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Short Communication

Employment Factors Associated With Long Working Hours in France

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ABSTRACT

The objectives of the study were to explore the employment factors associated with long working hours, known as a risk factor for various health outcomes. The study relied on the national representative data of the 2013 French working conditions survey and a study sample of 23,378 full-time employees. Long working hours were defined by the threshold of 48 hours a week following the European Working Time Directive. The prevalence of long working hours was higher among men (13.5%) than among women (8.5%). Employees of the private sector, with permanent work contract, in small companies, and men in the services had a higher prevalence of exposure. This prevalence increased with educational and occupational levels. Our findings may help decision-makers to define preventive strategies. More research is needed to improve our knowledge of the employment factors associated with long working hours, as there may be strong differences between countries.

Over the last decades, growing attention has been paid to the effects of long working hours on health. The definition of this exposure may vary in the literature and according to country. Using the threshold of 55 hours a week, the prevalence of exposure to long working hours was found to be 5.1% in 35 countries in Europe and 3.5% in the 28 European Union (EU) countries in 2015 [1]. Furthermore, there were strong differences between European countries, and France had exactly the same prevalence of exposure than the 28 EU countries [1]. However, these prevalences of exposure in Europe were lower than the prevalences observed in other continents [2]. Indeed, the European Working Time Directive (2003/88/EC) states that "Member States shall take the measures necessary to ensure that, in keeping with the need to protect the safety and health of workers, (…) the average working time for each seven-day period, including overtime, does not exceed 48 hours." Long working hours are the second most frequently studied psychosocial work stressor, after job strain, in association with health outcomes [3]. A meta-review based on literature reviews with meta-analysis showed the effects of long working hours on various health outcomes, including coronary heart disease, stroke, and depression [3] (all references quoted in this meta-review are provided in the Supplementary Material). However, authors underlined that the effects may not always be consistent and may differ between subgroups of the working population [4]. In addition, the issue of long working hours appears to be a pertinent concept among the population working full time only. Indeed, among the population working part-time, the exposure to long working hours is much less prevalent if not non-existent.

In the epidemiological literature, the topic of long working hours is related to the identification of the threshold beyond which working hours may have an impact on health outcomes. As an example, the study by Conway et al. [5] suggested that this threshold was 52 hours a week in the US working population. Some literature reviews based on meta-analyses reported that long working hours defined by the threshold of 55 hours a week were a significant risk factor for cardiovascular diseases, including coronary/ischaemic heart diseases and stroke [6], and depressive symptoms [7]. Other reviews showed that long working hours defined by the threshold of 40 hours a week were associated with pregnancy outcomes among women [8]. Studies provided support for dose-response associations between long working hours and various outcomes; the higher the threshold, the stronger the association with the outcome [9–12]. Consequently, there has been no consensual threshold to define long working hours to date, as firstly there may be dose-response associations, and secondly, the threshold may vary according to the studied health outcome.

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Although long working hours may be considered as a major psychosocial work stressor, the literature is lacking to identify the exposed subgroups of workers. Indeed, some previous results are available on overtime [13,14] and on usual working hours a week [15–17], but not on long working hours strictly speaking. The three concepts are in fact very different in nature. Usual working hours a week are defined by the number of hours worked usually a week. Overtime is defined by working hours beyond contractual hours, which are 40 hours a week for full-time employment in most European countries. Consequently, the available literature for overtime and usual working hours is not strictly informative for long working hours. This lack appears damaging in a preventive point of view, as no information is provided to help decision-makers to orient preventive policies toward highly exposed subgroups of the working population and prevent health-related consequences. The objectives of the study were to identify the employment factors associated with long working hours using national representative data. Our major hypotheses were that men and high-skilled occupations were more likely to be exposed to long working hours than women and low-skilled occupations.

The study was based on the national representative data of the 2013 French working conditions survey. This probability-based survey was set up by the French Ministry of Labour (DARES). The survey was approved by French Ethics Committees (CNIL no 2012-288 and CNIS no 2010-245/D130). For more information about the French working conditions survey, the references of our previous publications can be found in the Supplementary Material. The survey included a national sample of 33,673 workers (participation rate: 74%) who were selected randomly using a two-stage sampling design. First households were selected from the Census randomly, and then one worker was selected randomly by the interviewer using the Kish method if there were more than one worker within the household. For the present study, the population of interest was the national French population of employees working full time in their main job. Working hours were measured using one item about the number of hours usually worked a week. The threshold to define long working hours was 48 hours a week following the European directive. The employment factors studied in association with long working hours were as follows: occupation, economic activity of the company, public/private sector, company size, i.e., the number of employees in the company, and temporary/permanent work contract. Covariates included gender, age, and educational level. More information about the studied variables are provided in the Supplementary Material (Appendices 1-3). All data were collected using an in-person interview.

The statistical analyses were done using weighted data to take participation and marginal calibration into account (Appendix 4). A description of the study sample was done, and comparison between genders was tested using Rao-Scott chi-square test. The associations between each employment factor and long working hours were tested using the same test. These associations were also studied using weighted logistic regression models, with a Horvitz–Thompson-type robust sandwich estimator of standard errors, to test gender-related interactions with each employment factor. If an interaction was significant, the results were presented for each gender separately, if not, the results were presented for the whole study sample. Sensitivity analyses included additional adjustment for age and the study of all employment factors together in association with long working hours. The statistical software was R 4.2.2.

The survey sample included 33,673 workers. Among them, non-working people, self-employed workers, employees over 65, part-time employees, and employees with missing data were excluded, leaving a study sample of 23,378 employees working full time in their main job, aged 15-65, and working at the time of the survey, i.e., 11,928 men and 11,450 women. The selection and description of the study sample are shown in Supplementary Figure S1 and Table S1. The prevalence of exposure to long working hours, using the threshold of 48 hours a week of the European directive, was higher among men (13.5%) than among women (8.5%). The study of the associations of each employment factor and long working hours is presented in Supplementary Table S2. There was no gender-related interaction with age, public/private sector, and temporary/permanent work contract in association with long working hours. The results are thus presented in Fig. 1 for both genders together. The prevalence of long working hours was higher among employees over 30, employees working in the private sector, and employees with a permanent work contract (Fig. 1). There were significant gender-related interactions with educational level, company size, occupation, and economic activity in association with long working hours; consequently, the results are presented for men and women separately in Figs. 2–4. University-level employees had the highest prevalence of long working hours for both genders. However, a marked educational gradient was observed among men, but was not observed among women (Fig. 2). There was no difference according to company size among men, whereas among women, employees working in small and large companies had a higher prevalence of long working hours than those in medium companies (Fig. 2). Strong occupational gradients were found in the prevalence of long working hours from low-skilled to high-skilled occupations, although there were some exceptions and some differences between genders. Various groups of professionals and drivers were particularly exposed to long working hours for both genders, as well as personal service workers for women (Fig. 3). There were significant differences in the prevalence of

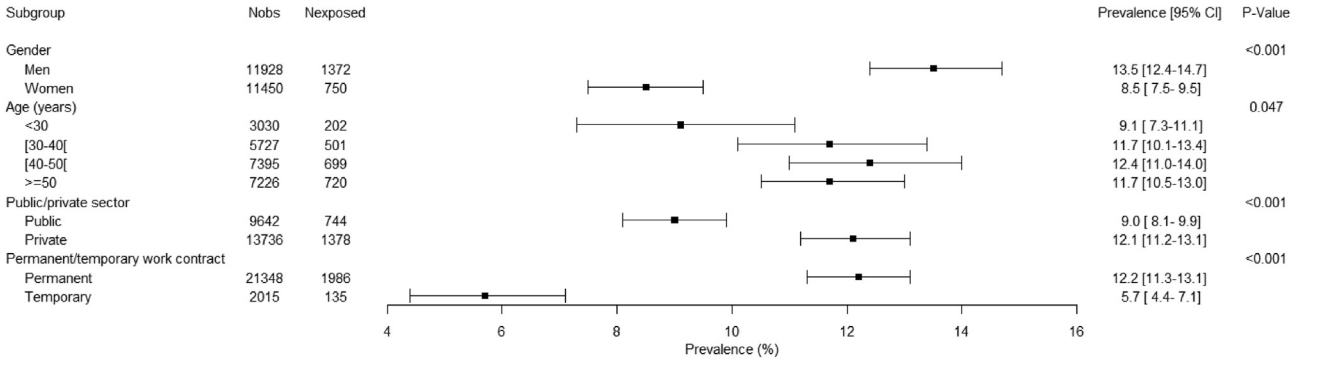

Fig. 1. Weighted prevalence of exposure to long working hours (>48 h/week) according to gender, age, public/private sector, and permanent/temporary work contract among the study sample.

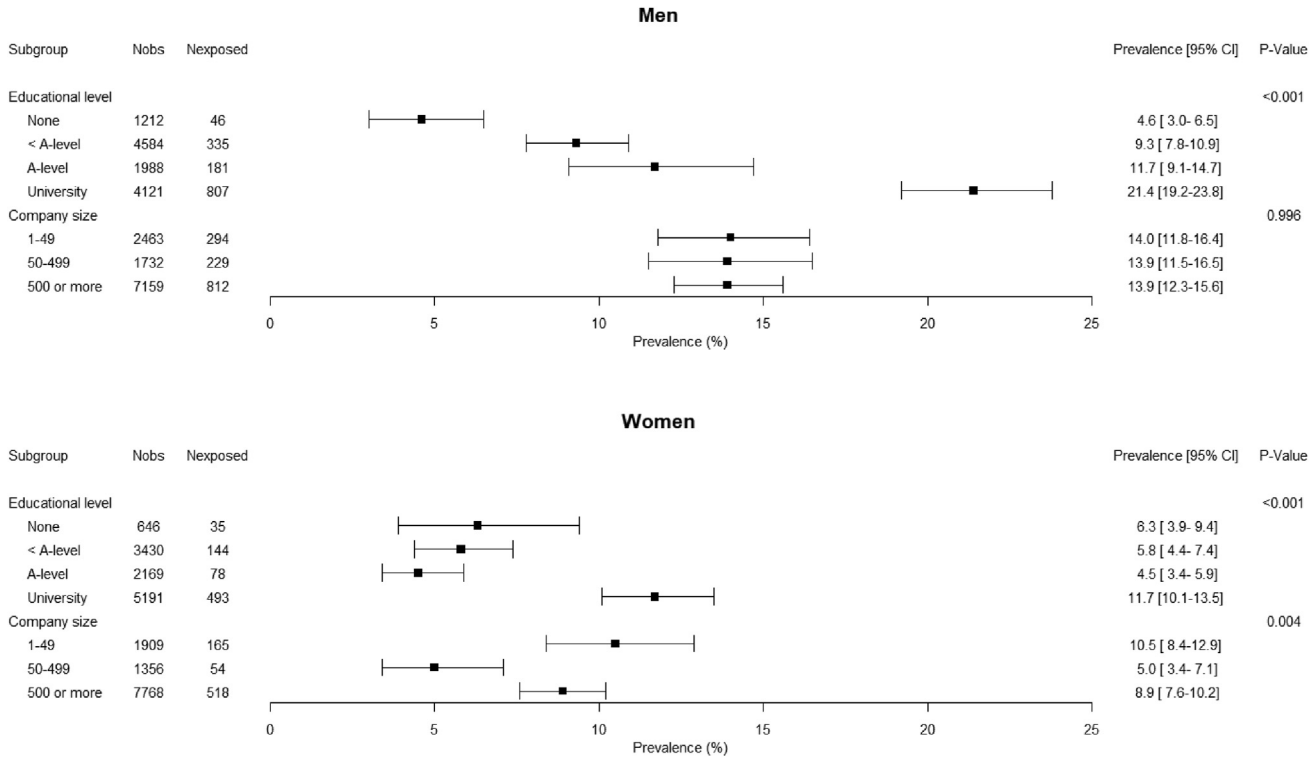

Fig. 2. Weighted prevalence of exposure to long working hours (>48 h/week) according to educational level and company size among men and among women.

long working hours between major economic activities, but these differences were not the same for men and women (Fig. 4). Female agricultural employees had the lowest prevalence of exposure (null). The highest prevalence of long working hours was found among male employees in various groups of services and in transportation/storage and among female employees in some groups of services and manufacturing (chemicals, electricity/gas). The sensitivity analyses showed that additional adjustment for age did not change the results. The study of all factors together (Supplementary Tables S3-S4) showed that the magnitude of the associations was reduced for educational level, the association became non-significant for age, and employees working in small companies had a higher prevalence of long working hours than the other employees for both genders.

Our findings showed that long working hours were particularly prevalent in some subgroups of full-time employees defined by men, private sector, permanent work contract, small companies, and services (men only). The prevalence of long working hours increased with educational and occupational levels.

Our study included the following strengths. The sampling procedure of the survey, the large sample size, and the use of weights made the data nationally representative, and the results could thus be extrapolated to the national population of employees. Gender differences were explored. The study focused on employees, and self-employed workers were excluded because of strong differences in work status and legislation [18]. Various employment factors and various detailed levels of the classifications for occupation and economic activity were used. Our study was thus one of the first to identify the detailed groups of occupations and economic activities highly exposed to long working hours in France. Our analyses included statistical tests as well as the calculation of

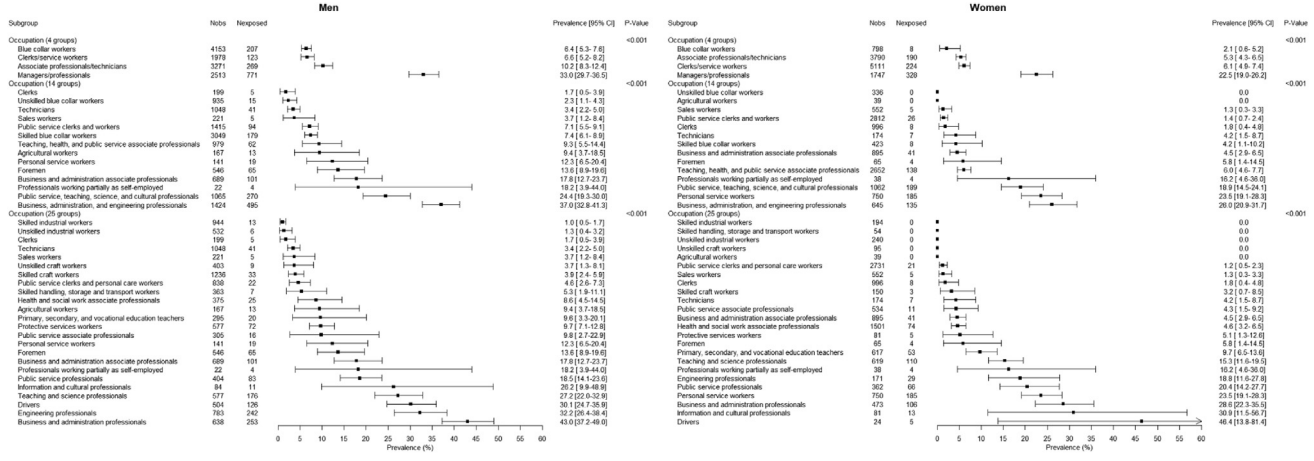

Fig. 3. Weighted prevalence of exposure to long working hours (>48 h/week) according to occupation among men and among women. Notes: Occupational groups are presented in increasing order of exposure prevalence. One occupational group was not presented in the figures because of very low sample size (Clergy).

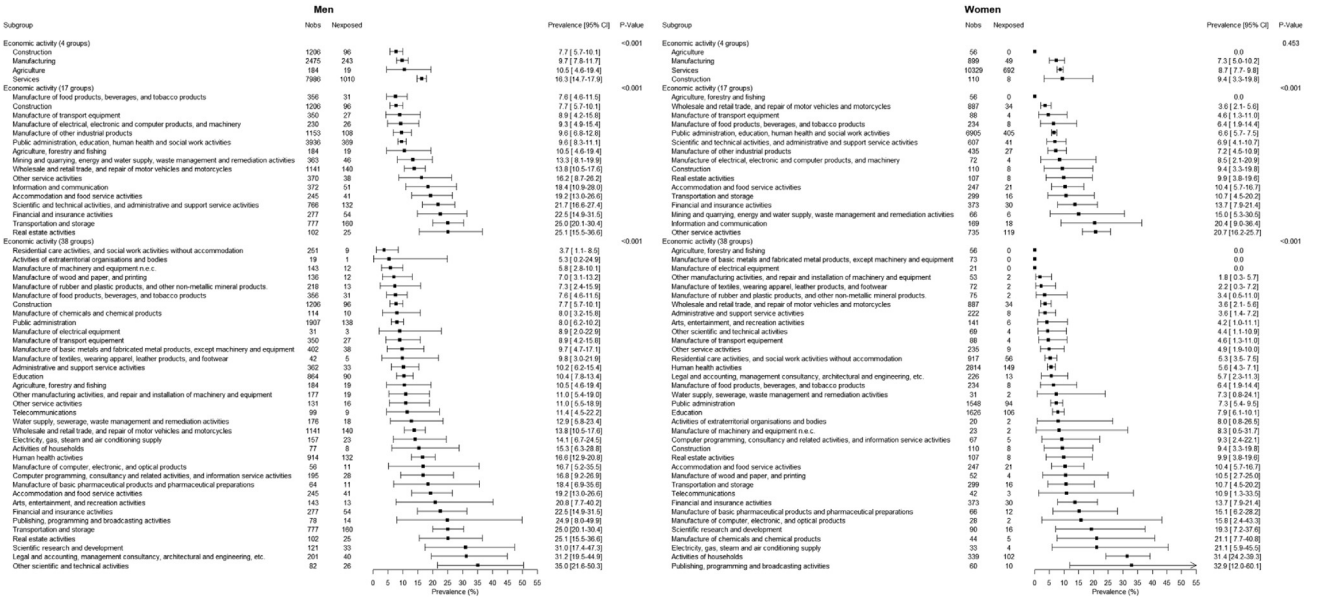

Fig. 4. Weighted prevalence of exposure to long working hours (>48 h/week) according to economic activity among men and among women. Notes: Economic activities are presented in increasing order of exposure prevalence. Two economic activities were not presented in the figures because of very low sample size (manufacture of coke and refined petroleum products, as well as mining and quarrying).

confidence intervals making our interpretation of the differences in the prevalence of exposure between subgroups cautious. Furthermore, we also performed a multivariate analysis to take all employment factors simultaneously into account. Long working hours were defined using the European directive (48 hours a week). This choice was based on several points: (1) this threshold is likely to be pertinent for European countries, (2) there was no scientific consensus in the literature, (3) there may be dose-response associations between long working hours and health outcomes, and (4) the choice of a higher threshold would have led to a lower statistical power in our study. Indeed, as the weekly working hours are 35 hours a week for full-time employment in France, the prevalence of more than 55 hours a week, for example, was very low in our study (3.8% among men, and 2.4% among women). The following limitations should be mentioned. The study of a more restrictive definition of long working hours was difficult. We studied long working hours in the main job and not for all jobs, this may have led to underestimate the prevalence of exposure, but this underestimation was likely to be very low as only 3.2% of the study sample had more than one job. Our study had a cross-sectional design and no causal inference could be made. However, this design was adequate for such a study of exposure prevalence. We did not control for multiple testing as our study was exploratory. We did not study other aspects of working time such as shift or night work.

Our study may be one of the first studies to explore the employment factors associated with long working hours, the seldom available literature focusing on overtime and usual working hours a week. Overtime and usual working hours a week are not identical to the definition of long working hours according to the European directive (48 hours a week). The comparison of our results with the literature was thus very difficult. Our gender-related results were in line with previous findings on overtime and usual working hours [13–17], as men were more likely to be exposed to long working hours, and also overtime and longer usual working hours a week, than women. This gender difference was observed in France and Europe. The increasing prevalence of long working hours with occupational levels echoed the occupational differences found in overtime and usual working hours a week in France and Europe [13–17]. In France, employees in small companies had a higher prevalence of overtime [14] and longer usual working hours a week [15], in line with our results on long working hours. Employees working in the private sector were found to have longer usual working hours than those in the public sector in France [15], which was also consistent with our findings on long working hours. However, in France, the highest prevalence of overtime [14] and the longest usual working hours a week [15,16] were observed in the construction sector. In addition, in Europe [13], the associations with overtime might differ from one country to another, for example, for public/private sector or economic activity.

Long working hours defined using the European directive was an exposure with a substantial prevalence, especially among men in France. It should be mentioned that this definition referred to an absolute limit for weekly hours (48 hours a week), i.e., to working hours beyond a limit that should not be exceeded according to the directive, except derogations. Long working hours, compensated or not, are in general synonymous of workload and work intensity [13]. In our study, the prevalence of long working hours was higher among some subgroups of the working population of employees, and this may guide prevention policies to reduce this exposure and prevent health-related consequences. Nevertheless, more research is needed as there may be strong differences in legislation between countries and consequently in the prevalence of exposure to long working hours and in the variation of this prevalence according to subgroups between countries.

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Conflicts of interest

All authors have no conflicts of interest to declare.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.shaw.2023.09.003.

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