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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

MATERIAL AND METHODS : 3 WAVES OF COVIPREV SURVEY (10, 11, 12)

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**

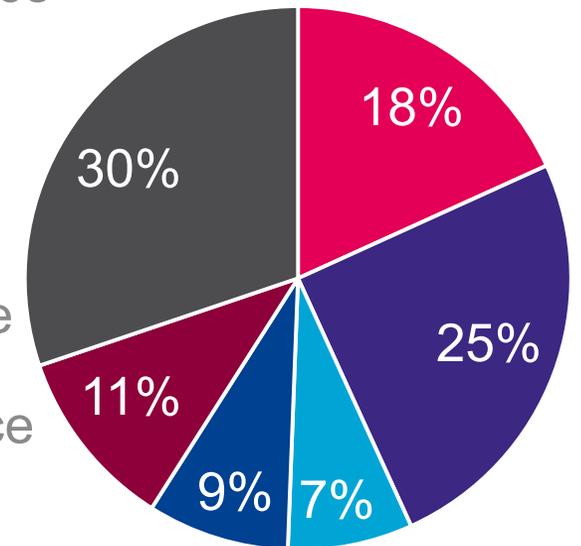
- in univariate (Rao-Scott Chi-2)
- by an adjusted multinomial logistic regression ($\alpha = 5\%$)

→ risks of improvement and worsening of LBP modeled in comparison to the LBP stability⁶

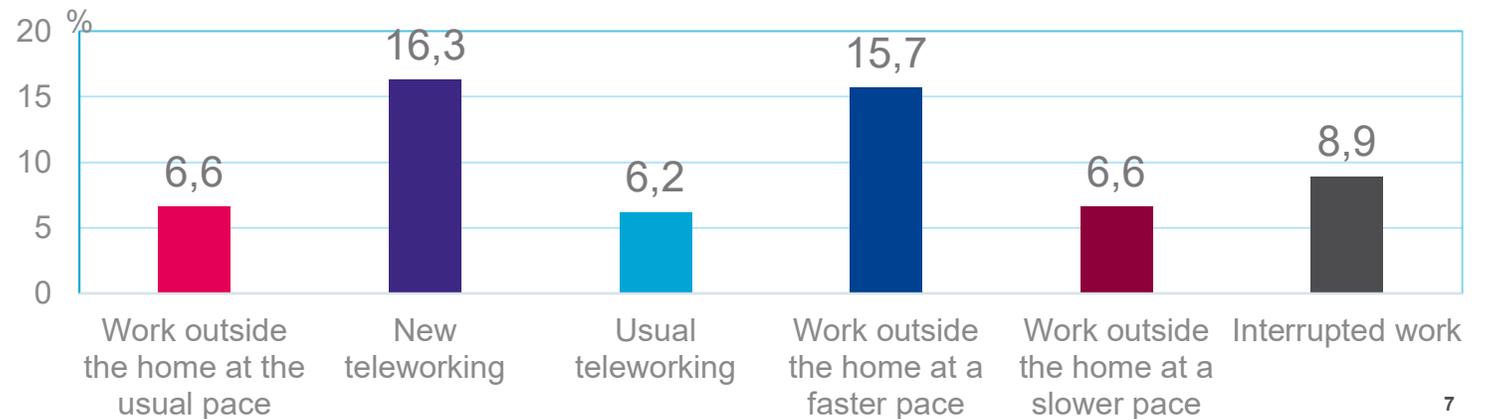
RESULTS: DESCRIPTION OF WORK SITUATIONS AND THE LBP ONSET

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
Work situation during the lockdown^{***} <i>(réf. Work outside the home at the usual pace)</i>		
New teleworking	2.81^{***}	[1.77-4.46]
Usual teleworking	0.90	[0.43-1.87]
Work outside the home at a faster pace	2.76^{**}	[1.50-5.09]
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^{**},
- 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**

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

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