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Gender perspective in the analysis of the relationship between long workhours, health and health-related behavior

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Objectives The objective of this study was to analyze gender differences in the impact of long workhours (>40 hours per week) on a variety of health outcomes and health-related behavior.

Methods The sample included all salaried contract workers aged 16–64 years (1658 men and 1134 women) and interviewed in the 2002 Catalonian Health Survey.

Results Whereas the men with a high job status were more likely to work >40 hours a week, long workhours were associated with situations of vulnerability (low job status and being separated or divorced) among the women. For both genders, working >40 hours was related to a shortage of sleep [adjusted odds ratio (aOR) 1.54, 95% confidence interval (95% CI) 1.21–1.98, for the men and aOR 1.63, 95% CI 1.11–2.38, for the women]. Among the women, long workhours were also associated with poor mental health status (aOR 1.58, 95% CI 1.04–2.40), hypertension (aOR 2.25, 95% CI 1.17–4.32), job dissatisfaction (aOR 1.77, 95% CI 1.08–2.90), and smoking (aOR 1.71, 95% CI 1.22–2.39). In addition, among the women working more hours at home, long workhours were related to sedentary leisure time activity (aOR 1.98, 95% CI 1.06–3.71).

Conclusions The relationship between long workhours and health and health-related behavior was found to be directly related to long worktime and indirectly related to long exposure to poor work conditions among the women and, to a less extent, to domestic work. The pathways that explain the relationship between long workhours and health and health-related behavior seems to depend on the outcome being analyzed.

Key terms hypertension; mental health; physical activity; sleep; smoking.

In the European Union, 20% of employees work an average of >44 hours a week, and one-third experiences long workdays (>10 hours per day) at some stage (1). However, there is a growing body of evidence suggesting that long workhours adversely affect workers' health. Long workdays have been found to be associated with hypertension, cardiovascular disease, a shortage of sleep, fatigue, stress, depression, musculoskeletal disorders, chronic infections, diabetes, general health complaints, health-related behavior, all-cause mortality, and occupational injuries (2–4). Yet the number of studies concerning the different areas of health is still low, and the results are often contradictory (3, 5, 6). It is noteworthy that most epidemiologic studies on long workhours have been conducted in Japan and have focused on workweeks of >50 hours, but few studies have addressed moderately long workhours (6). Moreover, it has been pointed out that studies are needed that take into account some potential confounding or interacting variables such as gender, work characteristics, or domestic work (3, 5).

Many studies on the health impact of long workhours have been carried out among men. However, there are several reasons why the impact of long workhours can differ according to gender (2). On one hand, physiological changes related to long workhours may not be the same for men and women. On the other, stress-related changes in health-related behavior, such as substance abuse, seem to differ between men and women (7). Moreover, long workhours can contribute to the double burden of full-time and domestic work. Several studies have reported the damaging effects of work conflict

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and work overload among women who have to balance the responsibilities of both job and family (8–10). In addition, more noticeable effects of long workhours have been observed among women, something often attributed to the additional domestic stressors experienced by women as a result of gender inequalities in the distribution of domestic tasks (11–13). For example, it has been reported that, whereas long paid workhours do not predict increases in sickness absences alone, when combined with long domestic or commuting workhours, the relationship is clear (14).

Working long hours depends to a great extent on family responsibilities and constraints imposed by the labor market. Due to both gender segregation within the labor market and family responsibilities, men and women probably work long hours for different reasons; hence the work conditions associated with their schedules also differ. Consistent with the gender division in the domestic sphere, with women responsible for housework and caring tasks and men usually assuming the breadwinner role, living with children, primarily those of preschool age, is related to part-time work among women, while, among men, it is likely to be associated with long hours (15).

It has been suggested that the relationship between workhours and ill health is mediated by stress in that long hours act both directly as a stressor increasing the demands on those who attempt to maintain performance levels in the face of increasing fatigue and indirectly by increasing the time that a worker is exposed to other sources of workplace stress (3). Interestingly, in Spain, among people working long hours, the proportion of women not receiving economic compensation for working extra hours is significantly higher than it is for men (16). This situation suggests the existence of gender inequalities in both work conditions and the power of bargaining among Spanish people working long hours.

The objectives of this study were (i) to analyze gender differences in family and job characteristics associated with long workhours, (ii) to identify gender differences in the relationship between long workhours and a variety of health outcomes and health-related behavior, and (iii) to determine whether the associations between long workhours, health, and health-related behavior are higher among people who devote more hours to domestic tasks. To detect gender differences, the analysis was performed separately for the men and women.

Study population and methods

Study population

The data were taken from the 2002 Catalonian Health Survey (CHS), a cross-sectional study based on a representative sample of 8400 members of the non-institutionalized population of Catalonia, a region in northeast Spain with about 7 million inhabitants. Only 12.7% of the respondents were replaced as a result of refusal or absence. Full details of the survey have been reported elsewhere (17). For the purposes of this study we selected a subsample of all salaried contract workers aged 16–64 years (1658 men and 1134 women).

Variables

Health outcomes. Self-perceived health status was elicited by asking the respondents to describe their general health as "excellent", "very good", "good", "fair", or "poor". The variable was dichotomized by combining the categories "fair" and "poor" to indicate perceived health as less than good.

Mental health status was measured with the 12-item version of the General Health Questionnaire. We used a two-point scoring method, rating a problem as absent (0) or present (1). The responses were summed, and the participants scoring 3 or more were classified as cases (18).

Hypertension was determined by asking people whether they suffered from hypertension or had been diagnosed by a health care professional as having hypertension. Self-reported hypertension has been found to agree with reports in medical records (19) and with personal blood pressure measurements (20).

Job dissatisfaction was measured with the question "All in all, how satisfied would you say you are with your job?" There were four categories, from "very satisfied" to "very dissatisfied". The responses were dichotomized by combining the categories "very satisfied" and "satisfied" to indicate satisfaction and the categories "dissatisfied" and "very dissatisfied" to indicate job dissatisfaction.

Health-related behavior. Smoking behavior was categorized as "no" (current nonsmokers and smokers of fewer than one cigarette a day) or "yes".

For leisure-time activities, a dichotomous variable was created, comparing no physical activity with slight, moderate, or high intensity of sports activities.

The daily number of hours slept was categorized as ≤6 hours and >6 hours.

Number of hours worked in a paid job per week. Worktime was determined with the question: "In the last week (or the last whole week you worked) how many hours did you work?" The response alternatives were <30 hours (part-time work), 30–40 hours (reference category), and >40 hours (long workhours).

Job and family characteristics. Occupational social class, assigned according to the respondent's current occupation, was measured with a widely used Spanish

adaptation of the British classification (21). Because of the small number of persons in some categories, the six original social classes were collapsed into the following three broad classes: I and II (more privileged classes), III, and IVA-IVB-V (manual workers).

The type of contract was classed as permanent, fixed-term temporary, or nonfixed-term temporary contract.

Marital status was listed as married or cohabiting, single, separated or divorced, or widowed.

Parental status was defined as living with children 0–3 years of age or not. Children under 3 years of age are highly dependant on their parents' attention, particularly in a country such as Spain with few public facilities for children of this age (22). Caring for them can imply a need to reduce worktime, as well as a need to reduce some activities that require time for oneself, such as sleeping or leisure-time physical activity (8).

Weekly hours of domestic work were recorded as <10 hours, 10–20 hours, and >20 hours. This variable was adjusted in the analysis of the predictors of working >40 hours a week and was an interaction variable in the analysis of the impact of long workhours on health and health-related behavior.

Table 1. General description of the population—Catalonia Health Survey, 2002. (GHQ = General Health Questionnaire)

	Men [a] (N=1658) (%)	Women [b] (N=1134) (%)	P-value
Health outcomes			
Self-perceived health status	·	·	0.14
Excellent	7.9	6.8	·
Very good	24.3	24.9	·
Good	55.6	53.2	·
Fair	10.9	13.0	·
Poor	1.3	2.1	·
Poor mental health status (GHQ-12≥3)	7.8	15.3	<0.0001
Hypertension	9.3	5.3	<0.0001
Job dissatisfaction	·	·	0.48
Very satisfied	16.0	17.9	·
Satisfied	74.7	72.0	·
Dissatisfied	8.2	8.9	·
Very dissatisfied	1.1	1.2	·
Health-related behavior			
Smokers	41.1	32.6	<0.0001
No leisure-time physical activity	37.7	38.8	0.56
Daily number of hours slept ≤6	22.9	19.8	0.06
Job and family characteristics			
Number of hours of paid work per week	·	·	<0.0001
<30	3.1	13.0	·
30–40 (standard)	66.5	69.9	·
>40	30.4	17.1	·
Type of contract	·	·	<0.0001
Permanent	78.5	72.0	·
Fixed-term temporary	16.6	23.9	·
Nonfixed-term temporary	4.9	4.2	·
Socioeconomic class [c]			
I-II	18.4	21.2	<0.0001
III	21.1	34.4	·
IV-V	60.5	44.4	·
Weekly hours of domestic work	·	·	<0.0001
<10	70.8	28.4	·
0–20	20.0	37.2	·
>20	9.2	34.4	·
Marital status	·	·	<0.0001
Single	35.6	38.6	·
Married or cohabiting	61.4	54.2	·
Widowed	0.8	1.4	·
Separated or divorced	2.2	5.8	·
Children 0–3 years of age	10.0	8.2	0.12

[a] Mean age 37.6 (SD 12.0) years.
[b] Mean age 35.6 (SD 11.1) years.
[c] According to a Spanish adaptation of the British classification.

Data analysis

First, gender differences for all of the dependent and independent variables were tested at the bivariate level using the chi-square test for categorical variables and the t-test for age. Second, factors associated with working >40 hours a week were identified by fitting multiple logistic regression models for the men and women separately and including age, social class, marital status, living with children 0–3 years of age, weekly hours of domestic work, and type of contract. Third, multiple logistic regression models separated by gender and adjusted for age, social class, marital status, living with children 0–3 years of age, and type of contract were fitted in order to test the association between long workhours and all of the health indicators. Finally, to explore whether the association between long paid workhours and health and health-related behavior was limited, or its magnitude was higher among the people with a higher domestic workload, an interaction term between hours of paid work and of domestic work was introduced (23).

Results

General description of the population according to gender

Table 1 shows a general description of the population. No gender differences were observed for self-perceived health status or job dissatisfaction. Whereas the women were more likely to suffer from poor mental health (15.3% versus 7.8%), the men had a higher risk of hypertension (9.3% versus 5.3%). There were no gender differences in the prevalence of sedentary leisure time or the shortage of sleep, but the proportion of smokers was significantly higher among the men.

Women were more likely to work part-time, whereas the proportion of people working >40 hours a week was higher among the men. The proportion of women working >20 hours a week at home was much higher than among the men.

Factors related to long workhours

The factors associated with long workhours differed according to gender. Among the men, working >40 hours a week was positively associated with nonfixed-term temporary contracts and with living with children 0–3 years of age. For both genders, working >40 hours a week was associated with occupational social class but the patterns differed between the genders. Whereas, among the women, those of socioeconomic classes IV-V were more likely to work >40 hours [adjusted odds ratio (aOR) 1.97, 95% confidence interval (95% CI) 1.24–3.14], among the men the situation was reversed (aOR 0.69, 95% CI 0.51–0.92). Separated or divorced women were more likely to work long hours (table 2).

Association between long workhours and health

Table 3 shows the association between health outcomes and worktime. Neither for the men nor for the women were long workhours associated with poor self-perceived health. For both genders, people working >40 hours were more likely to have a shortage of sleep. Among the women, long workhours were also positively associated with poor mental health status (aOR 1.58, 95% CI 1.04–2.40), hypertension (aOR 2.25, 95% CI 1.17–4.32), job dissatisfaction (aOR 1.77, 95% CI 1.08–2.90), and smoking (aOR 1.71, 95% CI 1.22–2.39). In addition, the men working >40 hours a week were less likely to report hypertension. Among the women, job dissatisfaction was higher among those working part-time.

The interaction term between long workhours and hours of domestic work was significant for job dissatisfaction (P=0.047) and leisure-time physical activity (P<0.0001) among the women and for smoking (P=0.028) and daily number of hours slept (P=0.039) among the men. Among the people doing <10 hours of domestic work a day, the women working part-time were less likely to be sedentary (aOR 0.15, 95% CI 0.05–0.51),

Table 2. Factors associated with long workhours compared with working 30–40 hours a week—Catalonia Health Survey, 2002. (aOR = adjusted odds ratio, 95% CI = 95% confidence interval)

Factor	Men (N=1608)			Women (N=986)		
	%	aOR	95% CI	%	aOR	95% CI
Age	·	1.00	0.98–1.01	·	1.00	0.99–1.02
Occupational social class [a]						
I-II	35.8	1	..	15.9	1	..
III	32.4	0.78	0.55–1.09	15.6	1.07	0.66–1.75
IV-V	29.7	0.69 [b]	0.51–0.92	24.7	1.97 [c]	1.24–3.14
Marital status						
Married or cohabiting	31.1	1	..	20.6	1	..
Single	31.7	0.92	0.66–1.28	17.6	1.03	0.66–1.60
Widowed	15.4	0.41	0.09–1.94	6.3	0.23	0.02–2.45
Separated or divorced	28.6	1.05	0.50–2.24	37.5	2.74 [c]	1.49–5.05
Children 0–3 years of age	12.7	1.53 [b]	1.05–2.25	6.7	1.00	0.51–1.98
Weekly hours of domestic work						
<10	34.1	1	..	24.9	1	..
10–20	22.0	0.51 [d]	0.37–0.69	18.3	0.63 [b]	0.42–0.96
>20	30.6	0.84	0.57–1.23	16.4	0.47 [c]	0.29–0.77
Type of contract						
Permanent	31.1	1	..	19.9	1	..
Fixed-term temporary	29.3	0.90	0.65–1.25	18.5	0.79	0.51–1.21
Nonfixed-term temporary	43.8	1.93 [b]	1.17–3.17	18.9	0.97	0.42–2.27

[a] According to a Spanish adaptation of the British classification.
[b] P<0.05.
[c] P<0.01.
[d] P<0.001.

Table 3. Association between number of workhours, health, and health-related behavior according to gender—Catalonia Health Survey, 2002. (aOR = adjusted odds ratio, 95% CI = 95% confidence interval)

Gender	Poor self-perceived health status			Poor mental health status			Hypertension			Job dissatisfaction			Smoking			No leisure-time physical activity			Daily number of hours slept ≤6		
	%	aOR [a]	95% CI	%	aOR [a]	95% CI	%	aOR [a]	95% CI	%	aOR [a]	95% CI	%	aOR [a]	95% CI	%	aOR [a]	95% CI	%	aOR [a]	95% CI
Men																					
Number of hours of paid work per week																					
30–40	13.1	1	..	7.6	1	..	10.9	1	..	8.6	1	..	40.6	1	..	38.4	1	..	20.6	1	..
<30	11.5	1.16	0.45–2.98	9.6	1.18	0.42–3.32	7.8	1.29	0.42–0.98	11.8	1.29	0.51–3.22	26.9	0.52 [b]	0.27–0.99	23.4	0.52	0.26–1.03	11.8	0.61	0.26–1.46
>40	10.5	0.85	0.60–1.20	8.3	1.10	0.74–1.63	5.6	0.51 [c]	0.33–0.80	11.1	1.31	0.91–1.87	43.8	1.16	0.93–1.44	37.7	1.00	0.80–1.26	29.0	1.54 [d]	1.21–1.98
Women																					
Number of hours of paid work per week																					
30–40	14.0	1	..	14.5	1	..	4.2	1	..	7.7	1	..	30.8	1	..	38.4	1	..	18.9	1	..
<30	17.6	1.20	0.73–1.99	12.8	0.83	0.48–1.43	8.1	1.47	0.70–3.10	18.4	2.53 [d]	1.50–4.26	25.9	0.81	0.53–1.23	35.8	0.82	0.56–1.20	15.5	0.72	0.44–1.20
>40	17.5	1.25	0.81–1.93	20.6	1.58 [b]	1.04–2.40	7.8	2.25 [b]	1.17–4.32	14.1	1.77 [a]	1.08–2.90	45.4	1.71 [c]	1.22–2.39	42.8	1.11	0.80–1.54	27.3	1.63 [b]	1.11–2.38

[a] Adjusted for age, occupational social class, type of contract, marital status, and living with children 0–3 years of age.
[b] P<0.05.
[c] P<0.01.
[d] P<0.001.

whereas the men working long hours were more likely to sleep ≤6 hours a day (aOR 1.90, 95% CI 1.42–2.54). Among the women working long hours of domestic work, those also working long hours of paid work were more sedentary (aOR 1.98, 95% CI 1.06–3.71), whereas high job dissatisfaction was found among those with a part-time job (aOR 5.07, 95% CI 2.42–10.62). Among the men who devoted more time to domestic tasks, long workhours were negatively associated with smoking (aOR 0.33, 95% CI 0.14–0.78).

Discussion

This study produced three main findings. First, the factors associated with long workhours differed by gender. Second, whereas, among the men, long workhours were only associated with a shortage of sleep, among the women they were positively related to a shortage of sleep, poor mental health, hypertension, job dissatisfaction, smoking, and a lack of leisure-time physical activity. Third, this consistent pattern among the women was only partially accounted for by domestic work.

Gender differences for the factors associated with long workhours

The variables associated with long workhours differed by gender. Consistently with the gender division of the domestic sphere, with men assuming the breadwinner role, among the men, living with children aged 0–3 years was associated with long workhours (15). While men in the higher socioeconomic classes were more likely to work >40 hours, the women with a low socioeconomic status and those separated or divorced were more likely to work long hours. This finding probably reflects the possibility of choice or power among the men, but a lack of choice or power among the women. The importance of choice in determining a person's response to long hours has been pointed out earlier (24). It is likely that men in highly qualified jobs elect to work long hours because their jobs are enjoyable and enable them to achieve key personal goals (eg, receipt or recognition of skills and achievements). Conversely, the women in the lowest qualified jobs or those who were separated or divorced were probably more likely to work long hours because of financial necessity or fear of job loss if they did not work the long hours demanded of them. In Spain, the association between women's disadvantage in work conditions and long workhours is illustrated by the significantly higher proportion of women not receiving economic compensation for working extra hours (68% versus 39% among the men) (16). However, the existence of social class inequalities in the possibility or lack of possibility to choose long workhours is only a speculation and deserves further research.

Gender differences in the association between long workhours, health and health-related behavior

The clear gender differences in the association between long workhours and health outcomes were the most striking finding of our study. Whereas, among the men, a positive association was found only for a shortage of sleep, among the women, a consistent association with six of the seven outcomes was observed. These results raise a question about gender differences that could exist in the conditions of long workhours.

It has been reported that the most consistent result regarding the relation between long workhours and health is the inverse association with sleep (2, 3). Accordingly, in our study, a shortage of sleep was the only health indicator positively associated with long workhours for both genders. One possible explanation for gender differences with respect to other health indicators and health-related behavior is that, among people working >40 hours a week, women could work more hours than men. However, in this group, the mean number of hours was significantly higher among the men (47.9 versus 45.5, results not shown).

The Catalonian Health Survey collected some basic information about psychosocial hazards with single questions concerning each of them. When these hazards were compared for the men and women who worked >40 hours a week, no significant differences were observed for autonomy, supervisory social support, or co-worker social support. However, the women were more likely to report that they had to work too much, too many hours, and holidays (57% versus 47.4%) and that their work had little variety and was monotonous and repetitive (44.4% versus 25.5%). The same pattern was observed when the women who worked >40 hours a week were compared with those who worked 30–40 hours. The former were more likely to report high demands (57% versus 23.6%) and low variety (44% versus 30.2%). These data suggest that, in our study, the women who worked long hours were concentrated in occupations in which, in addition to long hours, other psychosocial hazards were likely present, often simultaneously (25). Therefore, long exposure to poor work conditions could explain gender differences in the relationship between long workhours, health, and health-related behavior.

Our results regarding job dissatisfaction are consistent with those of other studies that found that the association between long workhours and job dissatisfaction was explained by long exposure to poor work conditions (26, 27). They are also consistent with the findings of many studies that have reported an association between a poor psychosocial work environment and

mental health (28) and even a higher magnitude for an association among women (29). It can be argued that the relationship between hypertension and long workhours is mediated by unhealthy behavior also in association with job stress. Yet, after simultaneous adjustment for age, sleeping hours, smoking, and leisure-time physical activity, among the women, the association between long workhours and hypertension persisted (aOR 1.99, 95% CI 1.04–3.81) (results not shown).

Women working long hours were more likely to smoke. It has been reported that female, but not male, smokers consume more cigarettes during periods of long workhours (30) and that there is a negative association between hours of work per week and the odds of smoking cessation among nurses' aides, a feminized occupation (31). As in other studies, neither among the men nor among the women, was working >40 hours a week related to sedentary behavior during leisure time (32, 33). Finally, self-perceived health status was the only health indicator not related to overtime work among the men or women. It seems that long workhours would be primarily related to psychosocial health conditions rather than with pain or physical limitations, which were probably identified as poor health by most of the respondents.

Health, health-related behavior, and the combination between hours of domestic and paid work

Another possible explanation for gender differences in the impact of long workhours on health can be the additional burden of domestic work that many women face. Therefore, we expected that the magnitude of the association between long workhours and health and health-related behavior would be higher or limited to persons with a greater domestic workload. However, this hypothesis was only confirmed for leisure-time physical activity among the women. Among the women in the highest category of domestic workload, long workhours were related to sedentary behavior during leisure time. Conversely, among those working less at home, part-time work was negatively associated with sedentary leisure time. These results emphasize the need of having time for oneself for leisure-time physical activity among women who have to reconcile job and family demands (34, 35). Interestingly, among the men working more hours at home, long workhours were negatively related to smoking. This finding could possibly be explained by a selection bias—those who do not smoke are more able to work more—but this is a speculation that deserves further research.

Limitations

This study was limited by its cross-sectional design. However, reverse causation does not seem plausible, whereby long workhours would not lead to poor health outcomes and health-related behavior, but rather the opposite, in other words, that people with poorer health and health-related behavior would be more likely to work >40 hours a week. We have hypothesized that gender differences in the impact of long workhours on health and health-related behavior are likely to be explained to a large extent by long exposure to poor psychosocial work conditions, and we have provided some data that support this hypothesis. However, psychosocial hazards were measured with single questions instead of with scales, therefore making it possible that such hazards were not fully captured and there could have been some gender differences with respect to some of the psychosocial hazards that were not identified because of measurement limitations.

Concluding remarks

As far as we know, this is the first study to report such consistent evidence of an association between moderately long workhours and a variety of health indicators and health-related behavior, mainly among women. Gender differences could primarily be related to poorer work conditions among women and, to a less extent, to domestic work.

Our results suggest three different pathways, depending on the indicator analyzed. First, long workhours seem to be directly related to a shortage of sleep, whereas, second, when combined with large amounts of time devoted to housework, they are associated with sedentary leisure time among women. Third, the relationship with hypertension, job dissatisfaction, poor mental health status, and smoking seems to be related to long exposure to poor work conditions. These different pathways should be confirmed in future research.

These results point out the need to pay more attention to occupational health in some of the economic sectors largely occupied by women, such as hotels and restaurants, retailing, and building cleaning. They also emphasize the need for a gender approach to the analysis of the effects of long workhours on health, as well as the need to develop conceptual frameworks that integrate both job hazards and the domestic environment and consider the role of vulnerability.

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