What happens when working time is not recorded. Social policy lessons from a Swiss case study

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Abstract

The assessment of working time recording practices and their impacts on the workers' well-being, work-life balance and health is lacking in the scientific literature with only rare exceptions. Nevertheless, this issue is becoming increasingly important especially in Switzerland. Despite the fact that the Labour Law requires to record all working hours, some categories of workers are released from this legal obligation, in particular those who benefit from more autonomy and flexible working schedules. This paper assesses the potential risk that differentiated working time regimes can have on workers' health. The analyses are based on a sample from eight companies that apply these legal exemptions. The main outcome is that long working hours represent the main health risk factor for workers that do not record all their working hours.

Keywords: Flexibility, health, labour law, time recording, working hours

Introduction

While the European Court of Justice ruled in 2019 that all EU companies have to record all working hours of their employees (Bissuel 2019), an opt-out regime applies in Switzerland since 2016. Thus, the Swiss political debate has been polarized around this issue for many years. More specifically, Swiss Labour Law requires that working time must be recorded, but two exceptions are granted. First, workers earning a gross annual salary of more than 120,000 Swiss francs (including bonuses) and who have a large degree of autonomy in the organization of their work are allowed not to record their working time. However, companies implementing such practices need to abide by a collective labour agreement (CLA) and the worker has to give his/her written consent. At the same time, so-called "accompanying measures" must guarantee that health protection is provided for. Second, workers who benefit from significant autonomy in fixing their working hours are allowed to record only partially their working time. In this simplified case,

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only the beginning and the end of the working day have to be recorded, i.e. the total duration of daily working hours, but there is no need to record any work interruption during the day. In such a case, the company must have a collective agreement signed between the employer and the employees' representatives (workers' council or trade union) only if it hires more than 50 employees[2]. Swiss Labour Law forces the companies to protect workers' health even if the worker chooses not to record one's working time. Our paper investigates the impact of these rules concerning working time recording on work duration, flexibility and health. Analysis of whether the new rules coincide with the emergence of risk factors for workers' health is based on empirical data collected in eight companies during a research project commissioned by the Swiss State Secretariat for Economic Affairs (SECO).[3] Section 1 reviews the existing literature about working time recording, work duration, flexibility and health. Section 2 presents the sample and methodology used in our study. Section 3 summarizes its main results. Section 4 discusses these results and positions them in the literature while indicating the limitations of our study. Section 5 synthesizes main findings and draws tentative conclusions with regard to potential policy recommendations.

Literature review

There are only few scientific studies that assess the impact of working time recording practices on workers' health, although a growing interest on this topic can be observed in German-speaking countries in connection with the political debate. A pioneering study has been the evaluation of the enforcement of a "simplified" working time recording system in the Swiss banking sector from 1 July 2009 to 30 June 2011. It concluded that health risk factors are more related to long working days (in excess of 10 hours and regular overtime) than to the way in which working time is recorded (Bonvin, Cianferoni, and Gaberel 2011). More recently, data from the Austrian administrative statistics 2015 (Astleithner and Stadler 2019) and from the BAuA Working Time Survey 2019 (Backhaus et al. 2021) show that working time recording is not in contradiction with working time flexibility for workers. Nevertheless, time recording prevents overwork and guarantees recovery time for home office workers (Lott et al. 2021). However, these early studies have not filled all the research gaps that make it difficult to assess the risks for workers' health associated with the absence of working time recording. At the time, there are no epidemiological evidences or longitudinal research designs that would allow capturing the long-term effect of working time recording practices; the literature only provides evidence about the links between working hours and workers' health around two main topics: working time duration and flexibility.

[2] Worth mentioning: single workers can continue to record their working time if they wish so.

[3] The first output of this research was released in this report: Bonvin, J.-M., Cianferoni, N., & Kempeneers, P. (2019). Évaluation des effets des modifications aux règles concernant l'enregistrement du temps de travail (art. 73a et 73b OLT 1) entrées en vigueur le 1.1.2016. Université de Genève. It can be downloaded here: https://www.seco.admin.ch/seco/de/home/Publikationen_Dienstleistungen/Publikationen_und_Formulare/Arbeit/Arbeitsbedingungen/Studien_und_Berichte/studie_aenderungen_arbeitszeiterfassung.html

Long working hours and risks for workers' health

The impact of long working hours on health has been a growing concern for public policy and occupational health since the rise of a 24/7 economy based on non-standard working hours (Johnson and Lipscomb 2006). According to meta-analysis studies, employees who work long hours are exposed to a higher risk of stroke than those working standard hours (Kivimäki et al. 2015), suggesting that occupational health management should be reinforced for workers involved in those practices (Wong, Chan, and Ngan 2019). Moreover, as a more recent study in Hong Kong reveals, stable job arrangements can be a protective factor from anxiety in case of long working weeks (≥ 72 hours) on the long run (Chan et al. 2021). A study based on data from the National Longitudinal Survey of Youth 1979 in the United States found that health status varies more with the increase of working hours than across types of shifts; at the same time, part-time workers report worse physical and emotional health outcomes than full-time workers (Kleiner and Pavalko 2010). A wide literature review shows that long working hours have significant adverse effects on health status and are associated with a depressive state, anxiety, worse sleep conditions and higher risks of coronary heart disease (Bannai and Tamakoshi 2014). Long working hours and job strain also increase the probability to get injured (Dembe et al. 2005; Matre et al. 2021) and are associated to a lesser sleep duration (Chatzitheochari and Arber 2009). They can even lead to moderate up to severe suicidal intentions in extreme cases (Choi 2018). No evidence has been found, however, between long working hours, leisure-time physical activity and obesity, and further research is needed in this respect (Cook and Gazmararian 2018). The impact of long working hours seems to be different between genders. Overtime and ensuing health troubles such as self-reported hypertension, lack of sleep, absence of leisure-time physical activity and job dissatisfaction are more spread among men (Artazcoz et al. 2009). Working 45 hours or more is associated with an increased incidence of diabetes only among women according to a longitudinal research conducted in Ontario (Gilbert-Ouimet et al. 2018). A multicohort study of two population cohorts from Finland suggests that working long hours is associated with an elevated risk of early cardiovascular death and more frequent hospital-treated infections before age 65 (Ervasti et al. 2021). Similar results have been found in Germany, where a longer working time increases the risk of arterial stiffness according to the Gutenberg Health Study (Rossnagel et al. 2021). The increase of working hours has adverse consequences on subjective and several objective health measures mainly for women and parents of minor children who generally face heavier constraints in organizing their job (Cygan-Rehm and Wunder 2018). Data from the UK survey Understanding Society show that an increase of depressive symptoms is linked to working long extra hours for women, whereas they are associated with working at week-ends for both genders, which may contribute to worse mental health (Weston et al. 2019). Differences between men and women seem to be due to their unequal integration in the labour market and role in household work. All in all, there is ample evidence suggesting that long working hours have a detrimental impact on health conditions. In the available studies, the following parameters seem to be particularly relevant: gender, having children or not, age, modalities of occupational health management, job stability and type of shifts (full time vs. part time).

Irregular working hours and health risks

Irregular working hours can lead to sleep disorders and suppress emotions at work according to the fifth Korean Working Conditions Survey (Yun & al, 2021). Data from the Third European Working Conditions Survey (EWCS) conducted in 2000 show that the most favorable effects on health and psycho-social well-being can be observed when higher flexibility is combined with lower variability of working hours (Costa, Sartori and Akerstedt 2006). The importance of controlling one's working time is stressed by other studies, too: workers that self-manage their working time tend to display higher effort levels than those with fixed working hours (Beckmann, Cornelissen, and Kräkel 2017), while the perceived control and availability of individual flexible working schedules appears to be a key element in achieving a good work-life-balance (Hayman 2009). Workers' capacity to recover can be affected by regular overtime work, work on Sundays, and extended work availability according to a survey conducted by the Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BauA) in Germany (Vieten, Wöhrmann, and Michel 2021). By contrast, the right to refuse overtime or the presence of regulatory techniques aimed to address unpredictability in working hours can have a positive impact on health outcomes (McCann 2007). The nature of the employment relation also matters.

New technology may also raise concerns for workers' health since computer and smartphones tend to blur the boundaries between working time and personal life (Agger 2011), allowing for more flexibility in this respect. However, research results on the impact of flexibility on health conditions are less conclusive compared to working time duration. Indeed, evidence of increased risks is observed mainly when low job decision latitude is combined with heavy job demands, a situation identified by the Karasek Model as 'mental strain' (Karasek 1979). When overtime and non-standard working hours take place in precarious jobs, this enhances the employer control over working time management; it also intensifies conditions of precariousness and reduces the control of workers over working hours (Thomas et al. 2020). Work intensification as a result from flexibility has also to be considered (Kelliher and Anderson 2009). According to several national studies low levels of control are linked to negative outcomes especially for women (Lyness et al. 2012). This is also observed with data based on the British Household Panel Survey (BHPS) and Understanding Society which indicate a positive impact of flexible working time arrangements for men (mostly full-time workers) but not for women (mostly part-time workers) (Wheatley 2016). Thus, different impact between genders can be observed, but autonomy at work seems to be decisive in assessing the risks that flexible working shifts can have on workers' health. All in all, the evidence is quite contrasted, with gender, autonomy at work and work-life balance being the most relevant parameters.

To sum up, the literature suggests a strong and negative link between an excessive number of working hours and health status; it is much more inconclusive regarding the link between irregular working hours and health status; and it does not say anything about the link between working recording practices and health. Against this background, our empirical study pursues a fourfold aim:

- Objective 1: Document the link between working time recording practices and the number of hours worked: do people who do not record their working time work longer hours?

- Objective 2: Document the link between working time recording and irregular working patterns: do people who do not record their working time work more often at night or during the weekend?
- Objective 3: Test the link between long working hours and self-reported health status: do workers with longer work hours have a lower self-reported health status?
- Objective 4: Test the link between nonstandard working hours and self-reported health status: are evening and weekend workers affected by worse self-reported health status?

Data and methods

Sample

In order to test the impact of working recording practices on work duration, irregular working hours and health, we conducted a survey based on the distribution of an electronic questionnaire[4] divided into the seven following topics: general socio-demographic items, working time hours and duration, modalities of working time recording, well-being and stress at work, work-family balance, health, concluding questions. The questions are largely standardized and taken from the European Working Conditions Survey (EWCS). They allow providing a general assessment of the possible relations between the three modalities of working time recording available in Switzerland (systematic, simplified and none) on the one hand, work duration and number of working hours, stress, work-life-balance and health status on the other hand. The questionnaire was bilingual German and French. It was therefore not aimed to address people living or working in Italian-speaking Switzerland or those with English as their main working language. The questionnaire was distributed in eight medium-sized to large companies as indicated in Table 1. In total, the survey was distributed to 3,907 workers between September 2018 and January 2019.[5] The resulting database consists of 2,013 complete questionnaires which represents a response rate of 51.5% and allows for robust statistical analysis.[6] Although the sample is not representative of the whole workforce in Switzerland, it fully meets the objective to assess the impact of different working time recording practices in companies applying these rules.

[4] The questionnaire has been distributed through the LimeSurvey software and data have been stored on secured servers provided by the University of Geneva.

[5] The sample has been constituted by the research team in order to guarantee its random character, it is representative of the variety of working time recording practices within each investigated firm. A limit of 700 workers has been fixed for the big companies. This limit is arbitrary and does not follow scientific but logistic reasons.

[6] A bias towards the null is not expected. Indeed, the response rate is not equal among the companies that participated in the survey. There are proportionally more respondents in the retail sector (between 57.6% and 63.7%) than in the IT sector (39.3% and 42.7%).

Table 1. Response rate in surveyed companies

ID company	Sector	Distributed questionnaires	Response rate	Closing of the questionnaire
A	Insurance	699 (100%)	411 (58.8%)	12.10.2018
B	Industry	700 (100%)	369 (52.7%)	19.10.2018
C	IT	700 (100%)	299 (42.7%)	26.10.2018
D	Industry	182 (100%)	100 (54.9%)	9.11.2018
E	IT	300 (100%)	118 (39.3%)	9.11.2018
F	Insurance	702 (100%)	344 (49.0%)	21.12.2018
G	Retail	408 (100%)	235 (57.6%)	21.12.2018
H	Retail	215 (100%)	137 (63.7%)	26.1.2019
	Total	3906 (100%)	2013 (51.5%)	

Profile of the respondents

A significant share of all respondents are male (64.4%) and a significant share lives with a partner either with children (43.1%) or without children (30.1%). The most represented age ranges are between 40 and 55 years (41.5%) and between 25 and 40 years (33.6%). Workers over 55 years of age represent 18.1% of the sample. Most respondents are employed with a permanent contract (95.4%) and a full-time employment rate (83.8%). Time registration is still done systematically for 47.4% of the workers, while the new opt-out regimes apply for the other half of the sample: 33.8% make only a partial or simplified recording and 17.9% of respondents do not record their working time at all. Actual working time duration in our sample is 41.5 hours (median = 43 hours), while the average contractual working time is 38.7 hours (median = 41 hours). Respondents therefore tend to work an average of 2.8 hours more than their contractual working hours. 35.1% of respondents work at least one evening per month (with an average of 1.2 times in our sample). 10.7% work at least one night per month. In addition, 59.0% of the respondents work at least one Saturday per year (with an average of 5.4 times). 38.9% work at least one Sunday per year (with an average of 2.3 times). Finally, 68.8% experience a working day of more than ten hours at least once a month (with an average of 3.3 times). All these figures are higher than the overall data for Switzerland and stress how long and flexible working hours are implemented in all the companies that constitute our sample.

With regard to the impact of working time recording practices, the most important differences mainly oppose no working time recording on the one hand, to simplified and partial and systematic working time recording on the other one. Table 2 shows that the average working duration is strongly correlated with the modalities of registering working time: 45.6 hours per week (SD: 8.3) for workers who do not record their working time, 41.8 hours (SD: 9.2) for those who only record the total daily working time and 39.6 hours (SD: 9.4) in the case of systematic recording of working time. Moreover, long working days (at least 10 hours per day) are more prevalent for people who do not record their working time with a mean of 5.7 times a month compared to 3.3 on average. Worth mentioning: 11.7% of respondents who do not record their working time declare having already worked more than 55 hours in a single week, which is the case for only 3.4% of those who record only the total daily working time and 1.3% of those who systematically record their working time. Thus, workers not recording their working time in our sample are nine times more likely to have very long working weeks than systematic recorders. Atypical working hours particularly affect workers who do not record their working time. They work an average of 2.32 times in the evening per month (two hours between 8 p.m. and 11 p.m. at least once a month) compared with an average of 1.24 for all workers; Saturday work (at least once a year) takes place 7.98 times compared with an average of 5.42; Sunday work (at least once a year) 4.24 times compared with an average of 2.29. Finally, the fact of not recording one's working time is more frequent for men (82% compared to 64% on average) and for the elderly (mean of 49.9 years among non-recorders compared to 42.7 years for the whole sample). These figures clearly indicate the link between working time recording practices and work duration on the one hand and irregular working hours on the other hand. More specifically, workers who do not record their working time tend to work longer days and weeks and more often have atypical working hours in that they work more frequently at evenings, nights and weekends. This shows clear trends with respect to our first two research objectives.

Moreover, most respondents declare that their health status is good (55%) or very good (27%). As moderate to poor state of health (fair, bad or very bad) affects 20.4% of the workers who record all their hours, 17.5% of those who benefit from daily recording and 11.6% of those who do not record their working time. These values do not, however, allow any conclusion about the impact of working time registration practices on health status. They simply indicate that workers who either record partially their working time or do not record their working time at all declare a better health status. This can be explained by the well-known Healthy Worker Effect (HWE) which indicates that workers occupying higher positions in the firm, i.e. those who are allowed not to record their working time or to record it in a simplified way, are also those who have a higher educational status and are the most able to cope with hard labour without detrimental health consequences; this indicates a selection bias in line with the well-known social gradient in health (Shah, 2009; Costa-Font and Ljunge, 2018). Thus, our figures do not allow identifying an unambiguous link between modalities of working time recording and health conditions of the respondents. The link between working time recording and health is indeed mediated by a number of parameters among which work duration and irregular working hours may be of high relevance. The rest of the paper will therefore focus on such parameters and examine whether a link between long working hours, resp. irregular working hours, and health status, can be observed in our sample.

Table 2: Research variables

		Working time recording practices				
Characteristic	Overall, N = 2,013[1]	**Systematic recording**, N = 955[1]	**Partial recording**, N = 680[1]	**No recording**, N = 360[1]	Don't know, N = 18[1]	p-value[2]
Gender						<0.001
Female	716 (36%)	416 (44%)	223 (33%)	64 (18%)	13 (72%)	
Male	1,297 (64%)	539 (56%)	457 (67%)	296 (82%)	5 (28%)	
Age	42.76 (11.64)	40.94 (12.32)	43.42 (11.03)	46.91 (9.09)	31.39 (14.12)	<0.001
Dependent children	1,542 (77%)	766 (80%)	503 (74%)	256 (71%)	17 (94%)	<0.001
Activity rate	93.79 (14.78)	92.04 (16.45)	94.21 (14.29)	97.42 (9.72)	98.89 (4.71)	<0.001
Unknown	1	1	0	0	0	
Working hours per week	41.46 (9.36)	39.63 (9.36)	41.84 (9.19)	45.64 (8.26)	40.97 (8.60)	<0.001
Unknown	7	3	2	1	1	
Working between 8 and 11 pm	1.24 (3.17)	1.03 (3.64)	1.00 (2.23)	2.32 (3.21)	0.11 (0.32)	<0.001
Working between 11 pm and 6 am	0.39 (1.90)	0.41 (1.81)	0.32 (1.90)	0.50 (2.13)	0.50 (1.89)	0.056
Unknown	5	3	2	0	0	
Working on Saturday	5.42 (9.36)	3.76 (7.13)	6.43 (10.89)	7.98 (10.63)	3.83 (7.29)	<0.001
Unknown	11	5	4	2	0	

	Working time recording practices					
Characteristic	Overall, N = 2,013[1]	**Systematic recording**, N = 955[1]	**Partial recording**, N = 680[1]	**No recording**, N = 360[1]	Don't know, N = 18[1]	p-value[2]
Working on Sunday	2.29 (4.89)	1.93 (4.40)	1.81 (3.93)	4.24 (6.95)	0.17 (0.51)	<0.001
Unknown	4	3	1	0	0	
> 10 h Working day	3.28 (4.17)	2.29 (3.43)	3.50 (3.91)	5.65 (5.37)	0.67 (0.91)	<0.001
Unknown	8	0	3	5	0	
Distribution of tasks						0.006
No	823 (41%)	411 (43%)	276 (41%)	128 (36%)	8 (44%)	
Yes	1,151 (57%)	525 (55%)	389 (57%)	229 (64%)	8 (44%)	
Don't know	39 (1.9%)	19 (2.0%)	15 (2.2%)	3 (0.8%)	2 (11%)	
Health status						0.019
Very good	537 (27%)	269 (28%)	162 (24%)	103 (29%)	3 (17%)	
Good	1,114 (55%)	492 (52%)	396 (58%)	214 (59%)	12 (67%)	
Fair	321 (16%)	169 (18%)	109 (16%)	41 (11%)	2 (11%)	
Bad	30 (1.5%)	20 (2.1%)	8 (1.2%)	1 (0.3%)	1 (5.6%)	
Very bad	6 (0.3%)	3 (0.3%)	2 (0.3%)	1 (0.3%)	0 (0%)	
Unknown	5	2	3	0	0	

[1]n (%); Mean (SD)

[2]Pearson's Chi-squared test

Hypotheses

In order to investigate the existence of such a link, we design three hypotheses and test them through a variety of methodologies that are explained below. H1 and H2 consider time registration as the independent variable and the main explanatory factor. Each hypothesis has two dependent variables that are detailed below (all other research variables are common to both hypotheses). Control variables include sociodemographic variables (gender, age, full-time or part-time occupation) and an indicator of the worker's autonomy at work (ability to decide the distribution of tasks, which is the case for 57.2 % of the workers in our sample). The inclusion of this last variable is important for two reasons. On the one hand, according to the Swiss Labour Law, only workers that benefit from significant autonomy in their jobs are allowed not to register their working time. On the other hand, the literature stresses that autonomy at work is a key feature in assessing the risks that irregular working hours have on workers' health (see the Karasek model above). Results for H1 and H2 are presented in Table 3 below. H3 states that each identified risk factor for workers' health (i.e. all factors identified in connection with H1 and H2) is correlated with a bad health status. All research variables of this model are the same as for H1 and H2, except for time registration which is not included in the model, although they have been recorded as explained below. Results for H3 are presented in Table 4.

Results

Hypothesis 1: Time registration is negatively correlated with long weekly working hours (H1a) and with long working days (H1b)

This hypothesis relates to our first research objective as stated above, i.e. the link between working time recording practices and work duration. In order to test it, we use as dependent variables, for H1a, weekly working time duration in an Ordinary Least Squares (OLS) linear regression and, for H1b, working more than 10 hours a day (one, two, three or four times and more in a month) in an Ordered Logit Model (OLM). According to this hypothesis, the more the working time is regulated (i.e. systematically recorded), the less the workers are exposed to long working hours which are considered in the literature as a risk factor for their health. The OLS model 1 is fit to data with F Statistic, $p < 0.005$. It reveals that the absence of recording tends to increase working time duration (coeff. 3.947***) compared to systematic time registration; this is also the case, although to a lesser degree, with partial recording (coeff. 1.494***). When testing other research variables, we notice that male workers also work longer compared to women (coeff. 1.785***), as is the case also of workers with dependent children (coeff. 1.558***). However, the greatest effect is observed for full time workers (coeff. 12.584***). Both age and distribution of tasks do not have a significant effect that can be interpreted. The OLM model 2 shows similar results. The absence of recording tends to increase the probability to work a higher number of days longer than 10 hours ($\beta = 1.215$***), while partial recording seems to have the same positive effect albeit to a smaller extent ($\beta = 0.627$***). Male ($\beta = 0.463$***) and full time workers ($\beta = 1.004$***) are also concerned by this trend. The coefficients for age are weak and partially non-significant. Moreover, having dependent children is not significant. Considering models 1 and 2, we can accept the hypothesis that time registration is negatively correlated both with long working hours over the week (H1a) and with long working days (H1b). These effects on working time duration should however be considered with other parameters, among which mainly gender and full time vs. part-time occupation.

Hypothesis 2: Time registration is negatively correlated with irregular working hours, i.e. shifts in the evening (H2a) and on Sunday (H2b)

This hypothesis relates to our second research objective as stated above, i.e. the link between working time recording practices and irregular working hours. To test it, we use as dependent variables, for H2a, working in the evening (one, two, three or four times and more in a month) and, for H2b, working on Sunday (one, two, three, four times and more in a year). Both are Ordered Logit Models (OLM). According to this hypothesis, the more the working time is regulated (i.e. systematically recorded), the less the workers are exposed to atypical working schedules which could be potential risk factors for their health (although the literature is inconclusive in this respect – see literature review above). The OLM models 3 and 4 show that only the absence of recording tends to increase the probability to work in the evening ($\beta = 1.026^{***}$) or to work on Sundays ($\beta = 0.724^{***}$). Partial recording, by contrast, does not give strong and significant coefficients. Results are very similar in both models 3 and 4 when considering independent and control variables. Male workers tend to work more in the evening and on Sundays than their female counterparts do ($\beta = 0.696^{***}$ for model 3 and $\beta = 0.664^{***}$ for model 4); such is also the case of those workers who dispose of a higher autonomy in the distribution of tasks ($\beta = 0.389^{***}$ for model 3 and $\beta = 0.249^{***}$ for model 4). Irregular working hours seem to be more frequent for young workers when compared to their older colleagues (normalized linear-age: $\beta = 0.139^{**}$ and normalized age-squared: $\beta = -0.197^{***}$ for model 3; normalized linear-age: $\beta = 0.271^{**}$ and $\beta = -0.232^{***}$ for model 4). Having dependent children seems negatively correlated with working in the evening ($\beta = -0.346^{***}$) but not on Sundays, while having a full-time job seems positively correlated with working on Sundays ($\beta = 0.534^{***}$) and not in the evening. Considering models 3 and 4, we can accept only partially the hypothesis that time registration is negatively correlated with irregular working hours. In fact, only the absence of recording increases the probability to do shifts in the evening (H2a) and/or on Sunday (H2b), while partial recording does not have any impact. Other parameters have also to be considered, but only gender and age apply for both models.

Table 3. OLS and OLM models

	(1: H1a) Time duration	(2: H1b) +10 hours	(3: H2a) Evening	(4: H2b) Sunday
Partial recording	1.494	0.627	0.043	0.009
(Ref: Systematic recording)	p = 0.0002	p = 0.000	p = 0.698	p = 0.936
No recording	3.947	1.215	1.026	0.724
(Ref: Systematic recording)	p = 0.000	p = 0.000	p = 0.000	p = 0.000
Don't know (recording)	−0.331	−0.644	−0.846	−1.008
	p = 0.861	p = 0.176	p = 0.272	p = 0.193
Male (Ref: Woman)	1.785	0.463	0.696	0.664
	p = 0.00002	p = 0.00001	p = 0.000	p = 0.000
scale(age)	−0.007	0.037	0.139	0.271
	p = 0.971	p = 0.416	p = 0.011	p = 0.00000
I(scale(age)2)	−0.127	−0.360	−0.197	−0.232
	p = 0.467	p = 0.000	p = 0.0004	p = 0.00003
Dependent children (Ref: No)	1.558	−0.074	−0.346	−0.048
	p = 0.0004	p = 0.494	p = 0.003	p = 0.674
Full time (Ref: Part time)	12.584	1.004	0.249	0.534
	p = 0.000	p = 0.000	p = 0.109	p = 0.001
Distribution of tasks	0.054	0.070	0.389	0.249
(Ref : No decision)	p = 0.877	p = 0.410	p = 0.0001	p = 0.010
Don't know	3.063	−0.051	−0.129	0.031
(Distribution of tasks)	p = 0.015	p = 0.867	p = 0.741	p = 0.932
Constant	27.380			
	p = 0.000			
Models	OLS	OLM	OLM	OLM
Observations	2,005	2,004	2,012	2,008
R2	0.342			
Adjusted R^2	0.339			
Log Likelihood		−2,747.585	−2,230.376	−2,134.072

Hypothesis 3: Each risk factor for workers' health (as identified in connection with H1a and b and H2a and b) is positively correlated with a bad self-reported health status

This hypothesis relates to our third and fourth research objectives as stated above, i.e. the link between health status and working time duration on the one hand, irregular working hours on the other hand. This hypothesis has to be assessed by considering a possible bias due to the Healthy Worker Effect (HWE), i.e. in light of the better health of people who obtain the type of jobs for which it is possible to choose for an opt-out regime. We define self-evaluated health status as a binary dependent variable. For this purpose, the self-evaluated health status has been dichotomized either as bad (which regroups the following answers in our questionnaire: fair, bad or very bad) or as good (which includes the two answers: good or very good). This hypothesis is subdivided into four sub-hypotheses testing the effect on health status of long working hours over the week (H3a), long working days (H3b), working in the evening (H3c) and working on Sundays (H3d). The fact that they measure similar issues related to working time duration and atypical work schedules prevented the use of predictors simultaneously. It should be made clear that such hypotheses do not allow testing directly the impact of working time registration practices on health status. To complete such a test, a plurality of factors (behavioral, biological and social, among others) ought to be taken into account with regard to their long term impact on health, which is not possible with our database. To test H3 in its four variations, we conduct four Binary Logit Regressions (BLR). For this purpose, we construct a specific independent variable for each sub-hypothesis that will then be tested in each model. For H3a, we focus on workers that work at least 55 hours or longer in a week; for H3b, on those workers who work 10 hours or more at least four days in a month; for H3c, on those working in the evening at least 5 days in a month; and for H3d, on those working on Sunday at least four times in a year. We include the same research variables as for H1 and H2 except for working time recording practices. According to this hypothesis, a higher degree of working time duration (H3a and H3b) or work hour irregularity (H3c and H3d) is positively correlated with a bad self-evaluated health status.

The models in Table 4 show that a bad self-reported health status is more common only for workers who have long working weeks ($\beta = 0.539^{**}$ for model 1) and long working days ($\beta = 0.231^{*}$ for model 2), although with a lesser degree of significance in the latter case. By contrast, working on evenings or on Sundays (models 3 and 4), is not significant. Models 1 to 4 in Table 4 share some effects related to the independent and control variables. In particular, a full time job is positively correlated with a bad self-evaluated health status ($0.408^{**} < \beta < 0.434^{**}$), while the ability to decide the distribution of tasks seems to be negatively correlated with it ($-0.434^{***} < \beta < -0.422^{***}$). This means that only long working hours over the week (H3a) and over the day (H3b) are more likely to coincide with a lower self-reported health status, although with small coefficients and a lesser significance. The absence of correlation between irregular work hours and self-reported health status is in line with the findings in the literature.

Table 4. BLR models

	Health status (Ref: Good and Very Good)			
	(1: H3a)	(2: H3b)	(3: H3c)	(4: H3d)
+55 hours per week	0.539			
	p= 0.048			
+10 hours a day 4x month		0.231		
		p= 0.069		
Working in evening 4x month			0.053	
			p= 0.770	
Working on Sunday 4x year				0.046
				p=0.760
Male (Ref: Woman)	−0.230	−0.256	−0.220	−0.228
	p= 0.095	p= 0.064	p=0.109	p=0.100
scale(age)	−0.037	−0.026	−0.023	−0.017
	p= 0.663	p= 0.760	p= 0.797	p=0.881
I(scale(age)2)	−0.060	−0.039	−0.059	−0.067
	p= 0.325	p= 0.530	p= 0.331	p=0.278
Dependent children (Ref: No)	0.130	0.112	0.126	0.132
	p= 0.399	p= 0.470	p= 0.416	p=0.392
Full time (Ref: Part time)	0.434	0.408	0.458	0.452
	p= 0.022	p= 0.033	p= 0.015	p=0.017
Distribution of tasks	−0.434	−0.428	−0.422	−0.427
(Ref : No decision)	p=0.0003	p=0.0004	p=0.0004	p=0.0004
Don’t know (distribution of tasks)	0.081	0.129	0.114	0.124
	p = 0.837	p = 0.743	p = 0.772	p = 0.752
Constant	−1.593	−1.630	−1.604	−1.600
	p=0.000	p=0.000	p=0.000	p=0.000
Models	BLR	BLR	BLR	BLR
Observations	2,000	1,999	2,007	2,003
Log Likelihood	−921.502	−918.959	−928.121	−922.624
Akaike Inf. Crit.	1,861.004	1,855.919	1,874.242	1,863.249

Discussion

The results show that the absence of recording, but also partial recording, although to a lesser extent, coincides with longer working hours. This brings a clear and unambiguous answer to our first research objective; this is also an important contribution to the literature, in that it documents the link between working time recording practices and work duration. With regard to the second research objective, our results are more contrasted: while the absence of recording leads to a higher likelihood to have irregular working hours, such is not the case for partial or simplified recording. This is also an important result as it contributes to fill a gap in the literature regarding the link between working time recording practices and irregular working hours. With regard to the third research objective, figures show that long working hours, be it daily or weekly, come with an increased likelihood that workers report a lower health status. This conclusion is even clearer if only workers reporting a bad or very bad health status are considered. If such long working days and weeks take place over a long time, it is likely that those workers would be exposed to cardiovascular disease, diabetes, arterial stiffness and strokes according to the available longitudinal studies (Kivimäki et al. 2015; Rossnagel et al. 2021; Ervasti et al. 2021). Our cross-sectional survey does not allow drawing such a conclusion. With regard to our third research objective, our study mainly goes in the same direction as the available literature; as such it does not represent a real breakthrough.

With regard to the fourth research objective, our study confirms that the link between irregular working hours and health status is a complex one, where parameters such as autonomy at work or other components of the Karasek model are at play. More precisely, our results show that atypical working shifts are associated only with the absence of working time recording and not with simplified and partial recording. Atypical working shifts are also correlated positively with young workers and with autonomy at work, but no correlation is observed with the self-evaluated health status. Thus, the relations between working time recording, atypical working shifts and workers' health are less conclusive. Three facts may explain why atypical working shifts seem to be less problematic than long working hours: first, they concern mainly workers who enjoy a higher degree of autonomy at work; second, they concern mostly young workers; third, they are more prevalent among workers with dependent children. This suggests, in line with the literature, that irregularity per se is not a factor that systematically increases the likelihood to be affected by higher risks for one's health. The outcome actually depends on how irregular working hours are implemented and to what extent the worker's needs are taken into account. We can consider that a certain amount of flexibility can be desired in order to cope with family and social life. When it is connected with other variables, such as lack of control over one's work, then irregular working hours may lead to worse self-reported health status, but such is not the case when it is combined with high autonomy in work organization or work schedules or when it concerns specific categories such as young people or workers with dependent children. Hence, our study points to the need for further research in order to better document the complex link between irregular working hours and health status. More specifically, it calls for longitudinal studies that would allow capturing the long-term impact of work flexibility under the various conditions identified in our study (degree of autonomy at work, etc.).

Our study also indicates that the issue of autonomy at work deserves more attention in further research. On the one hand, it is not able to counter the negative impact of long working hours, i.e. people working long hours tend to report a lower health status, whether they are autonomous at work or not. On the other hand, autonomy at work is negatively correlated with a bad self-evaluated health status, i.e. people who are more autonomous at work tend to report a higher health status (although it does not capture all the effect). Therefore, it seems that autonomy delivers more control over the job, which allows managing irregular working hours in a way that does not impact negatively on self-reported health status; but at the same time, it does not provide sufficient protection against long working hours. Thus, the way autonomy at work mediates the link between self-reported health status and work duration on the one hand (i.e. not mitigating the negative effects of long hours), irregular working hours on the other hand (with a positive effect on self-reported health status), is a complex one that calls for further research.

Moreover, our survey shows important gender differences, which confirms what is highlighted by the literature. In our case study, male workers are mostly exposed to long working hours and irregular working shifts, which probably reflects gender inequalities on the labor market. Indeed, the opportunity not to record one's working time or to have only a simplified recording is granted only to qualified workers, earning high wages and having wide autonomy at work, which is still more the case for men than women due to prevailing gender inequalities in the Swiss labor market.

Our results also have practical implications. They indeed suggest that opt-out working time recording practices coincide with longer working hours, which in turn coincide with lower self-reported health status. This means that opt-out regimes are connected with health issues and, thus, raise the question of how such health issues are tackled in the companies implementing such regimes. More specifically, the question arises whether the accompanying measures for preserving health at work that are implemented by the companies (i.e. a compulsory condition for all companies resorting to opt-out regimes, according to the law) are sufficient to prevent health problems in the long run. Our survey does not allow answering this question: because of the very wide variety of measures declared by the surveyed workers in an open question, it was not possible to determine which measures are more effective in this respect. What can be said, however, is that none of the existing accompanying measures was successful in preventing long working hours. In our survey, full time jobs are particularly exposed to long working days or weeks. This suggests that part time jobs may provide indirectly a higher protection for workers who register their working time partially or who do not record it at all. A possible explanation is that the annualization of working time, widely implemented in the surveyed companies, allows them to work a lot of overtime if needed without exceeding either the legal limits or the limits deemed critical by scientific studies related to health issues. Nevertheless, part time jobs do not replace appropriate health and safety measures against long working hours.

Limits

The sample is representative of the companies included in the study which apply the new rules on working time recording. It includes an important proportion of high-skilled workers with executive functions who are eligible for these opt-out regimes. The high participation rate resulted in an adequate number of observations, allowing for solid univariate, bivariate and multivariate analysis. However, the sample does not allow any conclusion in relation to the whole Swiss workforce and the study has to be considered in an exploratory perspective. Indeed, the legislative changes and their implementation were too recent for allowing any strong conclusion on how the new rules concerning working time recording impact workers' health in the long run. It is also not possible to know to what extent the new rules on working time registration changed the company practices compared to the past. This would require precise knowledge of the previous situation, which is not available as yet. Moreover, some bias cannot be totally avoided. The number of working hours that is self-declared in surveys tends to be overestimated (Robinson et al., 2011). The analysis has also to consider the Healthy Worker Effect (HWE) in particular where the self-evaluated health status is taken into consideration. A longitudinal study with a representative sample of workers whose health status is followed over several years would serve most of these purposes.

Conclusion

Our study brings pieces of evidence highlighting that the new rules on working time registration seem to be associated with long working hours and, as a consequence of such prolonged work duration, a poor self-reported health status, which represents a higher risk for workers' health in the long run according to the literature. In a social policy perspective, this should be taken into account seriously; this calls for finding mechanisms that avoid long working hours for workers over extended periods. For this purpose, we suggest three strategies to policy makers and stakeholders.

First, the existing mechanisms to control usual working hours should be strengthened in accordance with the requirements of the labor law, particularly to avoid repeated excessively long working weeks or days. Indeed, legal limitations on work duration still apply even though working time is not registered, which obviously makes the controls more difficult. The very fact that such situations of excessive work duration were observed in our survey suggests that the existing controls are not sufficient or ineffective. Thus, social partners together with labor inspectorates where relevant could develop mechanisms to enable the workers concerned to report that their working time is not adequately compensated or that rest periods are not respected.

Secondly, there is a lack of knowledge about the implementation of accompanying measures and their effectiveness for preventing long working hours and health troubles is not enough documented. There is a strong need for further research in this respect. Also, there is a room for enhanced action at the shop floor level: industrial committees or workers' councils inside the companies, social partners and labor inspectors where relevant could start or increase their joint cooperation in the elaboration and the assessment of the accompanying measures. Also, periodic reports on the status of the accompanying measures should be drawn up to ensure a systematic follow-up.

Thirdly, since flexibility and autonomy seem to play an important role as protective factors, it should be ensured that workers who no longer record their working hours actually meet the criteria of autonomy in the organization of work and schedules. This is already a legal requirement. However, the setting of clear and measurable criteria for assessing the degree of such autonomy would be necessary to guarantee that only autonomous people at work, i.e. those who can benefit from flexibility without undergoing a negative outcome for their health status, are subjected to opt-out regimes. Such criteria could be defined either in the individual agreement (where the employee agrees not to record one's working time) or in the agreement negotiated between social partners (where the rules for the actual implementation of the opt-out regime are set up at company or sector level). Another option would be the introduction of ad hoc instruments aimed to assess and verify on a periodic basis the degree of autonomy of the workers. In our view, such strategies could, on the one hand, break the link that our study documented between opt-out regimes, long working hours and poor self-reported health status and, on the other hand, prevent the emergence of a link between opt-out regimes, increased irregular working hours and low health status by guaranteeing that only genuinely autonomous workers are concerned by the opt-out regimes.

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References

Agger, Ben (2011). iTime: Labor and Life in a Smartphone Era. *Time & Society*, 20(1): 119-136. https://doi.org/10.1177/0961463X10380730.

Artazcoz, Lucia, Imma Cortès, Vicenta Escriba-Aguir, Lorena Cascant and Rodrigo Villegas (2009). Understanding the Relationship of Long Working Hours with Health Status and Health-Related Behaviours. *Journal of Epidemiology & Community Health* 63(7): 521–27. https://doi.org/10.1136/jech.2008.082123.

Astleithner, Franz and Bettina Stadler (2019). Arbeitszeitlänge im Kontext von Autonomie: Zeiterfassung als Instrument gegen interessierte Selbstgefährdung? *Zeitschrift für Arbeitswissenschaft* 73, 355–368. https://doi.org/10.1007/s41449-019-00174-x.

Backhaus, Nils, Louisa-Katharina Stein and Ines Entgelmeier (2021). *Arbeitszeiterfassung und Flexibilität - Ergebnisse der BAuA-Arbeitszeitbefragung 2019.* 1. Auflage. Dortmund: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin.

Bannai, Akira and Akiko Tamakoshi (2014). The Association Between Long Working Hours and Health: A Systematic Review of Epidemiological Evidence. *Scandinavian Journal of Work, Environment & Health* 40(1), 5–18. https://doi.org/10.5271/sjweh.3388.

Beckmann, Michael, Thomas Cornelissen and Matthias Kräkel (2017). Self-Managed Working Time and Employee Effort: Theory and Evidence. *Journal of Economic Behavior & Organization* 133 (January): 285–302. https://doi.org/10.1016/j.jebo.2016.11.013.

Bissuel, Bertrand (2019) Pour la Cour de Luxembourg, les patrons doivent mesurer «le temps de travail journalier». *Le Monde,* 16.05.2019. https://www.lemonde.fr/politique/article/2019/05/16/pour-la-cour-de-luxembourg-les-patrons-doivent-mesurer-le-temps-de-travail-journalier_5462895_823448.html.

Bonvin, Jean-Michel, Nicola Cianferoni and Pascal-Eric Gaberel (2011). Étude d'accompagnement du projet-pilote «*Temps de travail basé sur la confiance*» conduit par le SECO dans le secteur bancaire. Berne/Lausanne: SECO/EESP. https://www.seco.admin.ch/seco/fr/home/Publikationen_Dienstleistungen/Publikationen_und_Formulare/Arbeit/Arbeitsbedingungen/Studien_und_Berichte/schlussbericht-ueber-das-pilotprojekt-vertrauensarbeitszeit-bei-.html.

Chan, Siu Ming, Tat Chor Au-Yeung, Hung Wong, Roger Yat-Nork Chung and Gary Ka-Ki Chung (2021). Long Working Hours, Precarious Employment and Anxiety Symptoms Among Working Chinese Population in Hong Kong. *Psychiatric Quarterly* 92 (4): 1745–57. https://doi.org/10.1007/s11126-021-09938-3.

Chatzitheochari, Stella and Sara Arber (2009). Lack of Sleep, Work and the Long Hours Culture: Evidence from the UK Time Use Survey. *Work, Employment and Society*, 23(1): 30-48. https://doi.org/10.1177/0950017008099776.

Choi, BongKyoo (2018). Job Strain, Long Work Hours, and Suicidal Ideation in US Workers: A Longitudinal Study. *International Archives of Occupational and Environmental Health* 91(7): 865–75. https://doi.org/10.1007/s00420-018-1330-7.

Cook, Miranda A. and Julie Gazmararian (2018). The Association Between Long Work Hours and Leisure-Time Physical Activity and Obesity. *Preventive Medicine Reports* 10 (June): 271–77. https://doi.org/10.1016/j.pmedr.2018.04.006.

Costa-Font, Joan and Martin Ljunge (2018). The 'healthy worker effect': Do healthy people climb the occupational ladder? *Economics & Human Biology*, Elsevier, vol. 28(C), pages 119-131.

Costa, Giovanni, Samantha Sartori and Torbjorn Akerstedt (2006). Influence of Flexibility and Variability of Working Hours on Health and Well-Being. *Chronobiology International* 23(6): 1125–37. https://doi.org/10.1080/07420520601087491.

Cygan-Rehm, Kamila and Christoph Wunder (2018). Do Working Hours Affect Health? Evidence from Statutory Workweek Regulations in Germany. *Labour Economics, European Association of Labour Economists 29th annual conference, St.Gallen, Switzerland, 21-23 September 2017* 53: 162–71. https://doi.org/10.1016/j.labeco.2018.05.003.

Dembe, A E, J B Erickson, R G Delbos and S M Banks (2005). The Impact of Overtime and Long Work Hours on Occupational Injuries and Illnesses: New Evidence from the United States. *Occupational and Environmental Medicine* 62 (9): 588–97. https://doi.org/10.1136/oem.2004.016667.

Ervasti, Jenni, Jaana Pentti, Solja T. Nyberg, Martin J. Shipley, Constanze Leineweber, Jeppe K. Sørensen, Lars Alfredsson et al. (2021). Long Working Hours and Risk of 50 Health Conditions and Mortality Outcomes: A Multicohort Study in Four European Countries. *The Lancet Regional Health – Europe* 11: 1-11. https://doi.org/10.1016/j.lanepe.2021.100212.

Gilbert-Ouimet, Mah'ee, Huiting Ma, Rick Glazier, Chantal Brisson, Cameron Mustard and Peter M Smith (2018). Adverse Effect of Long Work Hours on Incident Diabetes in 7065 Ontario Workers Followed for 12 Years. *BMJ Open Diabetes Research & Care* 6(1): 1-7. https://doi.org/10.1136/bmjdrc-2017-000496.

Hayman, Jeremy R. (2009). Flexible Work Arrangements: Exploring the Linkages Between Perceived Usability of Flexible Work Schedules and Work/Life Balance. *Community, Work & Family* 12 (3): 327–38. https://doi.org/10.1080/13668800902966331.

Johnson, Jeffrey V. and Jane Lipscomb (2006). Long Working Hours, Occupational Health and the Changing Nature of Work Organization. *American Journal of Industrial Medicine* 49 (11): 921–29. https://doi.org/10.1002/ajim.20383.

Karasek, Robert A. (1979). Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign. *Administrative Science Quarterly* 24 (2): 285. https://doi.org/10.2307/2392498.

Kelliher, Clare and Deirdre Anderson (2009). Doing More with Less? Flexible Working Practices and the Intensification of Work. *Human Relations* 63(1): 83-106. https://doi.org/10.1177/0018726709349199.

Kivimäki, Mika, Markus Jokela, Solja T Nyberg, Archana Singh-Manoux, Eleonor I Fransson, Lars Alfredsson, Jakob B Bjorner et al. (2015). Long Working Hours and Risk of Coronary Heart Disease and Stroke: A Systematic Review and Meta-Analysis of Published and Unpublished Data for 603 838 Individuals. *The Lancet* 386 (10005): 1739–46. https://doi.org/10.1016/S0140-6736(15)60295-1.

Kleiner, S. and E. K. Pavalko (2010). Clocking In: The Organization of Work Time and Health in the United States. *Social Forces* 88 (3): 1463–86. https://doi.org/10.1353/sof.0.0301.

Lyness, Karen S., Janet C. Gornick, Pamela Stone and Angela R. Grotto (2012). It's All about Control: Worker Control over Schedule and Hours in Cross-National Context. *American Sociological Review*, 77(6):1023-1049. https://doi.org/10.1177/0003122412465331.

Lott, Yvonne and Elke Ahlers. 2021. Flexibilisierung der Arbeitszeit. WSI Report, 68, Düsseldorf. https://www.wsi.de/de/faust-detail.htm?sync_id=HBS-008176.

Matre, Dagfinn, Marit Skogstad, Tom Sterud, Karl-Christian Nordby, Stein Knardahl, Jan Olav Christensen and Jenny-Anne S Lie (2021). Safety Incidents Associated with Extended Working Hours. A Systematic Review and Meta-Analysis. *Scandinavian Journal of Work, Environment & Health* 47 (6): 415–24. https://doi.org/10.5271/sjweh.3958.

McCann, Deirdre (2007). Temporal Autonomy and the Protective Individualisation of Working-Time Law: The Case of Overtime Work. L*abour & Industry: A Journal of the Social and Economic Relations of Work* 17(3): 29–43. https://doi.org/10.1080/10301763.2007.10669350.

Robinson, John P., Steven Martin, Ignace Glorieux and Joeri Minnen (2011). The Overestimated Workweek Revisited. *Monthly Labor Review*, 2011, 43–53.

Rossnagel, Karin, Sylvia Jankowiak, Falk Liebers et al. (2021). Long Working Hours and Risk of Cardiovascular Outcomes and Diabetes Type II: Five-Year Follow-up of the Gutenberg Health Study (GHS). *International Archives of Occupational and Environmental Health*, 95: 303–312. https://doi.org/10.1007/s00420-021-01786-9.

Shah, Divyang (2009). Healthy worker effect phenomenon. *Indian Journal of Occupational and Environmental Medicine*, 13(2): 77-9. https://doi.org/10.4103/0019-5278.55123.

Thomas, Mark, Shelley Condratto, Danielle Landry and Mercedes Steedman (2020). Flexibility for Who? Working Time, the Ontario Employment Standards Act and the Experiences of Workers in Low-Wage and Precarious Jobs: De La Flexibilité Pour Qui? Loi Sur Les Normes Du Travail de l'Ontario Et Temps de Travail : Expérience de Travailleurs à Bas Salaire Et Occupant Des Emplois Précaires. *Relations Industrielles / Industrial Relations* 75 (1): 78–100. https://doi.org/10.7202/1068716ar.

Vieten, Laura, Anne Marit Wöhrmann and Alexandra Michel (2021). Boundaryless Working Hours and Recovery in Germany. *International Archives of Occupational and Environmental Health*, 95: 275–292. https://doi.org/10.1007/s00420-021-01748-1.

Weston, Gillian, Afshin Zilanawala, Elizabeth Webb, Livia A Carvalho and Anne McMunn (2019). Long Work Hours, Weekend Working and Depressive Symptoms in Men and Women: Findings from a UK Population-Based Study. *Journal of Epidemiology and Community Health* 73 (5): 465–74. https://doi.org/10.1136/jech-2018-211309.

Wheatley, Daniel (2016). Employee Satisfaction and Use of Flexible Working Arrangements. *Work, Employment and Society* 31(4): 567-585. https://doi.org/10.1177/0950017016631447.

Wong, Kapo, Alan H. S. Chan and S. C. Ngan (2019). The Effect of Long Working Hours and Overtime on Occupational Health: A Meta-Analysis of Evidence from 1998 to 2018. *International Journal of Environmental Research and Public Health* 16 (12): 1-22. https://doi.org/10.3390/ijerph16122102.

Yun, S., Minsuk Kim., Won-Tae Lee, Jin-Ha Yoon and Jong-Uk Won (2021). Irregular Work Hours and the Risk of Sleep Disturbance Among Korean Service Workers Required to Suppress Emotion. *International Journal of Environmental Research and Public Health*, 18, 1517. https://doi.org/10.3390/ijerph18041517.