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# Low back pain occurrence and evolution in different work situations during Covid-19 epidemic lockdown

from 17 March to 10 May 2020, in metropolitan France

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## **Lockdown from March 17 to May 10, 2020 in France, set up to fight against the spread of the Covid-19 epidemic**

→ Professional activity of French people and its organization changed: teleworking, cessation of activity, intensification or disruption of activities.

## **Work organization, managerial practices and psychosocial factors (*ETUI report, Y. Roquelaure*)**

→ Key elements in understanding and preventing MSDs

→ Influence on the biomechanical, psychosocial and environmental characteristics of work situations

## **Low back pain (LBP)**

→ Multifactorial disorder

→ The leading cause of years lived with disability in the world

Estimate the effects of the changes in the work organization due to the first mandatory lockdown on

→ Low back pain onset

→ Low back pain evolution

In the working population before lockdown, in metropolitan France

**CoviPrev: survey of behavior and mental health during the epidemic, conducted at regular intervals**

- Quota sampling on an access panel in the general population
- Adjusted on the general population census 2016
- Self-administered online questionnaire over 3 days during 3 waves of survey:  
June 8-10, 2020 (V10), June 22-24, 2020 (V11) and July 6-8, 2020 (V12)
- 6,002 people aged 18 and over, including 3,224 workers
- Variables collected retrospectively:
  - 2 questions about the work situation (work before lockdown and 6 work situations during lockdown)
  - 3 questions about LBP (pain before / after and evolution of pain)

## Weighted and adjusted analysis

- **Adjustment variables:**

- Gender, age, type of living population centre (urban vs. rural or semi-rural setting), cramped or crowded housing, general health, body mass index, HAD scale: anxiety and depression

## Among workers without LBP before lockdown, study of the LBP onset during lockdown:

- **Association with the main work situation during lockdown**

- in univariate (Rao-Scott Chi-2)
- by multivariate analysis using an adjusted binomial logistic regression ( $\alpha = 5\%$ )

## Among workers with LBP before lockdown, study of the LBP evolution (improvement / stability / worsening):

- **Association with the main work situation during lockdown**

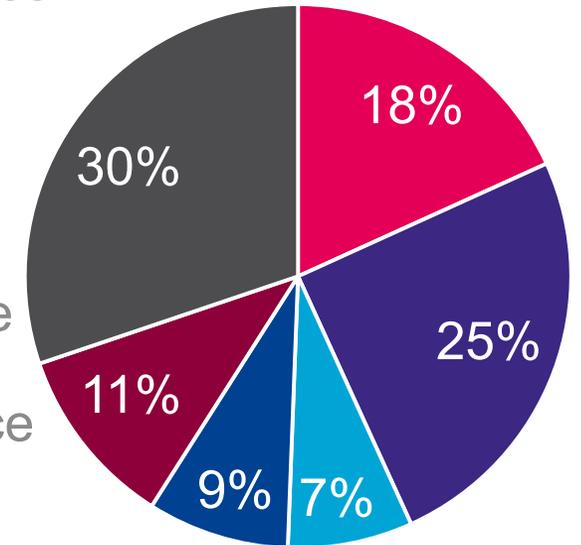
- in univariate (Rao-Scott Chi-2)
- by an adjusted multinomial logistic regression ( $\alpha = 5\%$ )

→ risks of improvement and worsening of LBP modeled in comparison to the LBP stability<sup>6</sup>

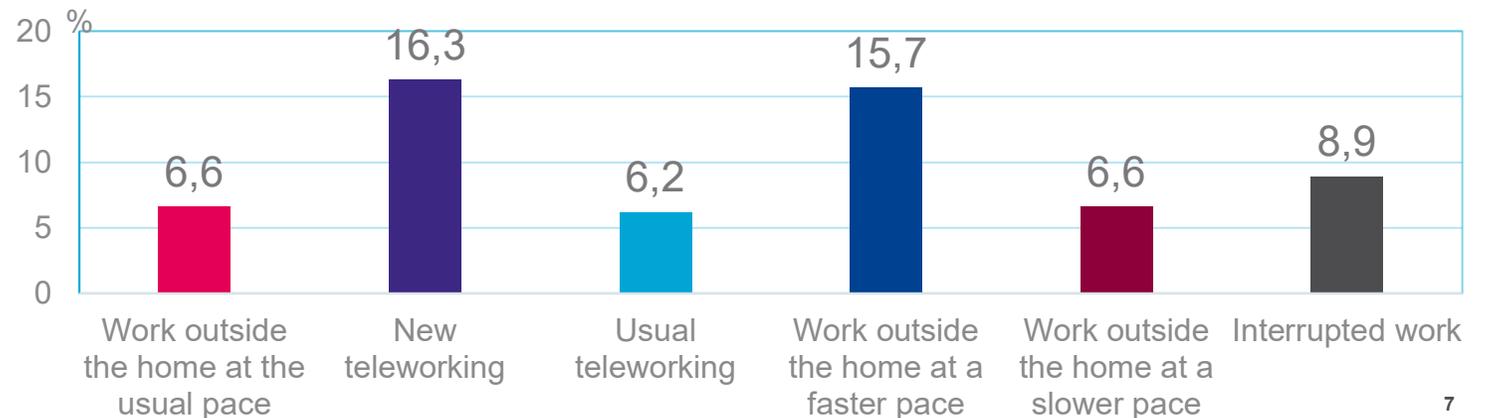
# RESULTS: DESCRIPTION OF WORK SITUATIONS AND THE LBP ONSET

Distribution of work situations during lockdown among workers (n=3,224)

- Work outside the home at the usual pace
- New teleworking
- Usual teleworking
- Work outside the home at a faster pace
- Work outside the home at a slower pace
- Interrupted work



Frequency of LBP onset (10.4%) according to the work situation during lockdown among workers without LBP before lockdown (n=2,113)



## Among workers without LBP at the lockdown beginning (n=2,113)

	Adjusted OR	95%CI
<b>Work situation during the lockdown<sup>***</sup></b> <i>(réf. Work outside the home at the usual pace)</i>		
New teleworking	<b>2.81<sup>***</sup></b>	<b>[1.77-4.46]</b>
Usual teleworking	0.90	[0.43-1.87]
Work outside the home at a faster pace	<b>2.76<sup>**</sup></b>	<b>[1.50-5.09]</b>
Work outside the home at a slower pace	1.05	[0.54-2.04]
Interrupted work	1.28	[0.78-2.10]

### Binary multivariate logistic regression adjusted on :

- Survey wave,
- Gender,
- Classes of age,
- Cramped or crowded housing<sup>\*\*</sup>,
- Type of living population centre (urban vs. rural or semi-rural setting),
- Poor general health,
- Overweight or obesity,
- Anxiety (probable or certain)<sup>\*\*\*</sup>,
- Depression (probable or certain).

**\*\*\*: p<0.001; \*\*: p<0.01; \*: p<0.05; ns: non significant**

# RESULTS: WORK SITUATION AND IMPROVEMENT OR WORSENING OF LBP

Among workers with LBP at the lockdown beginning (n=1,111)

	Improvement vs Stability (n=372)		Worsening vs Stability (n=138)	
	ORa	95%CI	ORa	95%CI
<b>Work situation during the lockdown***</b> (réf. <i>Work outside the home at the usual pace</i> )				
New teleworking	<b>1.95**</b>	[1.20-3.19]	<b>4.74***</b>	<b>[2.12-10.57]</b>
Usual teleworking	<b>1.86*</b>	[1.00-3.43]	0.98	[0.31-3.11]
Work outside the home at a faster pace	1.05	[0.56-1.98]	<b>3.39**</b>	<b>[1.38-8.31]</b>
Work outside the home at a slower pace	1.55	[0.87-2.77]	2.54	[0.96-6.74]
Interrupted work	<b>3.95***</b>	<b>[2.48-6.30]</b>	<b>3.39**</b>	<b>[1.52-7.58]</b>

Multinomial multivariate logistic regression adjusted on :

- Survey wave,
- Gender,
- Classes of age\*,
- Cramped or crowded housing,
- Type of living population centre (urban vs. rural or semi-rural setting)\*,
- Poor general health\*\*\*,
- Overweight or obesity,
- Anxiety (probable or certain),
- Depression (probable or certain)\*.

\*\*\*: p<0.001; \*\*: p<0.01; \*: p<0.05; ns: non significant – ORa: Adjusted OR

Frequency of LBP onset varying according to the work situation during the first mandatory lockdown

→ **New elements added to the global burden of the Covid-19 epidemic**

Associations observed between work situations and low back pain depending on:

- LBP onset
- LBP evolution

→ **Need to implement interventions to reduce the negative impact of new work organizations and limit the impact of LBP and its consequences**

→ **Multidimensional ergonomic approaches (workstation layout, organization, etc.) involving the worker, management teams, etc.**

**Data update in June and July 2021** (after the third and last mandatory lockdown)

- LBP and work situation
- + specific questions about teleworking

# Thank you for your attention

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## **For more information (in French) :**

Chazelle E, Chan-Chee C, Fouquet N. Incidence et évolution de la lombalgie selon la situation de travail pendant le confinement lié à l'épidémie de Covid-19, du 17 mars au 10 mai 2020, en France métropolitaine. Bull Epidemiol Hebd. 2020;(26):512-21. [http://beh.santepubliquefrance.fr/beh/2020/26/2020\\_26\\_1.html](http://beh.santepubliquefrance.fr/beh/2020/26/2020_26_1.html)