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Frequency of low back pain among men and women aged 30 to  
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## **Abstract**

**Introduction:** In France, most studies of low back pain (LBP) have been carried out among workers or patients. Until very recently, the frequency of LBP in the general population was not known, because National Health Surveys did not include questions on LBP.

**Objective:** To estimate the prevalence of LBP in the French population aged 30 to 64 years.

**Materials and Methods:** The main data were from the National Health Survey 2002-2003 (n=14,248). LBP was assessed by an accompanying self-administered questionnaire asking details about duration of LBP in the previous 12 months. Weights were used to estimate the prevalence of LBP in the French population, with two definitions of LBP.

Additional results dealing with chronic LBP, from another national survey (Handicap, Disability and Dependence), are also briefly presented.

**Results:** More than half of the French population in this age group experienced LBP at least one day in the previous 12 months (LBP1), with 17% experiencing LBP for more than 30 days in the previous 12 months (LBP30); prevalence differed between men and women and that of LBP30 increased with age.

**Discussion – Conclusion:** The prevalence of LBP as assessed by the National Health Survey is similar to that found in countries other than France. These estimates can be used as a reference for surveys in specific populations, provided that comparable methodologies are used.

**Keywords:** prevalence; low back pain; general population.

## **1. Introduction**

In France, as in other developed countries, low back pain (LBP) is a major concern because of its frequency in the community and associated economic and social costs.

Several surveys in France have focused on frequency of LBP and associated factors among active workers. For example, the frequency of LBP for at least one day in the previous 12 months (LBP1) was 53% among men and 58% among women in a sample of salaried workers in the Paris region [1]. In another study of volunteers of the GAZEL cohort, 57% of participants experienced LBP in the previous 12 months [16]. In various countries the prevalence of LBP in the general population is known from national or regional surveys. The prevalence of LBP for at least one day among adults varies from 32% to 54% [10,14,18]. Some of the differences in prevalence might be due to differences in the reference periods -- one month or one year.

In general, comparing prevalences among studies is often difficult because of differences in the reference period and in the definition of LBP, including the choice of a threshold for intensity of pain. In ESTEV, a national survey among active workers aged 37 to 52 years in France, two definitions of LBP were used: LBP for more than 6 months, with and without physical limitations. For men aged 42 years, the frequency was 21% for LBP without limitations, and 10% for LBP with limitations [5]. In another study among three groups of active workers (hospital, warehouse, and office workers) the frequencies were compared according to the definition [13]. The lowest frequency was 8% for

sick leave for LBP in the previous 6 months among women, and the highest, 45%, was for LBP at least one day in the previous 6 months, also among women.

Until recently, the prevalence of LBP in France was known only from surveys among employed people or in a clinical setting. The first attempt to describe LBP at a national level was based on the national Handicap, Incapacity, Dependence survey [11]. However, these estimates of LBP frequency were calculated only for chronic back problems with a rather high level of disability. In addition, LBP in this survey had to be defined from the description of the sources of limitation the subjects gave because of no specific question on LBP. Decennial National Health Surveys, except the most recent one, 2002-2003, did not include questions about LBP.

Our main objective was to estimate the prevalence of LBP in the French general population aged 30 to 64 years, from data from the National Health Survey 2002-2003. Two definitions were used: LBP at least one day in the previous 12 months (LBP1), and LBP more than 30 days in the previous 12 months (LBP30). Since the health insurance covering LBP, especially work-related injuries, is specific in France, our hypothesis was that prevalence would differ between France and other developed countries [11]. We also briefly present results of chronic LBP from the HID survey, previously published [11].

## **2. Population and methods**

### *2.1. The National Health Survey 2002-2003*

### *2.1.1. Aim and study design*

The National Health Survey was conducted in 2002 and 2003 by INSEE, the body in charge of the French census and mandatory national surveys. The main objectives were to describe the incidence and prevalence of morbidity, self-assessed health, and consequences of health problems, especially care seeking [BY CARE SEEKING DO YOU MEAN USE OF HEALTH CARE? OUI]. These various dimensions of health could be studied in relation to sociodemographic characteristics at an individual and household level.

The survey was cross-sectional, with three interviews performed face to face by a specialised interviewer and with the use of the software CAPI for collecting the data. A self-administered questionnaire about various health problems was also included in the survey.

### *2.1.2. Target population*

The target population lived in ordinary households in France, excluding collective households such as institutions for disabled people. For the study of LBP, the target population was restricted to people aged 30 to 64 years (n=18,932) and to those who attended the three visits with the interviewer, for 16,406 subjects.

### *2.1.3. Study population*

Among the 16,406 subjects, for 2,158, definitive LBP could not be determined: for 187, the interviewer considered that they could not complete a questionnaire by themselves, 1,884 did not complete the LBP questionnaire,

and 87 had too much missing data. Finally, the study population comprised 14,248 subjects.

The 2,158 subjects excluded were significantly different from the study population in terms of sex, age, and level of education, especially for subjects unable to complete a questionnaire and those with missing data. However, the 1,884 subjects who did not complete the LBP questionnaire did not differ from the study population, except for level of education: 50% were men (47% in the study population), 45% were aged 30-45 years and 31% were aged 45-54 years (47% and 31% in the study population, respectively). Of subjects who did not complete the questionnaire, a higher percentage, 26%, did not have a diploma as compared with the study population.

#### *2.1.4. Questionnaire and definitions of LBP*

The self-administered questionnaire [**IS THIS THE ENTIRE NATIONAL HEALTH SURVEY THAT IS SELF-ADMINISTERED? EARLIER, IN THE ABSTRACT, YOU SAY THAT THE SELF-ADMINISTERED SURVEY WAS ABOUT LBP AND IT SEEMS AS IF IT WAS A SEPARATE SURVEY** modifié plus haut: le self-administered questionnaire ne portait pas exclusivement sur LBP] comprised several sets of questions on different topics. One of them, for LBP, was a French version of the Nordic questionnaire [9]. Four questions asked about presence of pain, pain duration, and pain radiating or not to the leg. Two definitions of LBP were used: subjects who answered Yes to “*Did you suffer from LBP in the last four weeks?*” or “*In the last 12 months, did you suffer from LBP?*” were considered to have LBP at least one day in the previous 12 months (LBP1) and those



answering Yes to “duration of 30 days but not every day” or “every day” were considered to have LBP more than 30 days in the previous 12 months (LBP30).

## *2.2. The national survey on Handicap, Disability and Dependence*

This survey is described briefly, since it has been published previously [11]

### *2.2.1. Aim and study design*

The objective of the study, also conducted by INSEE, was to document the frequency of various types of disability in the community. The analyses focusing on chronic LBP were based on data collected by face-to-face interviews in the baseline survey in 1999.

### *2.2.2. Target population*

The target population was the population living in France in 1999, except those in collective households.

### *2.2.3. Study population*

The population of the survey was compiled from a two-phase sampling so that the most disabled in the population were oversampled [11, 12]. Since the survey also included subjects without disability, we could obtain prevalence estimates for the general population. The study population for chronic LBP was limited to the 6,929 subjects aged 30 to 64 years.

### *2.2.4. Questionnaire and definition of chronic LBP*

The survey included various questions on limitations. Cases of chronic LBP were identified from the subjects’s answers to open questions about the causes

of their limitations. The method, based on a list of inclusion and exclusion criteria, is described in detail elsewhere [11].

### *2.3. Statistical analysis*

Statistical analyses involved use of SAS 8.02 (SAS Institute, Gary, IN).

Weights supplied by INSEE with the data allowed for calculating unbiased estimates of prevalence for the whole population in France. Most results are frequencies given with their 95% confidence interval (95% CI). Comparisons between frequencies involved the Pearson chi-square test.

## **3. Results**

### *3.1. LBP for at least one day (figure 1)*

More than half of the population had LBP1. Prevalence was significantly different between sexes: 54.0% among men (95% CI = [52.6 – 55.3%]) and 57.2% among women (95% CI = [55.9 – 58.4%]).

For men as for women, no significant differences were observed among age groups. However, figure 1 suggests that prevalence of at least 1 day in the previous 12 months decreased slightly with increasing age.

### *3.2. LBP more than 30 days (figure 2)*

Prevalence of LBP30 was 15.4% (95% CI = [14.4 – 16.4%]) for men and 18.9% (95% CI = [17.9 – 19.8%]) for women, with a significant difference between the sexes at a p-level 0.05; A relation with age was observed; for men, prevalence increased from 12.6% for ages 30 to 44 years to 16.8% for ages 45 to 54 years and 19.7% for ages 55 to 64 years. Among women, the prevalence was 16.4%, 20.6% and 21.9%, respectively.

For both sexes, prevalence for ages 30 to 44 years was significantly lower than that for the two older age groups.

### 3.3. Chronic LBP

Frequency of chronic LBP according to sex and age, from the Handicap, Disability and Dependence survey, is in figure 3. Details on those results can be found elsewhere [30]. Chronic LBP was higher for men than women in the 55-64 age bracket. [OK TO ADD? OUI]

## 4. Discussion

We used three different definitions in our analysis of the prevalence of LBP in the population in France. We decided not to use another definition, lifelong prevalence, which has been used in the past [2,7] but less so in more recent surveys, because recall bias is expected for a period longer than one year, and because this definition can be considered unprecise, since it includes various durations and levels of impairment.

We provide the prevalence of LBP for the general population in France for the first time. Previous estimates for the same age group were from samples that excluded some categories: subjects not working (e.g., housewives) or self-employed. National population-based surveys provide fairly accurate estimates for the entire population, taking into account weights specific for the survey sample. In addition, INSEE, the national body in charge of the census, is widely known in the population, which implies a high response rate.

For the study of LBP in the National Health Survey, some subjects were excluded. The consequences of these exclusions could not be corrected by weightings. Two small subgroups, those unable to complete a questionnaire alone and those with too much missing data, differed from the rest of the sample. Those who did not complete the questionnaire were close to the rest of the sample in age and sex but their level of education was slightly lower, which could slightly underestimate the LBP prevalence.

The LBP questionnaire in the National Health Survey was a French version of the Nordic questionnaire [9]. This questionnaire is well adapted to comparisons between populations, since it has been used in several countries and also widely in France. Self-assessment of LBP is a usual approach, especially in population surveys. Other approaches, especially imaging, are not recommended for epidemiologic surveys, because of feasibility and because the relation between symptoms and imaging is rather weak [6]. An alternative would be a standardized clinical examination. However, a clinical examination would not give much more information than a self-administered questionnaire, since, for

about 85% of subjects with back pain, no precise diagnosis can be given [6]. Very few studies on LBP in the general population have included a standardized clinical examination. An exception in Europe is Finland, where the national Mini-Finland Health Survey, conducted in 1978-1980, included a clinical examination [8,17].

The study design of the Handicap, Disability and Dependence Survey was similar to that of other national studies on disability [11, 4]. Cases of chronic LBP were defined from the subject's own description of their health problems [11]. This approach was preferred to a definition based on coding of diseases by external evaluators, since their coding tended to be too precise about the origin of the pain, whereas the "causes" of back pain remain most often unknown [6].

### **Comparisons with prevalence in other studies**

Prevalence of LBP at least one day in the previous 12 months in the French National Health Survey was close to 55%, which is similar to prevalence from other surveys in Europe involving the same questionnaire or a similar questionnaire. For example, the corresponding prevalence in a Danish study focusing on subjects aged 30-50 years was 54% [10].

In a study in the United Kingdom, the prevalence was 39%, lower than that in our survey [14]. The difference could be due to the reference period being one month rather than one year. In another study, in Greece, the reference period was also one month, and prevalence was 32% [18].

Among the volunteers of the GAZEL French cohort, prevalence was 57% with the definition for LBP of one year [16]. The prevalence we found with the national survey is close to that found in a sample of salaried employees in the Paris region, also with a higher prevalence among women [1].

In our study, prevalence of LBP1 was not associated with age. This finding is in accordance with results from other studies, with the same definition for LBP [10, 16].

Prevalence of LBP more than 30 days in the previous 12 months was 15.4% among men and 18.9% among women. In a study in France of salaried workers in specific occupational sectors, the corresponding figures were similar, 15.5% for men and 18.8% for women, despite the reference period of 6 months instead of 12 [13].

In the National Health Survey, the prevalence of LBP30 increased with age, as in the French study mentioned above [13]. An increase of prevalence with age was also found in the French ESTEV survey [5].

Comparing the prevalence of chronic LBP from the Handicap, Disability and Dependence Survey and other surveys is difficult, because definitions are not exactly comparable. Differences in results might be explained by differences in the methods used for defining LBP [4, 15, 10].

This is the first time the Nordic questionnaire was used in France in a national population survey. This questionnaire is simple to use and well adapted for comparisons between populations. However, it is not sensitive to quantify the

level of severity or functional limitations of LBP. For studies in which these dimensions are important, especially longitudinal studies focusing on changes over time, other tools would be more appropriate, such as scales quantifying the level of pain or specific questionnaires [3].

## **5. Conclusion**

The estimates for prevalence of LBP in the previous 12 months of at least one day, more than 30 days, and chronic LBP were 55%, 18% and 8%, respectively, for the French population aged 30 to 64 years.

Those estimates are similar to those from studies in other countries, despite the specificities of the French context, such as the health insurance system. The results from the National Health Survey emphasize the advantage of using standardized questionnaires for LBP. The estimates given here can be used as a reference for surveys in specific French populations, provided that comparable methodologies are used.

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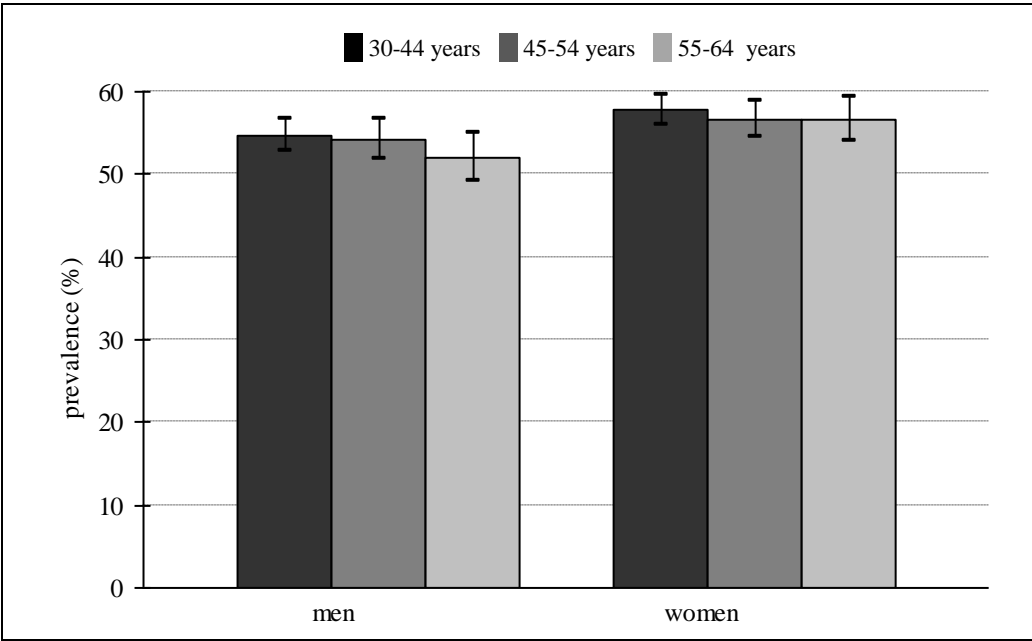


Figure 1. Prevalence of LBP at least one day in the previous 12 months, according to sex and age.

Source: National Health survey 2002-2003.

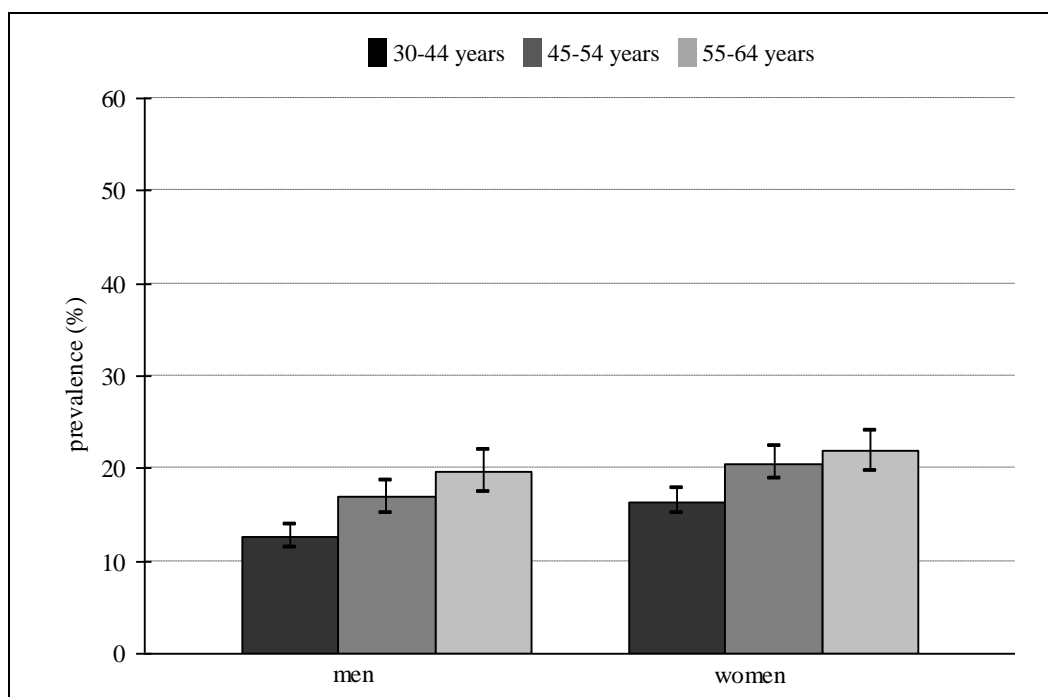


Figure 2. Prevalence of LBP more than 30 days in the previous 12 months, according to sex and age.

*Source: National Health survey 2002-2003.*

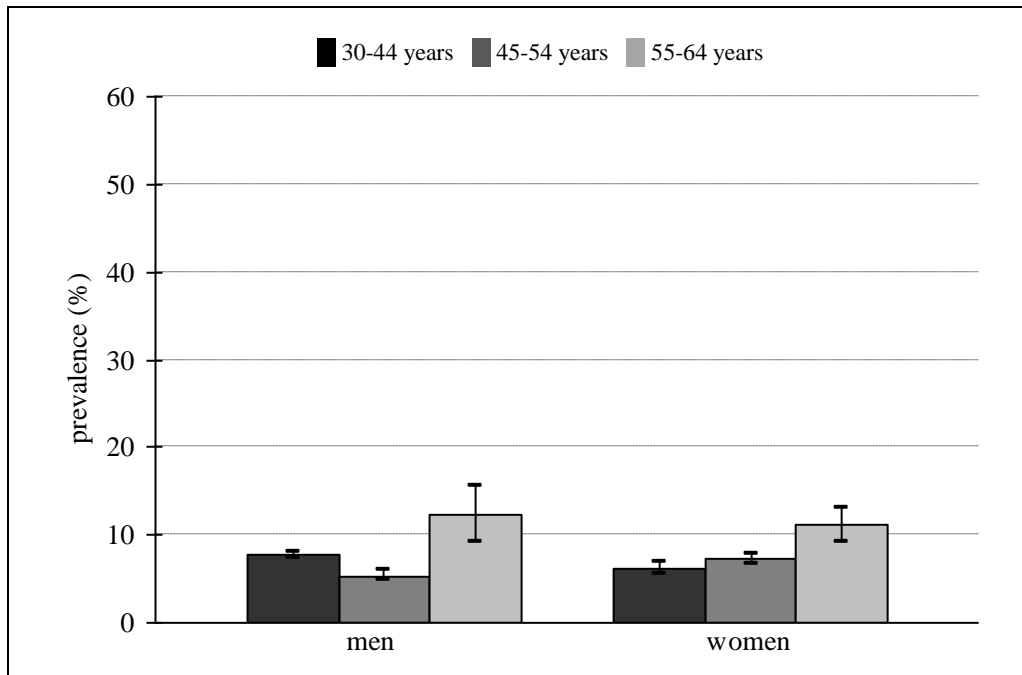


Figure 3. Prevalence of chronic LBP, according to sex and age.  
 Source: National survey on Handicap, Disability and Dependence 1999.