.025**
Unreg work time	Yes 38.3% (*n*=589)	Mean	1.84	4.80	1.96	1.45	3.78	2.73	3.67	4.21	4.08	2.65	2.28
		95% CI	1.76–1.93	4.63–4.98	1.85–2.07	1.27–1.62	3.68–3.87	2.64–2.83	3.54–3.81	4.06–4.36	3.96–4.20	2.52–2.78	2.16–2.40
	No 61.7% (*n*=950)	Mean	1.90	4.73	1.96	1.50	3.49	2.62	3.44	4.01	3.90	2.55	2.22
		95% CI	1.82–1.98	4.56–4.90	1.85–2.07	1.33–1.67	3.40–3.58	2.53–2.72	3.31–3.57	3.86–4.15	3.78–4.02	2.43–2.68	2.10–2.34
		p	0.076	0.301	0.969	0.429	**<0.001**	**0.004**	**<0.001***	**0.001***	**<0.001***	0.074	0.222
Home work_ hours	Yes 44.1% (*n*=678)	Mean	1.86	4.78	1.94	1.44	3.82	2.80	3.72	4.22	4.09	2.64	2.36
		95% CI	1.78–1.94	4.60–4.96	1.83–2.05	1.26–1.61	3.73–3.91	2.70–2.90	3.59–3.86	4.07–4.37	3.97–4.21	2.51–2.77	2.24–2.48
	No 55.9% (*n*=861)	Mean	1.88	4.74	1.97	1.53	3.43	2.56	3.40	3.99	3.90	2.52	2.14
		95% CI	1.80–1.96	4.56–4.92	1.85–2.08	1.35–1.71	3.34–3.52	2.46–2.65	3.26–3.53	3.84–4.14	3.78–4.02	2.40–2.65	2.02–2.26
		p	0.489	0.587	0.530	0.210	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.034***	**<0.001**
Home work_days	Yes 35.0% (*n*=539)	Mean	1.86	4.75	1.93	1.41	3.87	2.79	3.69	4.17	4.06	2.67	2.39
		95% CI	1.78–1.94	4.57–4.93	1.82–2.05	1.23–1.59	3.77–3.96	2.69–2.88	3.55–3.83	4.02–4.33	3.93–4.18	2.53–2.80	2.26–2.51
	No 65.0% (*n*=1001)	Mean	1.89	4.77	1.97	1.53	3.43	2.58	3.44	4.05	3.94	2.49	2.13
		95% CI	1.81–1.97	4.60–4.94	1.85–2.08	1.35–1.70	3.34–3.52	2.48–2.67	3.31–3.57	3.90–4.20	3.82–4.06	2.36–2.61	2.01–2.25
		p	0.428	0.819	0.495	0.126	**<0.001***	**<0.001**	**<0.001**	0.059	**0.023**	**0.001***	**<0.001**
Leave work	Yes 60.9% (*n*=939)	Mean	1.87	4.76	1.96	1.44	3.78	2.67	3.56	4.12	4.02	2.52	2.26
		95% CI	1.79–1.95	4.59–4.93	1.85–2.06	1.27–1.60	3.70–3.87	2.58–2.77	3.43–3.69	3.98–4.26	3.91–4.14	2.40–2.64	2.14–2.37
	No 39.1% (*n*=603)	Mean	1.88	4.79	1.94	1.54	3.35	2.65	3.54	4.09	3.97	2.75	2.21
		95% CI	1.80–1.97	4.61–4.98	1.82–2.05	1.35–1.72	3.25–3.44	2.55–2.75	3.39–3.68	3.93–4.25	3.84–4.10	2.62–2.89	2.08–2.33
		p	0.733	0.648	0.635	0.172	**<0.001**	0.565	0.633	0.596	0.262	**<0.001**	0.291

Table II. (Continued)

		Perceived stress (PSS)	Self-rated health (SRH)	Subjective health complaints (LSHC)	Occupational fatigue (SOFI)	Work-related control (QPS)	Work-related demands (QPS)	Work engagement – absorbtion (UWES)	Work engagement – dedication (UWES)	Work engagement – vigour (UWES)	Work-to-family spillover (WFC)	Family-to-work spillover (FWC)
Break	Yes 90.4% (n=1391)	Mean	1.86	4.78	1.94	1.43	3.65	2.66	3.56	4.13	4.01	2.57	2.23
		95% CI	1.79–1.93	4.62–4.94	1.84–2.04	1.27–1.59	3.57–3.73	2.57–2.75	3.44–3.68	3.99–4.27	3.90–4.12	2.46–2.69	2.12–2.34
	No 9.6% (n=147)	Mean	2.04	4.50	2.07	2.00	2.97	2.71	3.52	3.96	3.88	2.98	2.26
		95% CI	1.89–2.18	4.19–4.80	1.88–2.26	1.70–2.31	2.81–3.13	2.54–2.87	3.28–3.75	3.70–4.23	3.67–4.09	2.76–3.20	2.04–2.47
		p	**0.006**	**0.041**	0.146	**<0.001**	**<0.001**	0.550	0.690	0.167	0.164	**<0.001**	0.757

Adjusted for age, gender, work time (full- or part-time), education, household income, and work position.
*Significant ($p \leq 0.05$) interaction between work place factor and gender.

stress, subjective health complaints, and self-rated health, and the effect of positive attitude among both managers and colleagues on work-related fatigue were even stronger among women than among men. Indeed, for some of these variables, the beneficial effect was significant only among women. Regarding a positive attitude among colleagues, the reduction in work-related fatigue was significant among women only (mean difference –0.45, 95% CI, –0.61 to –0.29). Significantly lower subjective health complaints (mean difference –0.22, 95% CI, –0.31 to –0.12) and higher self-rated health (mean difference 0.50, 95% CI, 0.34 to 0.66) were found among women who experienced a positive attitude among their managers, while there was no corresponding significant effect among men. A significant interaction effect and its subsequent stratified analyses showed that the beneficial effect of having a clear back up during absence on work-to-family spillover was even stronger among men (–0.32, –47 to –0.17) than among women (–0.16, –0.28 to –0.04). Although there were no significant main effect on family-to-work spillover, the interaction effect and subsequent stratified analyses showed that women who had the possibility to bring children to work had significantly lower levels compared to women who did not have this possibility (–0.13, –0.24 to –0.01). Stratified analyses also showed that the effect on work-related control was slightly stronger among women (0.38, 0.29 to 0.47) than among men (0.25, 0.14 to 0.35).

Discussion

The results showed that work place factors related to flexibility and, especially among women, attitude to parenthood appear to have the strongest effect on working parents' subjective stress and wellbeing, while benefits appear to have less impact. Except regarding factors related to attitudes at the work place, most association between work place factors and outcome measures appeared to be similar among men and women. However, the results should be interpreted in the light of some methodological aspects and limitations.

Methods

Although we sometimes present the results in terms of effects of different work place conditions, the cross sectional design of the study makes it impossible to establish evident causality between the examined factors. We analyse associations between variables and must be aware that part of the effect may come from a reversed causality: i.e. the report of work place conditions may to some extent be affected by the individuals' general wellbeing. This may apply more to

Table III. Associations between work place factors related to benefits and outcome variables among men and women.

			Perceived stress (PSS)	Self-rated health (SRH)	Subjective health complaints (LSHC)	Occupational fatigue (SOFI)	Work-related control (QPS)	Work-related demands (QPS)	Work engagement – absorbtion (UWES)	Work engagement – dedication (UWES)	Work engagement – vigour (UWES)	Work-to-family spillover (WFC)	Family-to-work spillover (FWC)
Salary comp_ parental leave	Yes 18.3% (*n*=280)	Mean	1.86	4.77	1.93	1.37	3.71	2.58	3.51	4.11	3.99	2.46	2.24
		95% CI	1.76–1.96	4.55–4.99	1.79–2.07	1.15–1.59	3.60–3.83	2.46–2.70	3.34–3.68	3.92–4.30	3.84–4.14	2.30–2.63	2.09–2.39
	No 81.7% (*n*=1249)	Mean	1.88	4.76	1.95	1.49	3.60	2.68	3.56	4.11	4.00	2.60	2.24
		95% CI	1.80–1.95	4.60–4.92	1.85–2.06	1.33–1.66	3.51–3.68	2.59–2.77	3.44–3.68	3.98–4.25	3.89–4.11	2.48–2.72	2.13–2.35
		p	0.668	0.874	0.646	0.171	**0.013**	**0.041**	0.474	0.938	0.884	**0.032**	0.978
Salary comp_sick child	Yes 5.2% (*n*=80)	Mean	1.88	4.74	2.09	1.59	3.68	2.55	3.64	4.15	4.06	2.63	2.29
		95% CI	1.74–2.03	4.43–5.05	1.89–2.28	1.27–1.90	3.51–3.85	2.38–2.72	3.40–3.88	3.89–4.42	3.84–4.27	2.40–2.86	2.08–2.51
	No 94.8% (*n*=1448)	Mean	1.87	4.76	1.95	1.49	3.59	2.68	3.55	4.11	3.99	2.59	2.23
		95% CI	1.80–1.94	4.60–4.92	1.85–2.05	1.32–1.65	3.51–3.68	2.59–2.77	3.42–3.67	3.97–4.24	3.88–4.10	2.47–2.71	2.12–2.35
		p	0.845	0.897	0.139	0.491	0.295	0.108	0.398	0.701	0.504	0.754	0.570
Exercise	Yes 29.0% (*n*=446)	Mean	1.84	4.86	1.92	1.38	3.74	2.65	3.61	4.18	4.09	2.58	2.26
		95% CI	1.75–1.92	4.68–5.05	1.80–2.04	1.20–1.57	3.64–3.84	2.54–2.75	3.47–3.76	4.02–4.34	3.96–4.22	2.44–2.72	2.13–2.39
	No 71.0% (*n*=1090)	Mean	1.89	4.73	1.97	1.51	3.55	2.67	3.54	4.09	3.97	2.58	2.22
		95% CI	1.82–1.97	4.56–4.89	1.87–2.08	1.35–1.68	3.46–3.64	2.58–2.76	3.42–3.67	3.95–4.23	3.86–4.09	2.46–2.70	2.10–2.33
		p	0.096	0.060	0.256	0.077	**<0.001**	0.563	0.211	0.161	**0.016**	0.956*	0.447
Household work subs	Yes 5.2% (*n*=79)	Mean	1.82	4.75	1.97	1.34	3.86	2.64	3.50	4.14	3.98	2.39	2.21
		95% CI	1.68–1.96	4.44–5.05	1.78–2.17	1.03–1.65	3.69–4.03	2.47–2.81	3.26–3.74	3.88–4.41	3.76–4.19	2.16–2.62	2.00–2.42
	No 94.8% (*n*=1454)	Mean	1.88	4.75	1.95	1.49	3.57	2.67	3.55	4.10	3.99	2.60	2.24
		95% CI	1.81–1.95	4.59–4.91	1.85–2.05	1.33–1.66	3.49–3.66	2.58–2.76	3.42–3.67	3.96–4.24	3.88–4.10	2.49–2.72	2.12–2.35
		p	0.372	0.966	0.813	0.284	**<0.001**	0.670	0.705	0.726	0.879	**0.045**	0.800

Table III. (Continued)

			Perceived stress (PSS)	Self-rated health (SRH)	Subjective health complaints (LSHC)	Occupational fatigue (SOFI)	Work-related control (QPS)	Work-related demands (QPS)	Work engagement – absorbtion (UWES)	Work engagement – dedication (UWES)	Work engagement – vigour (UWES)	Work-to-family spillover (WFC)	Family-to-work spillover (FWC)
Child care subs	Yes 3.5% (n=53)	Mean	1.78	4.78	1.90	1.36	3.80	2.69	3.62	4.31	4.17	2.48	2.19
		95% CI	1.61–1.96	4.40–5.15	1.66–2.14	0.98–1.74	3.60–4.00	2.48–2.90	3.32–3.91	3.99–4.64	3.91–4.43	2.20–2.76	1.93–2.45
	No 96.5% (n=1482)	Mean	1.88	4.76	1.96	1.50	3.59	2.67	3.55	4.10	3.99	2.60	2.24
		95% CI	1.80–1.95	4.60–4.91	1.86–2.06	1.34–1.66	3.51–3.68	2.58–2.76	3.43–3.67	3.96–4.24	3.88–4.10	2.48–2.72	2.13–2.35
		p	0.262	0.902	0.615	0.458	**0.037**	0.796	0.637	0.178*	0.146	0.378	0.686

Adjusted for age, gender, work time (full- or part-time), education, household income, and work position.
*Significant ($p \leq 0.05$) interaction between work place factor and gender.

the subjective work place factors than to objective or concrete conditions and benefits. It is also worth to note that it is difficult to separate completely between work place factors and specific occupations, since some conditions related to, for example, flexibility are much more prevalent in some occupational categories, and this may be linked to socioeconomic factors known to be associated with wellbeing. Although we adjust for some socioeconomic factors such as education and work position, there may still be some influence from unmeasured socioeconomic inequalities related to some of the conditions.

The categorisation of work place conditions aims to facilitate the presentation and interpretation of the results by collapsing the many different conditions and benefits into more general themes. This categorisation is arbitrary and based on a subjective evaluation of common themes within the different conditions. However, it is noteworthy that it facilitated to recognise patterns indicating that factors relating to attitudes and office social climate are of high importance for the wellbeing of parents with small children.

A major limitation of the present study is the low response rate. Despite repeated reminders, the response rate did not exceed 26%: slightly higher for women (32%) than for men (19%). This is difficult to explain, since the aim with the study was supposed to be experienced as important and relevant for the invited participants and hence entice to participation, even though we were aware that we invited a group that may be under much stress and experience time restrictions. Although through a later record check we excluded persons who were not in active employment at the time for the survey and hence were not included in the target population, some of the other exclusion criteria were based on the parent's own judgement, e.g. regarding pregnancy and chronic diseases. Hence, the true net sample may be smaller than we report, and hence the response rate would be slightly higher. Still, the low response rate raises the question about whether the study sample can be regarded as representative for the target population. With respect to their score on the PSS scale, the men and women included in the present study were comparable to other healthy populations investigated in recent studies [21,22]. Hence, there does not seem to be a selection of particularly stressed or non-stressed individuals. However, more important is the fact that the primary aim with the present study was to explore associations between different work place conditions and wellbeing, and there are no reasons to believe that the sample should not be representative regarding these associations.

Table IV. Associations between work place factors related to attitudes and outcome variables among men and women.

			Perceived stress (PSS)	Self-rated health (SRH)	Subjective health complaints (LSHC)	Occupational fatigue (SOFI)	Work-related control (QPS)	Work-related demands (QPS)	Work engagement – absorption (UWES)	Work engagement – dedication (UWES)	Work engagement – vigour (UWES)	Work-to-family spillover (WFC)	Family-to-work spillover (FWC)
Attitude_ managers	Positive attitude 38.6% (*n*=592)	Mean	1.75	5.00	1.89	1.22	3.82	2.58	3.71	4.40	4.20	2.36	2.11
		95% CI	1.67–1.83	4.82–5.19	1.77–2.00	1.04–1.41	3.72–3.92	2.48–2.68	3.57–3.85	4.24–4.55	4.08–4.33	2.23–2.50	1.99–2.24
	Negative or neutral attitude 61.4% (*n*=941)	Mean	1.94	4.67	1.99	1.59	3.52	2.70	3.48	3.99	3.91	2.71	2.30
		95% CI	1.86–2.01	4.51–4.84	1.89–2.10	1.43–1.75	3.43–3.61	2.61–2.79	3.36–3.61	3.85–4.13	3.80–4.03	2.59–2.83	2.18–2.41
		p	**<0.001***	**<0.001***	**0.012***	**<0.001***	**<0.001**	**0.002**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Attitude_ colleagues	Positive attitude 46.7% (*n*=817)	Mean	1.79	4.94	1.91	1.29	3.76	2.60	3.62	4.31	4.12	2.45	2.16
		95% CI	1.71–1.87	4.77–5.12	1.80–2.02	1.11–1.46	3.67–3.86	2.50–2.69	3.49–3.76	4.16–4.46	4.00–4.24	2.32–2.57	2.03–2.28
	Negative or neutral attitude 53.3% (*n*=717)	Mean	1.95	4.65	1.99	1.60	3.50	2.71	3.49	3.97	3.91	2.71	2.30
		95% CI	1.87–2.02	4.49–4.82	1.89–2.10	1.43–1.77	3.41–3.59	2.62–2.80	3.36–3.62	3.83–4.11	3.79–4.02	2.59–2.84	2.19–2.42
		p	**<0.001**	**<0.001**	**0.038**	**<0.001***	**<0.001**	**0.002**	**0.008**	**<0.001**	**<0.001**	**<0.001**	**0.001**
Meeting policy	Yes 11% (*n*=162)	Mean	1.83	4.87	1.89	1.29	3.75	2.58	3.69	4.34	4.10	2.54	2.33
		95% CI	1.72–1.94	4.62–5.11	1.74–2.05	1.05–1.54	3.62–3.88	2.45–2.72	3.50–3.87	4.13–4.55	3.93–4.27	2.36–2.72	2.17–2.50
	No 89% (*n*=1369)	Mean	1.88	4.73	1.97	1.52	3.57	2.69	3.53	4.07	3.98	2.61	2.22
		95% CI	1.81–1.96	4.57–4.89	1.87–2.07	1.36–1.69	3.48–3.65	2.60–2.78	3.41–3.66	3.93–4.21	3.87–4.09	2.49–2.73	2.11–2.34
		p	0.339	0.215	0.279	**0.038**	**0.002**	0.086	0.070	**0.003**	0.100	0.424	0.142
Back up	Yes 59.8% (*n*=920)	Mean	1.84	4.82	1.90	1.38	3.60	2.58	3.51	4.17	4.04	2.51	2.17
		95% CI	1.76–1.91	4.66–4.99	1.80–2.00	1.22–1.55	3.51–3.69	2.49–2.67	3.38–3.64	4.03–4.31	3.92–4.15	2.38–2.63	2.05–2.28
	No 40.2% (*n*=618)	Mean	1.95	4.63	2.06	1.65	3.62	2.82	3.64	4.03	3.94	2.75	2.35
		95% CI	1.87–2.03	4.46–4.81	1.95–2.18	1.47–1.83	3.52–3.72	2.72–2.92	3.50–3.78	3.87–4.18	3.82–4.06	2.62–2.89	2.23–2.48
		p	**<0.001**	**0.006**	**<0.001**	**<0.001**	0.573	**<0.001**	**0.013**	**0.014**	**0.037**	**<0.001***	**<0.001**

Table IV. (Continued)

		Perceived stress (PSS)	Self-rated health (SRH)	Subjective health complaints (LSHC)	Occupational fatigue (SOFI)	Work-related control (QPS)	Work-related demands (QPS)	Work engagement – absorption (UWES)	Work engagement – dedication (UWES)	Work engagement – vigour (UWES)	Work-to-family spillover (WFC)	Family-to-work spillover (FWC)
Bring child	Mean	1.82	4.88	1.88	1.34	3.78	2.65	3.64	4.20	4.08	2.53	2.20
Yes 44.6% (n=685)												
	95% CI	1.74–1.90	4.72–5.05	1.77–1.98	1.17–1.52	3.69–3.87	2.55–2.74	3.50–3.77	4.06–4.35	3.97–4.20	2.41–2.66	2.08–2.32
No 55.4% (n=851)	Mean	1.91	4.64	2.03	1.60	3.47	2.67	3.49	4.05	3.93	2.63	2.24
	95% CI	1.83–1.98	4.47–4.82	1.92–2.14	1.43–1.77	3.38–3.56	2.58–2.77	3.36–3.63	3.90–4.20	3.81–4.05	2.50–2.76	2.12–2.36
	p	**0.005**	**<0.001**	**<0.001**	**<0.001**	**<0.001***	0.457	**0.005**	**0.009**	**0.001**	**0.040**	0.361*

Adjusted for age, gender, work time (full- or part-time), education, household income, and work position.
*Significant ($p \leq 0.05$) interaction between work place factor and gender.

Results

The factors within the attitude dimension show the strongest associations with health outcomes. A positive attitude from colleagues and managers is related to a positive outcome in all examined variables, i.e. lower stress, fatigue, subjective health complaints, and experienced work–family conflict, as well as higher work engagement and general self-rated health. This is in accordance with the parents' own perception of which factors are most important for maintaining a fruitful balance between work and family, where understanding from managers and colleagues was ranked as most important, followed by "a parent friendly policy" at the company [23].

In the present study, the beneficial effects of positive attitude and understanding from the manager were even stronger for women than for men. This may indicate that the concern about social support and social interaction is more important for women. Indeed, a previous report showed that women to a higher degree than men worried about letting managers and colleagues down when they were absent due to a sick child [23]. This may partly be because women more often stay home when the child is sick and hence are more likely to experience larger effects of the absence. However, it may also reflect more concern about the social responsibilities and social interaction at work. Previous studies have indicated that relationships at work are of importance for especially women. A recent review regarding female physician's career satisfaction showed the female physicians' career satisfaction was associated with perceived relationships with colleagues as well as patients [24]. Another study on female urologists, showed that the major reason for leaving academics was lack of mentoring rather than family issues [25]. And, although men and women have been shown to value the same aspects of work, they seem to rank them differently. Women have ranked factors such as friends and relationships, communication, fairness and equity, and teams and collaboration significantly higher than men [26].

A clear structure for back up during absence also appears to be an important factor for the subjective wellbeing and stress among working parents. This might, of course, be interpreted as a beneficial impact on stress from knowing that the work load is not increasing during absence. However, it may also be a reflection of the nature of the job – more occupations within the public sector, such as many of the traditional "female" occupations e.g. within health care and education, are better suited for a system with stand-ins – or reflect an attitude at the work place and an awareness about potential needs, and an

attempt to reduce the stress for both the absent employee and the colleagues.

The possibility to bring the child to work when needed had an evident effect on most outcomes. Several interpretations of this finding are possible. It could be the manifest possibility that has beneficial effects on the wellbeing. However, this possibility may also be a proxy for a more general attitude within the company, including understanding for potential needs and an openness to alternative solutions. It may also be an indication of a flexible work situation. Interestingly, among women (but not men) the possibility to bring your child to work tended to be associated with a lower family-to-work spillover. This indicates that the possibility (or whatever it is a proxy for) could decrease the spillover from family duties, such as absence due to child care (e.g. during days when the day care centre is temporarily closed), by allowing a combination of simultaneous child care and work. However, a previous report showed that as many as one in four of both fathers and mothers thought that the possibility to bring child to work may instead increase the stress, probably by signalling that one is expected to work even when one needs – or would like to – stay at home with a child [23].

Next after understanding from colleagues and managers, different flexibility factors were previously ranked by the parents as most important for maintaining a fruitful balance between work and family life [23]. It was therefore not surprising that several of the flexibility factors were also significantly associated with beneficial outcomes in the present study. Flexible and/or unregulated work hours was associated with both higher work-related demands and higher work-related control, which indicates an "active" work situation, in contrast to a strained work situation where the high demands are combined with a low control. While high demands in combination with low control (i.e. "strain") has been considered as a risk factor for both physical and mental ill health effects [27,28], an active work situation is considered much more positive [29]. Also, the unregulated work time in particular was associated with high work engagement; vigour, dedication and absorption. However, part of these associations may be attributable to that unregulated work time is generally associated with more skilled occupations. Although we controlled for work position and educational level, there may still be some influence from differences in occupations. Thus, part of the beneficial outcomes associated with high control and work engagement may be attributable to the occupation rather than the unregulated work time. Also, stratified analyses showed that the positive association between unregulated work hours and work engagement was evident for men only. Still, it is worth to note that the unregulated work times was not found to be associated with any negative outcomes among either men or women, which could have been expected due to lack of clear borders and regulation of the work time . This could in turn have let the work spillover too much on other parts in life, causing negative outcomes. However, we did not find any evidence for this.

For both men and women, the possibility to work from home was associated with higher work engagement and higher work-related control. However, it was also associated with higher levels of both work-to-family spillover and family-to-work spillover, especially among men. This is partly in accordance with a previous American study, which examined work place factors and work–home interference among women 1 year after childbirth. This study showed that some flexibility factors, such as the ability to take work home, were associated with increased home-to-work spillover, but not with work-to-home spillover [30]. In our study, the positive association with work-related control was stronger among women. Hence, it appears that the possibility to work from home is more beneficial for women. Still, despite the adjustment for work position and educational level, the possibility to work from home may be associated with certain occupations that are individually associated with higher work engagement and control.

Most parents reported that they had the opportunity to take a short break, and many also to leave work on short notice, if needed (Table I). This possibility was associated with higher work-related control and a lower level of work-to-family spillover. It was also associated with lower levels of perceived stress and work-related fatigue. Not having the possibility to take such a short break may depend on an extremely high work load but is probably more often due to very rigid and inflexible occupations. However, in many occupations, the possibility to take breaks may vary during the work day, depending on the acute situation. For example, a surgeon will not be able to take a break during surgery, while during "desk time" there could be much better opportunities. Having short periods of inflexibility is probably not as problematic as never being able to decide over breaks or never being able to leave work even for urgent matters.

The factors in the benefit dimension were generally not very strongly associated with the outcome variables. However, several benefit factors were associated with increased work-related control. The possibility to exercise during work hours was also associated with higher work engagement (vigour).

Women who had the possibility to exercise during work hours also tended to experience less work-to-family spillover compared to women who did not have this opportunity. However, it is important to notice that the question was about whether they had the opportunity or not, not whether they took advantage of it. There may be stronger associations with wellbeing among those who actually exercise during work hours.

Salary compensation during parental leave was associated with less work-to-family spillover as well as slightly lower levels of work-related demands. In this case, it is evident that the salary compensation is a proxy for something else in the work environment, because at the time of participating in the study, none of the parents were on parental leave and could therefore no longer benefit directly from a salary compensation (unless perhaps during part-time). Thus, such compensation is possibly related to attitudes on the work place, indicating a positive attitude to parental leave.

Except in the attitude dimension, there were not many interaction effects between work place factors and gender, indicating that in most cases, the association between work place factors and outcome measures were similar among men and women. This is partly in contrast with previous studies, which have indicated differing effects among men and women [11–13]. In general, work place factors related to flexibility and, especially among women, attitude to parenthood appear to have the strongest effect on working parents' subjective stress and wellbeing, while benefits appear to have less impact. The flexibility factors may increase the parents' general sense of control over the life situation, which may lead to beneficial health effects. The importance of attitude may both reflect a direct effect of the experience of a positive attitude, but also be associated with a generally friendly atmosphere, allowing for individual solutions and understanding of special needs and circumstances associated with the parenthood.

Still, the individual effect of different work place factors may vary much between individuals, which may reduce the overall effect or association for each work place factor. Most likely, different factors are better suited or more important for some individuals than others depending on their total work – as well as family situation and also depending on individual factors such as personality, priorities, etc. An example of this was seen in a previous report, where while some factors were among some parents ranked high as "stress-reducing factors", the same factors were also by some parents considered to potentially increase the stress [23]. In order to find the optimal work environment for the employee, the employer should perhaps discuss different options with the employer, to find the optimal solution for each individual.

Future longitudinal or intervention studies may further explore potential causal effects of work place factors or change in working conditions. Effects may also differ between different occupational groups, position etc which may be explored through larger samples allowing for stratified analyses or selected samples. Knowing more about the impact and possibilities for work place factors to facilitate the combination of employment and parenting while maintaining work engagement as well as good health and minimising stress, fatigue, and physical symptoms could possibly be a link in the prevention of more severe stress-related health problems and a perhaps reduce sick leave in this potentially strained population.

Conclusion

Knowing more about the associations between work place factors and health could help employers to form a work environment that provides optimal conditions for health and work engagement among working parents. Since the need for a lasting and durable combination of parenting and employment is a reality for many parents today, increased knowledge about these associations is of great public interest as well as occupational health interest. Most likely, different factors are better suited or more important for some individuals than others depending on their total work- as well as family situation and also depending on individual factors such as personality and priorities. However, the results from the present study indicate that a positive attitude towards parenthood and a flexible work situation seem beneficial for the general wellbeing and work engagement among working parents.

Conflict of interest

The authors declare that there is no conflict of interest.

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