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▶ **To cite this version:**

Elodie Cercier, Natacha Fouquet, Julie Bodin, Emilie Chazelle, B. Geoffroy-Perez, et al.. Prevalence of upper-limb musculoskeletal symptoms in French agricultural workers in 2010: results of the pilot phase of COSET-MSA study. 31th International congress of occupational health (ICOH 2015), May 2015, Séoul, South Korea. 2015. hal-02615622

HAL Id: hal-02615622

https://univ-angers.hal.science/hal-02615622

Submitted on 23 May 2020

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Prevalence of upper-limb musculoskeletal symptoms in French agricultural workers in 2010: results of the pilot phase of COSET-MSA study

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Objective

Agricultural workers are strongly exposed to physical and biomechanical constraints, which are known risk factors for musculoskeletal disorders (MSD). In 2012, MSD represented 93% of compensated occupational diseases among workers covered by the French agricultural health insurance fund (Mutualité sociale agricole – MSA).

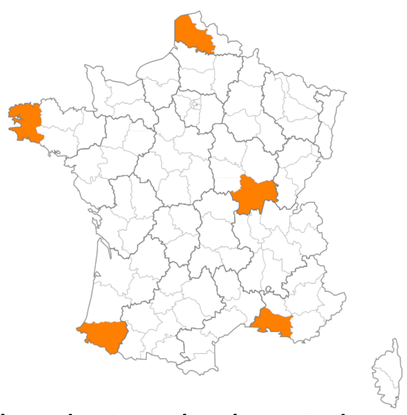
The aim of this study was to assess the prevalence of upper-limb musculoskeletal symptoms (UL-MS) among French agricultural workers.

Methods

Study population

Data were collected by a self-administered questionnaire in 2010 for the pilot phase of COSET-MSA cohort[1].

People 18 to 65 years old were randomly selected from the MSA database of 5 French administrative areas among workers in 2008 (at least 4 months (or for seasonal workers, working at least 3 months in the same job, 2 years in a raw or more).



Outcome

Prevalences of UL-MS during the last 12 months, during the last 7 days and by lenght of symptoms (>30 days, permanent) were assessed with the Nordic questionnaire. Prevalences were assessed for three localisations: shoulder, elbow/forearm and hand/wrist.

Statistical analysis

The present analysis was conducted among the subsample of workers in the agriculture, forestry, or fishing sectors.

Prevalences were stratified by sex and assessed by age and occupational category (regroupment of Insee PCS 1994): farmers, craftsmen/salesmen/managers, professionals/technicians/associate professionals/lower-grade white-collar workers, agricultural blue-collar workers, non-agricultural blue-collar workers.

To guarantee the representativeness of the sample, estimations of prevalence were weighted taking into account the sampling and the non-response [2].

Chi-2 tests for weighted data were used to compare groups.

Results

Description of the study participants

- The questionnaire was completed by 2363 subjects (response rate 24%) among whom 1130 participants full-filled analysis criteria.
- Men represented 75% of the study sample.
- The mean age of participants was 42.7 years for men [41.8-43.6] and 45.7 [44.3-47.0] for women.

Prevalence of musculoskeletal symptoms

- The prevalence of UL-MS was higher in women than in men (Table):
  - 67% vs 54% for symptoms during the last 12 months ($p<10^{-3}$)
  - 34% vs 20% for symptoms for more than 30 days during the last 12 months ($p<10^{-3}$)
  - 44% vs 30% for symptoms during the last 7 days ($p<10^{-3}$)
- The highest prevalence of symptoms during the last 12 months was observed for shoulder in men (37%), and hand/wrist in women (49%).
- There was no difference of prevalence of UL-MS during the last 12 months by age except for the elbow/forearm localisation in men: men aged 40 years and over were more frequently affected (p=0.02).

Table: Prevalence of upper-limb musculoskeletal symptoms by sex among French agricultural workers in 2010.

		Men		Women		p*
		n	%	n	%	
Upper-limb	During the last 12 months	425	53.9	215	67.2	$<10^{-3}$
	> 30 days	150	19.7	98	34.2	$<10^{-3}$
	Permanent	83	10.5	50	19.9	$<10^{-2}$
	During the last seven days	248	29.9	144	44.4	$<10^{-3}$
Shoulder	During the last 12 months	282	36.8	147	43.5	0.08
	> 30 days	89	10.3	59	19.3	$<10^{-2}$
	Permanent	48	5.5	33	11.4	0.02
	During the last seven days	145	16.9	85	24.8	0.01
Elbow/forearm	During the last 12 months	208	26.9	99	27.4	0.87
	> 30 days	70	9.3	36	12.3	0.24
	Permanent	32	4.3	14	4.6	0.81
	During the last seven days	109	13	41	12.2	0.72
Hand/wrist	During the last 12 months	248	31.1	155	49.4	$<10^{-4}$
	> 30 days	73	9	63	22	$<10^{-4}$
	Permanent	38	4.7	31	11.3	$<10^{-2}$
	During the last seven days	133	15.9	96	30.8	$<10^{-4}$

n: observed number of affected workers, %: weighted prevalence
**Chi-2 test for weighted data*

- Prevalence of >30 days symptoms and permanent symptoms differed significantly by age among men for the different localisations (except for permanent symptoms of the elbow/forearm, p=0.07): prevalence was highest for age categories ≥ 40 years old.
- Few differences were observed between occupational categories:
  - In men, the prevalence of hand/wrist symptoms during the last 12 months was different according to occupation ($p<10^{-2}$): craftsmen/salesmen/managers declared more often UL-MS.
  - In women, the prevalence of elbow/forearm symptoms during the last 7 days and for more than 30 days during the last 12 months was different by occupation ($p<10^{-2}$ for both): professionals/technicians/associate professionals/lower-grade white-collar workers declared less frequently symptoms.
  - The UL-MS prevalence was not significantly different between farmers and agricultural blue-collar workers, whatever the localisation, in both genders.

Discussion

This study shows a high prevalence of upper-limb musculoskeletal symptoms in agricultural workers of these 5 areas, especially in women. The most frequent localisation was shoulder for men and hand/wrist for women. Data on UL-MS among agricultural workers are scarce[3]. Moreover, prevalence rates varied widely depending on the agricultural population studied (milkers,…). Our study provides new data on UL-MS among all occupations of agricultural workers in a western country (full data are available in a recent publication[4]) that need to be confirmed at the national scale. These results underline the need for prevention in this economic sector.

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ICOH – Seoul, June 2015

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