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Distinguishing between overtime work and long workhours among full-time and part-time workers

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Objectives This study aimed at disentangling the effects of overtime hours from those of long workhours. For part-time workers, overtime work is not intertwined with long workhours as it is for full-time workers. Therefore, part-time and full-time employees were compared with regard to the association between overtime and well-being (fatigue and work motivation). Such comparisons may also shed more light on the psychological meaning of overtime work for part-time and full-time workers.

Methods A survey study was conducted among a representative sample of Dutch employees (N=2419). An analysis of covariance was used to investigate whether the relationship between overtime and well-being differs between marginal part-time (8–20 contractual workhours), substantial part-time (21–34 hours), and full-time (≥35 hours) workers. Work characteristics (ie, job demands, decision latitude, and job variety), age, and gender were treated as covariates.

Results No significant relationship between overtime and fatigue was found for any of the contract-hour groups. For the part-time workers, overtime was not related to higher work motivation, whereas for full-time workers it was.

Conclusions It is important to distinguish between overtime and long workhours, given the differential overtime–motivation relationship among part-time and full-time workers. This finding suggests that part-time employees work overtime for reasons other than motivation or that working overtime does not enhance work motivation for this group of employees. Overtime work seems to have a different meaning for part-time and full-time workers.

Key terms fatigue; job characteristics; work motivation.

In studies on the health effects of overtime work, the concepts of long workhours and overtime have often been used interchangeably (1–4). One should realize, however, that although these concepts are indeed intertwined, they are not identical. Long workhours can be defined as workhours that exceed the standard *full-time workweek*, whereas overtime refers to workhours that exceed the number of *contractual hours*. Accordingly, long workhours by definition imply a certain number of overtime hours, but the reverse is not always true since employees with a part-time contract may also work overtime.

To our knowledge, an explicit distinction has not yet been properly made between long workhours and overtime work in the literature. Research on prolonged worktime has been mainly directed towards full-time employees (3, 5–13). For these employees, it is impossible to distinguish between the effects of long workhours and the effects of pure overtime, as for full-timers overtime work and long workhours go hand in hand.

The relatively strong focus on long workhours and full-timers in previous research on overtime work is understandable since it is often assumed that the relationship between overtime and health problems arises from too much effort and too little time to recover (12). [See, for example, the effort–recovery model of Meijman & Mulder (14).] It has been shown that chronic insufficient recovery may disturb psychophysiological

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processes and may eventually lead to health problems (15, 16). For full-time employees, overtime work may, therefore, be a problem of too much exposure to work demands combined with too little recovery.

The aim of this study was to distinguish between the potential effects of overtime work and those of long workhours. One way to separate the effects of overtime hours from those of long workhours is to take part-time employees into account. For part-time workers, overtime work also implies more exposure to work demands (more effort expenditure), but not necessarily too much exposure or too little recovery. As overtime and long workhours do not overlap for this group of employees, including them in a study allows for a more valid assessment of the effects of "pure overtime". If our results show a difference in the overtime–well-being associations between full-time and part-time workers, we would have empirical evidence to support our assumption that it is important to acknowledge the difference between long workhours and overtime work and to include part-time workers in future overtime studies. Furthermore, a different overtime–well-being association for part-time and full-time workers indicates that the psychological meaning of overtime may differ for both groups.

Based on these theoretical considerations, the research question of this study is "What are the associations between overtime and well-being among part-time employees, and do these associations differ from those of full-time employees?" To strengthen the design of the study, not only a negative indicator of well-being (fatigue), but also a positive indicator was included, namely, work motivation. By doing so, we acknowledge that (overtime) work does not necessarily have to be related to negative consequences but may also be studied from a work motivational perspective (17).

Previous research has shown that the psychosocial work environment differs for part-time and full-time employees. Part-time employment is more widespread in the lowest occupational status categories that entail jobs that are typically more monotonous and that offer fewer opportunities for career development and lower payment rates (18). Psychosocial work characteristics have, in turn, often been found to be related to well-being independently of workhours. For example, there are numerous studies showing that high demands are associated with high levels of stress and fatigue (19, 20). Finally, work characteristics also show associations with overtime hours [eg, job demands are moderately associated with working overtime (5, 13)]. Therefore, in this study, we statistically controlled for the influence of three central work characteristics (ie, job demands, decision latitude, and job variety). Controlling for work characteristics allows for a more valid assessment of the effects of overtime as the possible confounding effects of work characteristics are ruled out.

In the European Union, part-time work is mainly a female phenomenon (32% of women versus 6% of men work part-time) (21). In the Netherlands, 72% of female employees works part-time, as opposed to 21% of their male colleagues (22). Part-time employment is also particularly prevalent at the beginning and at the end of people's work careers (ie, among young and old employees), whereas full-time employment is common in the years in between (18). As former studies have shown that full-time and part-time workers differ with respect to age and gender, we also statistically controlled for these characteristics in our study. Potential differences between full-time and part-time workers with respect to the overtime–well-being relationship can therefore not be attributed to these personal characteristics.

Stuy population and methods

Study population and procedures

Data were collected in 2002 as part of a large questionnaire study on the work situation of Dutch employees (23). [4] A total of 3093 Dutch workers completed questions about contractual workhours and overtime hours. [See "Measures".] Self-employed men and women were excluded as the question on contractual workhours would not apply to them. Only employees who reported less than 41 contractual workhours and less than 40 overtime hours a week were included in our study (N=2653). This selection assured enough variance with respect to overtime and contractual hours.

Furthermore, preliminary inspection of our data revealed that some respondents reported equal numbers of contractual and overtime hours (eg, 40 contractual hours and 40 overtime hours, 38 contractual hours and 38 overtime hours, and so on). This result suggested that these respondents misunderstood the overtime question. Therefore, we only included employees whose number of overtime hours differed from their contractual hours. Ultimately, the final sample consisted of 2419 employees (59.7% men, 40.3% women) who ranged in age from 15 to 67 (mean 39.7, SD 11.8) years. The respondents worked an average of 31.7 (SD 10.0) hours on contract

4 The data from this study partly overlap with those from the study by Beckers et al (5). However, the study by Beckers et al was restricted to "full-time" employees, whereas the current study has focused on part-time employees and excludes self-employed workers.

and spent an average of 3.5 (SD 6.0) hours a week on overtime work. The sample can be considered to be representative of the Dutch working population in terms of age, gender, and number of part-time and full-time employees (24).

Measures

Contractual workhours were measured with the following item: "How many hours a week do you work on contract?" Based on the classifications of the European Foundation for the Improvement of Living and Working Conditions (25), the following three subgroups were created: a marginal part-time contract-hours group (8–20 weekly contractual workhours; N=382), a substantial part-time contract-hours group (21–34 weekly contractual workhours; N=518), and a (close to) full-time contract-hours group (≥35 contractual workhours; N=1451).

Overtime hours were measured with the following item: "On average, how many hours a week do you work overtime? (paid AND unpaid overtime work; include work you execute at home; DO NOT include your commuting time)". Respondents who did not work overtime were assigned to a "no overtime group" (N=926), respondents with 1 to 5 overtime hours a week were assigned to a "low overtime group" (N=1061), and respondents whose overtime exceeded 5 hours a week were assigned to a "high overtime group" (N=432).

Fatigue was assessed with the five-item exhaustion scale from the Dutch version of the Maslach Burnout Inventory (General Survey) (26). A sample item is "My work makes me feel mentally exhausted" (1 = "never", 7 = "every day"). Cronbach's α was 0.90. Reference scores were provided by Schaufeli & van Dierendonck (26).

Work motivation was assessed with ten items derived from the work-engagement scale (27). Typical items are "When I get up in the morning, I am motivated to go to work" and "I am enthusiastic about my work". The items were scored on a five-point scale (1 = "hardly ever", 5 = "always"). Cronbach's α was 0.92.

Three major *work characteristics* were assessed using the Job Content Questionnaire (28). Job demands were measured with five items. One sample question is "Do you have to work very hard?" Cronbach's α was 0.83. Job variety was measured with the 5-item skill discretion scale of the questionnaire, for example, "Do you get to do a variety of different things on your job?" Cronbach's α was 0.79. Decision latitude was measured using five items. An exemplary question is "Do you have the freedom to decide how to do your job?" Cronbach's α was 0.84. The scores of the items of these three scales ranged from 1 ("never") to 4 ("always"). Higher scores on these scales indicated a higher (quantitative) workload, more job variety, and more decision latitude.

Statistical analyses

An analysis of covariance (ANCOVA) was used to examine whether part-time and full-time workers differed with respect to the overtime–fatigue association and the overtime–motivation association. The overtime group (no, low, high) and contract-hours group (marginal part-time, substantial part-time, full-time) were entered as independent variables, and fatigue and work motivation were treated as dependent variables. In these analyses, the contract type dimension (three levels) was combined with the overtime dimension (three levels). This combination resulted in the following nine subgroups: (i) the no overtime–marginal part-time contract group (N=202); (ii) no overtime–substantial part-time contract group (N=197); (iii) no overtime–full-time contract group (N=486); (iv) low overtime–marginal part-time contract group (N=122); (v) low overtime–substantial part-time contract group (N=234); (vi) low overtime–full-time contract group (N=692); (vii) high overtime–marginal part-time contract group (N=58); (viii) high overtime–substantial part-time contract group (N=87); and (ix) high overtime–full-time contract group (N=273). By comparing these nine overtime–contract groups using an ANCOVA (overtime group × contract hours group), we examined whether the relationship between overtime on one hand and fatigue and work motivation on the other differed for part-time and full-time workers.

As discussed earlier, in our analyses, we controlled for work characteristics (ie, job demands, decision latitude, and job variety), age, and gender. Potential differences between full-time and part-time workers with respect to the link between overtime and well-being can not, therefore, be attributed to these work and personal characteristics.

Results

Description of the research sample

Appendix 1 presents descriptive statistics (means, standard deviations, and correlations) of the variables under study.

In our sample, 61.7% of the employees reported working overtime. The data revealed that extreme overwork occurred rarely as 81.4% of the overtime workers reported working less than 10 overtime hours a week. Only 2.1% (N=51) of all 2419 of the respondents

Table 1. Differences between the marginal part-time group, the substantial part-time group, and the full-time group with respect to overtime, work characteristics, and personal characteristics. (SD = standard deviation)

	Contract group									Multivariate F(14,4612) = 20.30, P<0.001; univariate F(2,2312)
	Marginal part-time (N=382)			Substantial part-time (N=518)			Full-time (N=1451)			
	Mean	SD	%	Mean	SD	%	Mean	SD	%	
Prevalence of overtime work	·	·	47 [b, c]	·	·	62 [a]	·	·	67 [a]	χ^2 (df = 2, N=2351) = 48.45, P<0.001
Overtime (range 0–39 hours)	3.42	6.77	·	3.81	7.59	·	3.43	5.02	·	0.81, P=0.44
Overtime >0 (range 1–39 hours)	7.26 [c]	8.34	·	6.14	8.86	·	5.16 [a]	5.39	·	8.69, P<0.001
Job demands (range 1–4)	2.27 [b, c]	0.56	·	2.53 [a]	0.60	·	2.50 [a]	0.57	·	26.24, P<0.001
Decision latitude (range 1–4)	2.69 [b, c]	0.71	·	2.89 [a]	0.54	·	2.91 [a]	0.60	·	20.35, P<0.001
Job variety (range 1–4)	2.64 [b, c]	0.66	·	2.97 [a]	0.51	·	3.01 [a]	0.52	·	70.14, P<0.001
Age (range 15–67 years)	34.9 [b, c]	13.9	·	40.6 [a]	10.8	·	41.6 [a]	10.5	·	53.57, P<0.001
Gender										χ^2 (df=2, N= 2351) = 667.67, P<0.001
Male	·	·	22 [b, c]	·	·	31 [a, c]	·	·	81 [a, b]	
Female	·	·	78	·	·	69	·	·	19	

[a] Differs significantly from the respective value of the marginal part-time group.
[b] Differs significantly from the respective value of the substantial part-time group.
[c] Differs significantly from the respective value of the full-time group.

Table 2. Associations between overtime and contract on one hand and work-related well-being (fatigue and work motivation) on the other (covariates included).

Factor	Univariate
Overtime	
Fatigue	F(2,2301) = 0.52; P=0.60
Work motivation	F(2,2295) = 1.75; P=0.17
Contract	
Fatigue	F(2,2301) = 2.08; P=0.13
Work motivation	F(2,2295) = 1.34; P=0.26
Overtime × contract	
Fatigue	F(4,2301) = 1.59; P=0.17
Work motivation	F(4,2295) = 6.02; P<0.001

reported working 20–29 overtime hours, and only 1.8% (N=44) reported working 30–39 overtime hours. Most of the overtime workers (71.1%) reported working 1–5 overtime hours a week.

Overtime work was prevalent within all three contract groups. Table 1 shows that the percentage of employees working overtime was lowest among the marginal part-time workers.

As also shown in table 1, the three contract groups did not differ with respect to the weekly number of overtime hours. However, once working overtime (overtime >0), the marginal part-time workers reported a significantly higher number of overtime hours than the full-time workers who worked overtime (P<0.001) (table 1).

Analyses of variance revealed that the marginal part-time group reported significantly lower job demands, but also less decision latitude and less job variety than both of the other contract groups (P<0.001) (table 1). In terms of Karasek's demand–control model, this profile can be characterized as "passive" (29). The substantial part-time group and full-time group did not differ significantly with respect to this set of work characteristics (P>0.05). This finding implies that it was the full-time workers and the substantial part-time workers rather than the two part-time groups that had more or less similar work conditions.

Finally, the marginal part-time group was significantly younger than the substantial part-time and full-time groups (P<0.001), whereas the latter two groups did not differ significantly with respect to age (P=0.19). The marginal part-time group had the largest proportion of women, and the full-time group had the smallest proportion (table 1). In both part-time groups, most of the employees were women, whereas the full-time group consisted largely of men.

Comparison of part-time and full-time workers with respect to the overtime–well-being association

When compared with the norm scores, the average fatigue level of all of the overtime and contract groups was moderate (26). The interaction between overtime group and contract type was not statistically significant for fatigue (table 2). Accordingly, there is no reason to believe that the association between overtime and fatigue differs for part-time and full-time workers. At the same time, the analyses revealed that none of the overtime groups differed with respect to fatigue ($M_{\text{no overtime group}}$= 2.69, $M_{\text{low overtime group}}$=2.68, and $M_{\text{high overtime group}}$=2.78), nor did the contract groups differ with respect to fatigue

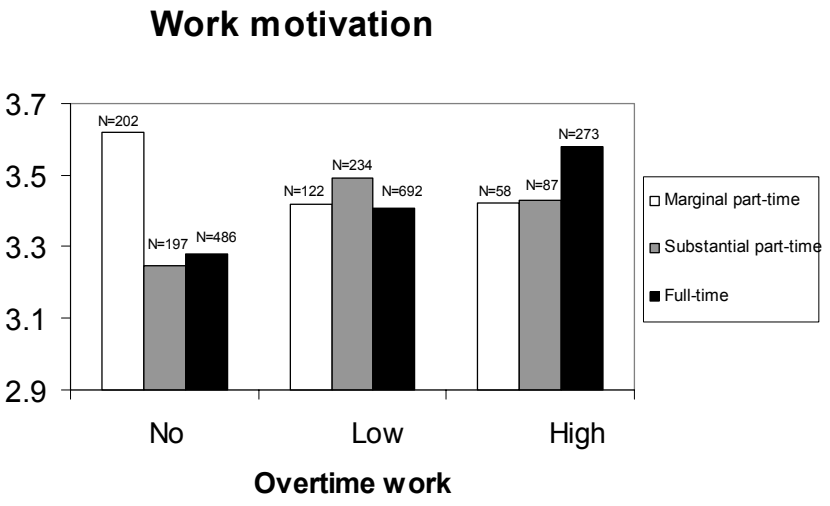

Figure 1. Pattern of overtime × contract interaction on work motivation. Gender, age, job demands, decision latitude, and job variety were included as covariates.

($M_{marginal\ part\text{-}time\ group}$=2.61, $M_{substantial\ part\text{-}time\ group}$=2.83, and $M_{full\text{-}time\ group}$=2.71). Therefore, fatigue was not related to the number of overtime hours or to contractual workhours.

As regards work motivation, we found a significant interaction between overtime and contract type (table 2 and figure 1). This finding implies that the relationship between overtime and work-motivation is not the same for the three contract groups.

For the full-time employees, work motivation increased linearly with increasing overtime. All of the overtime groups differed significantly from each other (P<0.01), the high overtime group reporting the highest work motivation and the no overtime group having the least work motivation. [See the paper by Beckers et al (5)]. We did not find such a positive linear relationship for the two part-time groups (figure 1). Especially the marginal part-time group showed a different overtime–motivation pattern, the marginal part-time workers without overtime being the most motivated. Within the substantial part-time group, we also did not find a positive linear relationship between overtime and motivation. The substantial part-time workers with high overtime were not more motivated than the substantial part-timers with low or no overtime work (P=0.42 and P=0.06, respectively).

Discussion

It has been insufficiently acknowledged in the literature that the concepts of long workhours and overtime work are not identical, although intertwined. One way to disentangle the effects of overtime from those of long workhours is to study part-time employees (distinguishing between those who do and those who do not work overtime) and to compare these part-time workers to full-time workers (who do and do not work overtime). Such comparisons may shed more light on the psychological meaning of overtime work (ie, on the associations between overtime and fatigue and between overtime and work motivation).

In the absence of a significant overtime–contract group interaction with respect to fatigue, there is no reason to conclude that the association between overtime and fatigue differs for part-time and full-time workers. In our study sample, neither overtime work nor contractual workhours seemed to be related to fatigue, which is the case for both part-time and full-time workers. According to the results of this study, it seems that a strict distinction between long workhours and overtime work is not necessary when fatigue is being investigated, as neither more overtime hours nor long workhours were related to greater fatigue. It is important to note that former studies on overtime did report an association between overtime and fatigue (12). These contradictory findings can be understood when the number of overtime hours in the current study is taken into consideration. Most of our respondents reported moderate overtime hours (ie, 1–5 hours) and extreme overtime work was scarce. On the basis of our findings, we therefore concluded that *moderate* overtime work was not related to fatigue. As former studies on overtime work often studied the consequences of *extreme* overtime work (12), this difference may explain why, in these studies, overtime work was related to fatigue (and other health problems), whereas in our study it was not.

The significant interaction between overtime and contract type on work motivation found in our study indicates that the relationship between overtime and work motivation differs for part-time and full-time workers. Whereas, for full-time workers, more overtime was linearly related to work motivation, this was not the case for the part-time groups. This finding indicates that it is indeed important to disentangle overtime work from

long workhours. Exclusive attention to long workhours (ie, overtime work among full-time employees) would have prevented us from noticing the differential relationship between overtime and work motivation for part-time and full-time workers. For full-time workers, a higher number of overtime hours was accompanied by higher levels of work motivation. This finding suggests that full-time employees who work overtime are "happy" (motivated) employees (5). For part-time workers, this relationship was less straightforward as many overtime hours did not coincide with higher work motivation. This finding suggests that (especially marginal) part-time workers work overtime for reasons other than motivation and that overtime work seems to have a different meaning for part-time and full-time workers. One might speculate that the psychosocial profile of overtime work differs for part-time and full-time employees. It may be that part-time employees as a group often work overtime involuntarily (obligatory overtime work) or that extra pay is their main reason for working overtime. It would be informative if future studies would elucidate this matter further by taking into account the reasons why part-time and full-time workers work overtime.

Study limitations

Although informative, our study also had some limitations. First, it is a "self-report only" study, and therefore one might argue that common method variance could have inflated the associations between our study variables (30). However, in his recent article, Spector (30) stated that "the popular position suggesting that common method variance automatically affects variables measured with the same method is a distortion and oversimplification of the true state of affairs, reaching the status of urban legend [p 221]" (30). Spector argued that this common method variance concept has little explanatory power, and he suggested that potential specific biases such as social desirability, negative affectivity, and acquiescence be investigated. His study revealed that the distorting effects of these biases are often limited. This finding may imply that self-report measures can be considered to be a useful and valid method when the associations between variables are studied (31).

It would be preferable in overtime research to also include a more "objective" assessment of the number of overtime hours and contractual hours (eg, through administrative company files), as, for some respondents, a correct assessment of their average weekly overtime hours may be difficult. However, more objective measurements may also incorporate some limitations (32). In overtime research, we seem to face two somewhat competing study demands. First we want large, representative, and heterogeneous study samples, and, second, we could recommend the inclusion of individualized company data, which imposes complications as to logistics and data collection and to privacy legislation (eg, selective participation). Furthermore, company records of overtime work only reveal the formally registered overtime hours. In many cases, however, overtime hours are not registered, and, therefore, only concentrating on administrative company files would result in an underestimation of the prevalence of overtime work. A partial way out of this dilemma may be to ask very clear and factual questions when data regarding overtime hours are collected. Most importantly, it should be clear to respondents whether the question on workhours concerns overtime hours, contractual workhours, or total workhours.

In this study, we constructed three overtime groups, the no overtime group, the low overtime group (1–5 overtime hours a week), and the high overtime group (>5 overtime hours a week). This classification is somewhat arbitrary, especially with respect to the high overtime group, which showed much variance. To test whether our cut-off points influenced our findings, we conducted posthoc analyses in which we subdivided the high overtime group into two groups [eg, high overtime (6–10 hours) and very high overtime (>10 hours)]. If these groups had differed with respect to well-being, it would have been better to include both a high overtime group and a very high overtime group in our study. Our analyses, however, showed that these two groups did not differ significantly with respect to fatigue (P=0.97, $M_{\text{high overtime}}$=2.80 and $M_{\text{very high overtime}}$=2.74) nor with respect to work motivation (P=0.33; $M_{\text{high overtime}}$=3.67 and $M_{\text{very high overtime}}$=3.53). Therefore, it is unlikely that the results of our study depended on our choice of overtime cut-off points.

Another limitation is the cross-sectional nature of our study, which implies that no causal inferences can be made. The extent to which work motivation precedes or follows decisions about contract type and overtime is unclear, for example. This is a complex issue, and we believe that causal relationships between variables such as contract type, overtime work, work characteristics, and well-being are dynamic and reciprocal rather than simple and one-directional. Through stronger designs (ie, using longitudinal, quasi-experimental, and intervention studies) future research may elucidate these dynamic processes (33, 34).

In this study, we took into account three major characteristics of the psychosocial (overtime) work environment of the (overtime) worker. However, this conceptualization of the quality of (overtime) work may still be rather global. From a work psychological perspective, it is therefore preferable that future studies pay more attention to (i) motives for working overtime (voluntary, involuntary), (ii) rewards for working overtime (eg, financial, promotional prospects), and (iii) specific work

activities during overtime. From a work psychological perspective, especially this last aspect seems intriguing, as, thus far, surprisingly few data are available on what overtime workers actually *do* when they work overtime. For example, we do not know the extent to which they carry out similar or different activities (eg, more demanding or more motivating) during their overtime hours, compared with their contractual workhours. Furthermore, from this study, it follows that it is preferable to distinguish between subgroups of employees with different contract types (full-time work, part-time work). Painting a more fine-grained psychosocial profile of the overtime work of these subgroups may lead to greater insight as to why the psychological meaning of overtime seems to differ for full-time and part-time employees.

Practical implications

From our study it follows that there is no reason to examine overtime work exclusively from the perspective of protecting workers from adverse effects. Our research suggests that overtime should not be conceptualized as a phenomenon which by definition has negative implications for health and well-being. It appears that, at least in the Netherlands, many employees who work overtime are motivated, nonfatigued workers. With respect to the acceptability of overtime work, a caveat is however justified. In our study extreme overwork occurred only seldom. In the literature, there is convincing evidence that *extreme* overtime work [often defined as "working more than 60 hours a week" (7)] contributes to reduced well-being and health (1, 35–37).

All in all, the relationship between (moderate) overtime work and well-being is complex, but intriguing. Hopefully, this study will increase the awareness of the difference between overtime work and long workhours and of the possibly differential psychological meaning of overtime work for part-time and full-time workers.

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Appendix 1

Descriptive statistics of the study variables (N=2419)

	Range	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.
1. Contractual workhours	0–40	31.7	10	–							
2. Overtime hours	0–39	3.5	6	0.02	–						
3. Fatigue	1–7	2.6	1.4	0.08 [a]	0.04 [b]	–					
4. Work motivation	1–5	3.4	0.8	0.15 [a]	0.12 [a]	–0.31 [a]	–				
5. Job demands	1–4	2.5	0.6	0.17 [a]	0.15 [a]	0.33 [a]	0.15 [a]	–			
6. Decision latitude	1–4	2.9	0.6	0.19 [a]	0.06 [a]	–0.13 [a]	0.30 [a]	0.07 [a]	–		
7. Job variety	1–4	2.9	0.6	0.32 [a]	0.12 [a]	–0.01	0.51 [a]	0.26 [a]	0.31 [a]	–	
8. Age	15–67	39.7	11.8	0.32 [a]	–0.04 [b]	0.01	0.22 [a]	0.13 [a]	0.16 [a]	0.20 [a]	–
9. Gender [c]	–	–	–	–0.46 [a]	0.01	0.02	–0.03	0.03	–0.05 [b]	–0.10 [a]	–0.28 [a]

[a] P<0.01.
[b] P<0.05.
[c] 1 = male, 2 = female.