## EXTENDED REPORT

# Disability in adults with hip and knee arthroplasty: a French national community based survey

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**Objectives:** To compare levels of disability of people with and without hip and knee arthroplasty in a random national sample.

**Methods:** In 1999 a screening questionnaire to classify people into groups of increasing probabilities of disability was sent to 417 500 people; response rate 86%. The study population was obtained by a stratified randomisation, with a high sampling rate for the most severely disabled group and a minimum sampling rate for people without daily living restrictions. A computer assisted interview to assess levels of disability, dependence, and handicap was given to 21 760 people; response rate 78%. A weighting factor was applied to obtain estimates representative of the French population. The presence of chronic conditions, impairments, and disability was ascertained from the subjects' reports.

**Results:** The hip and knee arthroplasty group comprised 815 subjects in the sample, indicating an estimated 691 000 subjects (95% confidence interval (CI) 597 000 to 785 000) in the French non-institutionalised population. The prevalence of arthroplasty is estimated at 1.2%. After adjustments for confounding factors, activity limitations were greater among subjects with arthroplasty for the following activities: climbing stairs (odds ratio (OR)=4.0, 95% CI 2.8 to 5.8); walking distance (OR=3.4, 95% CI 2.5 to 4.6 for a walking distance less than 500 m); bending forward (OR=3.2, 95% CI 2.2 to 4.7); cutting toenails (OR=2.8, 95% CI 1.9 to 3.9); carrying (OR=2.6, 95% CI= 1.8 to 3.8); shopping (OR=2.1, 95% CI 1.5 to 2.9).

**Conclusions:** This study would be useful to policy-makers considering population strategies for managing disabling arthritis.

Our societies have to prepare themselves for an aging world. Hence, disability is becoming an important component in a population based survey in order to define public health strategies. Arthritis (mainly osteoarthritis) is the most commonly reported cause of disability.[1–4]

Total joint replacement is a widely performed treatment to reduce disability. Because of an aging population, the high prevalence of arthritis among the elderly, and prosthetic advancements, the demand for lower limb arthroplasty has been increasing.[5] In the United States, total knee replacement increased by 90% and total hip replacement by 16% between 1990 and 1996.[5] The projections for 2030, based on future changes in the population's age profile and assuming that no new treatment is introduced, will result in an increase of about 85% in total knee replacements and 80% in total hip replacements.[5]

Extensive clinical evidence supports a high surgical success of lower limb arthroplasty. Trials have shown good clinical outcomes for postoperative complications, mortality, and revision rate.[6–12] Lower limb arthroplasty has also been shown to be effective for pain relief and an increase in physical functions, with more than 90% of good or very good results for hip replacements and 80–90% for knee replacements.[6 10 11 13 14] More recently, the health related quality of life has been assessed and was shown to improve after arthroplasty.[15–19] These studies comparing the level of disability before and after the operation have demonstrated clearly that arthroplasty does improve disability.

However, as far as we know, no report involving a national representative sample has compared the levels of disability in subjects who have undergone lower limb arthroplasty with disability in the general population after adjusting for confounding factors. To help define healthcare policy in France, a national population based survey was performed in

households to assess levels of disability, dependence, and handicap. In the following study we analyse data of the national Handicap, Disability, Dependence Survey to describe and compare levels of disability in people with and without hip and knee arthroplasty.

## MATERIALS AND METHODS
### Study design

The data which constitute the basis of this report were collected from the Handicap, Disability, Dependence Survey made by the French National Institute of Statistics and Economic Studies (INSEE) between November 1999 and January 2000. This survey's methodology is described in detail elsewhere.[20] Briefly, the survey aimed at describing disability and handicaps in France. The target population included residents in all French households (57.4 millions). A two stage method was used according to United Nations recommendations[21] (fig 1). For the first stage, a representative sample of census districts (about 600 inhabitants per district) was selected. Along with the standard forms of the 1999 French population census, enumerators in these districts gave households an additional questionnaire concerning daily life and health. This screening questionnaire, comprising 18 sections, enabled classification of people into six groups of growing probability of disability. This first phase concerned approximately 417 500 subjects and had an 86% response rate.

For the second stage, a stratified randomisation with a high sampling rate for the most severely disabled group and a minimum sampling rate for people without daily living restrictions (the largest group) was performed to constitute the selected population. Each of the resulting groups were allocated a specific sampling coefficient which increased with the probability or severity of the presumed handicap. This
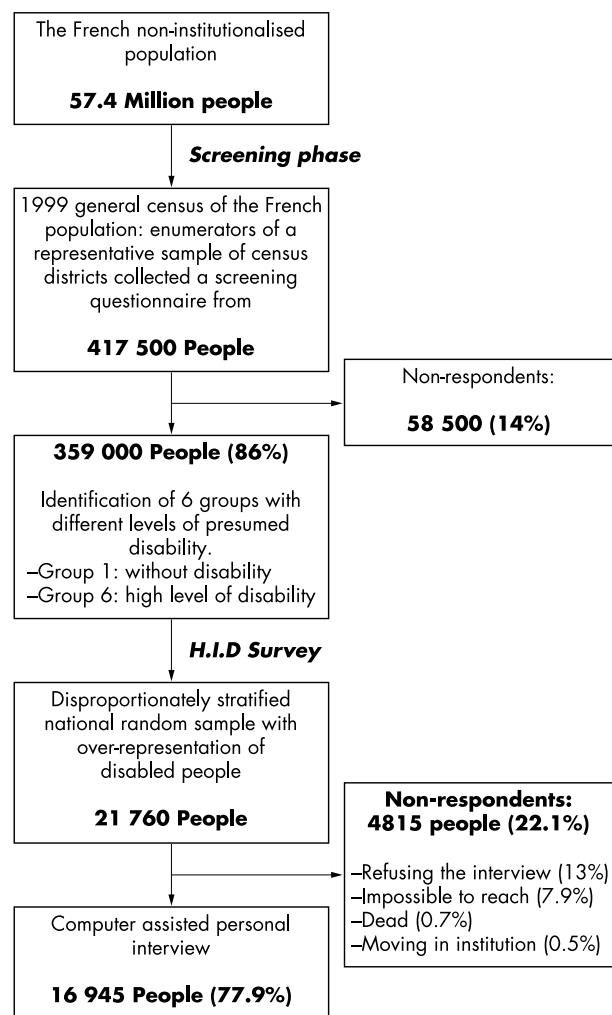
**Figure 1** The Handicap, Disability, Dependence Survey design.

design allowed weighting of the data to estimate representative results nationally. Computer assisted personal interviews (CAPI method) were conducted by 442 trained interviewers at the subjects' homes. The computer assisted personal interviews allowed interviews tailored to the individual. For example, if the participant answered that he was retired, the entire section on working conditions was excluded from the interview. Therefore, the length of the interview was limited and interviewers' work facilitated. Moreover, this method limits data capture errors. Successful interviews were obtained for 16 945 subjects of the 21 760 potential respondents (77.9%). Figure 1 shows the reasons for no response. The sample on which this analysis is based is the final sample of 16 945 people representative of the French population living at home.

## Chronic conditions

The presence of chronic conditions and impairments was ascertained in two different stages from the subjects' reports. At the beginning of the interview, the respondents were asked: "In your daily life do you have any physical, sensorial, intellectual, or mental difficulties (resulting from an accident, a chronic disease, a problem at birth, a disability, aging)?"; if the response was "yes" two additional questions were asked: "What kind of difficulties, impairments, or other health problems?" and "Can you specify the origin of every problem you have just mentioned?". During the second stage, subjects were interviewed about their difficulty in performing certain tasks. When difficulty was reported for a specific task, the subject

was asked to indicate the cause of the difficulty. If the cause was not previously mentioned in the health disorders, a new line was added. Seventy six per cent of the chronic conditions and impairments were identified during the first stage and only 24% during the second stage. Finally, because comorbid conditions were handled from the subjects' reports, they were equally weighted.

## Disability status

Disability was assessed on the basis of the subjects' reports. Disability instruments developed in gerontology research and used in community surveys focusing on disability were used to develop this questionnaire.[22-24] Respondents were asked about the degree of difficulty or the need for help in five defined areas: activities involving personal care (washing, dressing, cutting toenails, ability to hold an object, cutting food, filling a glass, eating, using the toilet, control of bladder, and bowel movements), mobility (going outside, getting out of a bed or a chair, climbing stairs, bending forward, walking distance), housekeeping (shopping, carrying, housework, meal preparation), cognitive ability (ability to remember something, orientation, ability to complete a form, ability to take medication), and sensorial ability (visual, hearing, and talking). For each activity, subjects were defined as disabled if they reported "some difficulty" in performing it. The complete questionnaire can be obtained at the following address: http://rfr-handicap.inserm.fr/hidenquete/FTP/que99_a.pdf.

## Definition of the study group

The hip or knee arthroplasty group was identified by the following procedure. Firstly, all subjects reporting "prosthesis" as a cause of difficulty were selected. For these subjects the interview data were re-examined by one of us (IB) to exclude subjects with another prosthesis (for example, upper limb prosthesis, ankle prosthesis, amputation, eye prosthesis, ear prosthesis), subjects with severe neurological conditions interfering with mobility (for example, hemiplegia, Parkinson's disease, paraplegia, tetraplegia, multiple sclerosis), and subjects for whom the investigator could not be sure whether or not they had knee or hip arthroplasty (undetermined group). During this first stage, subjects whose difficulties were caused by lower limb arthroplasty were identified. Secondly, subjects not reporting "prosthesis" as a cause of their difficulty in daily living but responding "yes" to both questions: "Do you have a prosthesis replacing a part of your body? Is it a lower limb prosthesis?", were selected. For these subjects the interview data were also re-examined to exclude subjects with another prosthesis (for example, ankle prosthesis, amputation), subjects with severe neurological conditions interfering with mobility (for example, hemiplegia, Parkinson's disease, paraplegia, tetraplegia, multiple sclerosis), and subjects for whom the investigator could not be sure whether or not they had knee or hip arthroplasty (undetermined group). This second stage allows the identification of subjects with lower limb arthroplasty that was not a cause of their difficulty.

A random sample of 100 of these subjects was selected specifically to assess interobserver agreement in data extraction. Another investigator (SP) independently examined the interview data of these subjects to exclude those with another prosthesis, severe neurological conditions, or undetermined. The degree of agreement between the two assessors was determined with the κ coefficient.

## Statistical analysis

Because the study population was selected by a stratified randomisation, with a high sampling rate for the most severely disabled group and a minimum sampling rate for people without daily living restrictions, each of the resulting groups was allocated a specific sampling coefficient which increased with the probability or severity of presumed handicap. This design allowed weighting of the data to estimate
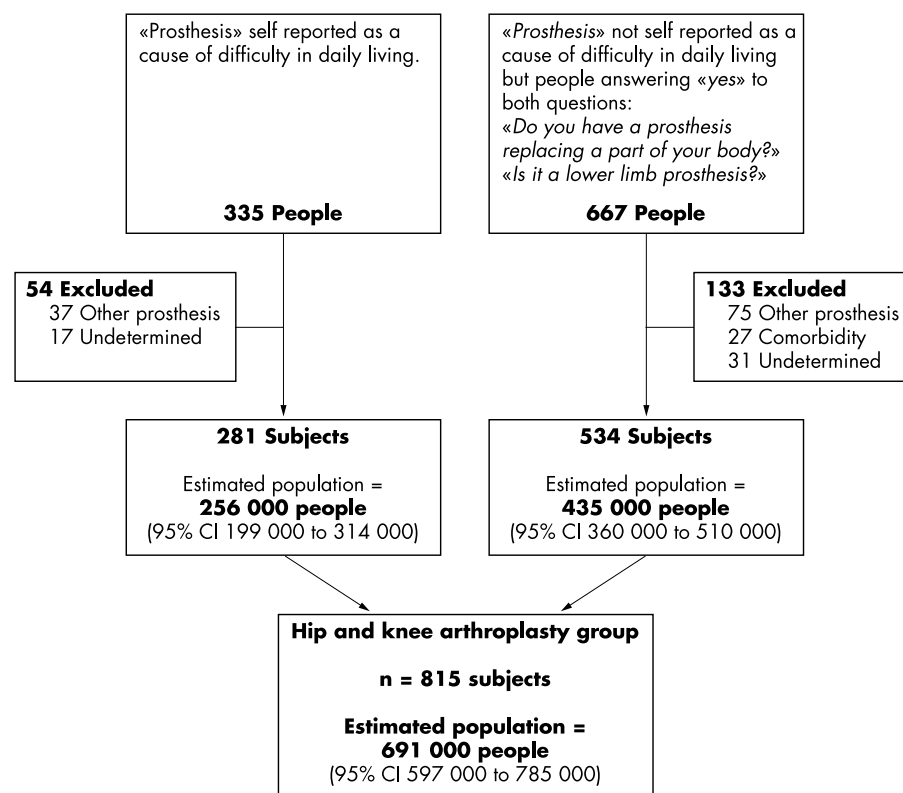
**Figure 2** Method used to identify the hip and/or knee arthroplasty group.

representative results nationally. To calculate statistical parameters, weights were rescaled so that the average weight was equal to one. These adjustments did not affect parameter estimates such as odds ratio (OR) but allowed for variance estimates to be more conservative while retaining the unequal probability of case selection.

**Table 1** Demographic and economic characteristics of the arthroplasty population (n=815)

| Characteristics | n | Estimated population (×10³) Frequency* (95% CI) | % (95% CI) |
|---|---|---|---|
| **Sex** | | | |
| Female | 497 | 426 (403 to 445) | 61.6 (58.3 to 65.0) |
| Male | 318 | 265 (242 to 288) | 38.4 (35.0 to 41.8) |
| **Age (years)** | | | |
| <65 | 186 | 133 (114 to 151) | 19.2 (16.5 to 21.9) |
| 65–74 | 270 | 231 (209 to 254) | 33.4 (30.2 to 36.7) |
| >75 | 359 | 327 (303 to 351) | 47.3 (43.9 to 50.7) |
| **Marital status** | | | |
| Single | 59 | 41 (30 to 52) | 5.9 (4.4 to 7.6) |
| Married | 458 | 385 (361 to 409) | 55.7 (52.3 to 59.1) |
| Widowed | 246 | 236 (213 to 259) | 34.1 (30.9 to 37.4) |
| Divorced or separated | 52 | 28 (19 to 37) | 4.0 (2.7 to 5.5) |
| **Annual family income (€)** | | | |
| <9055 | 165 | 152 (132 to 172) | 22.0 (19.2 to 24.9) |
| 9055 to <19207 | 369 | 293 (270 to 316) | 42.4 (39.1 to 45.8) |
| 19207 to <23780 | 75 | 91 (75 to 107) | 13.2 (10.8 to 15.5) |
| >23780 | 152 | 109 (92 to 126) | 15.8 (13.2 to 18.2) |
| Other (do not know, refused to answer) | 54 | 46 (34 to 58) | 6.7 (4.9 to 8.3) |
| **Education level** | | | |
| No schooling | 20 | 16 (9 to 23) | 2.3 (1.3 to 3.4) |
| Primary school | 621 | 549 (530 to 570) | 79.4 (76.6 to 82.2) |
| Comprehensive school/junior high school | 85 | 58 (45 to 71) | 8.4 (6.5 to 10.3) |
| High school A level and above | 70 | 58 (45 to 71) | 8.4 (6.5 to 10.3) |
| Other (do not know, refused to answer) | 19 | 10 (4 to 16) | 1.4 (0.6 to 2.2) |
| **Employment status** | | | |
| Employed | 54 | 69 (55 to 83) | 10.0 (8.0 to 12.1) |
| Unemployed | 8 | 3 (0 to 6) | 0.4 (0.0 to 1.0) |
| Retired | 630 | 538 (518 to 558) | 77.9 (75.0 to 80.8) |
| Housewife, other homemaker | 122 | 79 (64 to 94) | 11.4 (9.3 to 13.7) |
| Other (do not know, refused to answer) | 1 | 1 (−1 to 3) | 0.1 (−0.1 to 0.3) |

*Data are rounded to the nearest thousand; group totals vary slightly owing to rounding error.
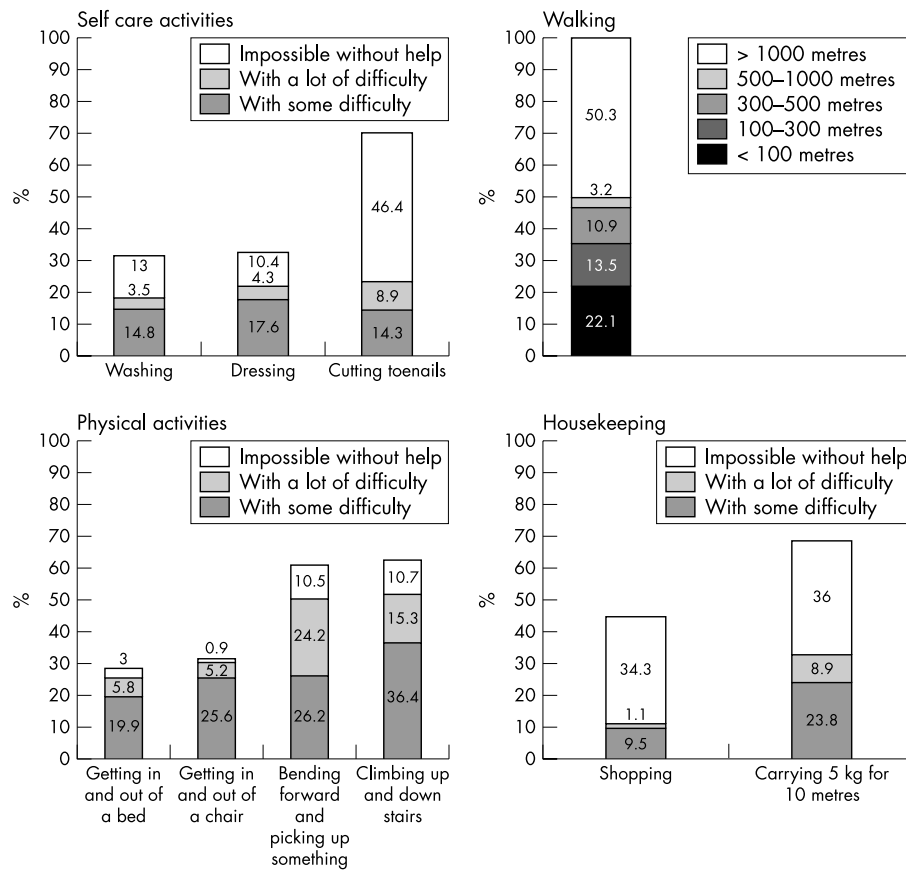
**Figure 3** Percentage of subjects in the arthroplasty population with self reported disability in various activities.

Descriptive statistics included means with standard deviation and proportions. OR and 95% confidence interval (CI) for the association of disability in patients with arthroplasty compared with the other participants, were estimated from a multiple logistic regression equation adjusted for sex and age, then for sex, age, and the number of chronic conditions. Separate models were created for each activity of daily living. All data analyses were performed using the statistical analysis system version 8.2.

## RESULTS

### Identification of the arthroplasty group

Figure 2 describes the way in which the hip and knee arthroplasty population was identified. The degree of agreement between the two assessors was good ($\kappa=0.77$). Eight hundred and fifteen subjects were identified as having a lower limb prosthesis, representing an estimated 691 000 subjects (95% CI 597 000 to 785 000) in the French non-institutionalised population. The prevalence of hip and knee arthroplasty is estimated at 1.2% (95% CI 1.0 to 1.4) of this population.

### Demographic and economic characteristics of the arthroplasty group

Table 1 provides the demographic and economic characteristics of the arthroplasty population. Mean age was 71.5 years (SD 11.7; minimum 26 years, maximum 98 years). The prevalence of arthroplasty increased with age from 0.3% (95% CI 0.2 to 0.4) before age 65 to 8.6% (95% CI 7.8 to 9.5) after age 75. Women represented 61.0% (95% CI 58.3 to 65.0), their proportion increasing with age from 34% (95% CI 27.2 to 40.9) before 65 years to 69.0% (95% CI 64.2 to 73.8) after 75 years). Most participants (77.3% (95% CI 75.0 to 80.8)) were retired and had a low family income (65.5% (95% CI 61.2 to 67.8)

having less than 19 207 euros/year). Education level was low, primary school being the highest education level for 78.7% (95% CI 76.6 to 82.2).

### Self reported health of the arthroplasty group

Only 33.5% (95% CI 30.1 to 36.8) reported good or very good health; 39.5% (95% CI 36.0 to 43.0), 18.4% (95% CI 15.6 to 21.1), and 8.6% (95% CI 6.6 to 10.6) reported fair, poor, and very poor health respectively. This population reported a median of three chronic conditions per person (range 0–11). At least two chronic conditions were reported by 81.2% (95% CI 78.4 to 83.9) of the arthroplasty population.

### Disability status in the arthroplasty group

Figure 3 shows the prevalence of the most common activity limitations. These limitations were mainly in the areas of self care and physical activities. More than 30% of the population reported difficulties in dressing (32.3%; 95% CI 29.0 to 35.5) and washing (31.4%; 95% CI 28.2 to 34.6), and 69.8% (95% CI 66.7 to 73.0) in cutting toenails. Walking distance was limited. Fifty per cent (95% CI 46.9 to 53.8) of this group could not walk more than 1000 m, 22.1% (95% CI 19.2 to 24.9) walked less than 100 m. Ninety four per cent (95% CI 92.0 to 95.3) could go outside, but 25.3% (95% CI 22.2 to 28.5) needed help to walk around outside. One third of this population reported difficulty in getting out of a bed (28.8%; 95% CI 27.7 to 31.9) or a chair (31.9%; 95% CI 28.7 to 35.1). Sixty one per cent (95% CI 57.6 to 64.3) had difficulty in bending forward to pick up something and 62.4% (95% CI 59.1 to 65.8) had difficulty climbing up and down stairs. Forty five per cent (95% CI 41.6 to 48.4) reported difficulty in going shopping, with 34.3% (95% CI 31.1 to 37.6) needing help, and 68.8% (95% CI 65.6 to 72.0) had difficulty in carrying 5 kg for 10 m, with 36% (95% CI 32.7 to 39.3) needing help.

**Table 2** Probability of disability according to domains, for the hip and knee arthroplasty group compared with the other participants* (OR and 95% confidence interval)

| Domains of disability | Adjusted for age and sex | | Adjusted for age, sex, and number of chronic conditions | |
|---|---|---|---|---|
| | OR | 95% CI | OR | 95% CI |
| **Self care difficulties** | | | | |
| Washing | **2.7** | 2.0 to 3.7 | **1.6** | 1.2 to 2.3 |
| Dressing | **2.7** | 1.9 to 3.7 | **1.6** | 1.1 to 2.2 |
| Cutting toenails | **4.8** | 3.4 to 6.6 | **2.8** | 1.9 to 3.9 |
| Holding ability | **1.7** | 1.2 to 2.4 | 1.0 | 0.7 to 1.5 |
| Cutting food | **1.8** | 1.1 to 2.9 | 1.0 | 0.6 to 1.7 |
| Filling a glass | 1.4 | 0.8 to 2.3 | 0.8 | 0.5 to 1.4 |
| Eating | 1.4 | 0.7 to 2.6 | 0.8 | 0.4 to 1.5 |
| Using the toilet | **2.5** | 1.6 to 3.9 | 1.6 | 1.0 to 2.6 |
| Control of bladder and bowel movements | **1.9** | 1.2 to 2.8 | 1.1 | 0.7 to 1.7 |
| **Mobility difficulties** | | | | |
| Going outside | 1.1 | 0.6 to 2.1 | 0.8 | 0.4 to 1.5 |
| Getting around outside with no help | **2.9** | 2.1 to 4.2 | **1.8** | 1.2 to 2.6 |
| Getting in and out of a bed | **2.1** | 1.5 to 2.9 | 1.2 | 0.8 to 1.7 |
| Getting in and out of a chair | **3.0** | 2.2 to 4.2 | **1.9** | 1.4 to 2.8 |
| Climbing up and down stairs | **6.3** | 4.5 to 8.8 | **4.0** | 2.8 to 5.8 |
| Bending forward and picking up something | **5.4** | 3.8 to 7.5 | **3.2** | 2.2 to 4.7 |
| **Walking distance limitation** | | | | |
| ≤100 m | **5.1** | 3.6 to 7.2 | **2.8** | 2.0 to 4.1 |
| ≤300 m | **6.0** | 4.4 to 8.1 | **3.6** | 2.6 to 5.0 |
| ≤500 m | **5.4** | 4.1 to 7.2 | **3.4** | 2.5 to 4.6 |
| <1 km | **5.3** | 4.0 to 7.1 | **3.4** | 2.5 to 4.6 |
| **Housekeeping** | | | | |
| Shopping | **3.5** | 2.6 to 4.7 | **2.1** | 1.5 to 2.9 |
| Carrying 5 kg for 10 m | **4.7** | 3.4 to 6.6 | **2.6** | 1.8 to 3.8 |
| Housework | **2.5** | 1.9 to 3.4 | **1.4** | 1.0 to 1.9 |
| Meal preparation | **1.7** | 1.2 to 2.5 | 1.0 | 0.7 to 1.5 |
| **Cognitive activities** | | | | |
| Remembering the moment of the day | 1.2 | 0.7 to 2.0 | 0.6 | 0.4 to 1.1 |
| Orientation | 1.4 | 0.8 to 2.3 | 0.8 | 0.4 to 1.4 |
| Completing a form | 1.2 | 0.9 to 1.8 | 0.7 | 0.5 to 1.0 |
| Taking medication | 1.2 | 0.7 to 2.0 | 0.7 | 0.4 to 1.2 |
| **Sensory disabilities** | | | | |
| Visual difficulty | 1.1 | 0.7 to 1.9 | 0.7 | 0.4 to 1.1 |
| Hearing a conversation | 1.3 | 0.4 to 3.9 | 0.9 | 0.3 to 2.8 |
| Talking | 1.6 | 0.7 to 3.8 | 0.5 | 0.2 to 1.3 |
| **Health status** | | | | |
| Having fair, poor or very poor self reported health | **2.4** | 1.8 to 3.3 | 1.1 | 0.8 to 1.6 |
| **Number of chronic conditions** | | | | |
| ≤2 | **5.0** | 3.4 to 7.2 | | |

*Significant OR are shown in bold.

## Comparison with the general population

After adjustments for age and sex, activity limitations were greater among subjects with arthroplasty than those without arthroplasty (table 2). These limitations mainly concerned specific activities commonly affected in musculoskeletal diseases such as self care activities, physical activities, and housekeeping tasks. The arthroplasty population had worse self reported health (OR=2.4, 95% CI 1.8 to 3.3) and were more likely to report more chronic conditions (OR=5.0, 95% CI 3.4 to 7.2) (table 2). In addition, the arthroplasty population had a lower income than the remaining participants (OR=1.94, 95% CI 1.42 to 2.66).

Because there is an increasing risk of difficulty with life's daily activities as the number of chronic conditions increases, the analysis was also performed after making adjustments for the number of chronic conditions, which were equally weighted.[24] Having made these adjustments, there was no difference between the two groups concerning the income level, self reported health, disability involving upper extremity activities (cutting food, meal preparation, ability to hold an object) and for some unspecific activities (using the toilet, controlling the bladder and bowels). The tasks most likely to be reported by the arthroplasty group compared with the other participants as being difficult were physical activities involving hip and knee functions: climbing up and down stairs (OR=4.0, 95% CI 2.8 to 5.8), walking distance (OR=3.4, 95% CI 2.5 to 4.6) for a walking distance less than 500 m), bending forward (OR=3.2, 95% CI 2.2 to 4.7), cutting toenails (OR=2.8, 95% CI 1.9 to 3.9), and housekeeping activities: carrying (OR=2.6 95% CI 1.8 to 3.8) and shopping (OR=2.1, 95% CI 1.5 to 2.9).

## DISCUSSION

To the best of our knowledge, this is the first time that disabilities of adults with hip and knee arthroplasty have been described on a national random sample and compared with the general population. Most previous studies have compared the level of disability before and after operation and have demonstrated clearly that arthroplasty does improve the level of disability. This study provided a complementary approach and showed that despite this improvement, subjects with hip and knee arthroplasty reported a higher level of disability than the general population after making adjustments for age, sex, and the number of chronic conditions.

Total joint arthroplasty has previously been assessed in longitudinal clinical trials and national registers. Longitudinal clinical trials have shown improvements in pain, functional abilities, and health related quality of life after surgery.[10 11 13 14 16 17 25 26]

National registers, developed in Scandinavia, are aimed at identifying risk factors of poor outcome, related to the patient, to the implant, and to the surgical technique.[13 27 28] The end point of failure is revision, and the purpose of these registers is not to provide information about pain, function, and the health related quality of life of the unrevised patients.

In contrast with the longitudinal studies and national registers, the purpose of this study was not to assess the hip or knee arthroplasty outcomes, but rather to provide detailed descriptions of the disabilities of this population in a national representative sample and to compare them with the general population. In fact, subjects included in the arthroplasty group were not selected and were representative of all the patients with hip and knee arthroplasty in France. Moreover, the disabilities were described from the patients' perspective. These results point out that the lower limb function is altered in this population in comparison with the general population. However, in this study, disability probably can be explained in part by the underlying chronic conditions and we were unable to tease out the chronic conditions from that of the prosthesis.

These findings are supported by other studies showing that although joint replacement results in major improvements, the health related quality of life after hip and knee arthroplasty is less than reported by the general population.[26 29] In a prospective study Rissanen *et al* reported major improvement in pain, physical mobility, and the health related quality of life after hip and knee arthroplasty, but two years after surgery only 36% had no problems in walking, and 31% had no problems in negotiating stairs. In 20.1% of the total number with hip arthroplasty and 31.2% of the total number with knee arthroplasty,[30] the perceived physical ability was poor. Nilsdotter *et al* found that the physical function score of the Short Form-36 (SF-36) scale increased at six and 12 months postoperatively where they did not differ from a reference group matched for age and sex. However, this comparison is limited to 12 months postoperatively and this score might decrease with time.[31]

As our purpose was to delimitate an unselected arthroplasty group representative of the arthroplasty population living at home, different biases must be discussed. In fact, this study has the usual limitations of descriptive surveys based on self reported chronic conditions. Identification of the arthroplasty group can be difficult if the questions used to solicit the self reported chronic conditions are misunderstood. In our analysis, we cannot exclude the possibility that the questions asked of arthroplasty recipients are biased towards finding patients with problems. The first question ("prosthesis self reported as a cause of difficulty") identifies prosthesis recipients who assigned their difficulties with daily living to their prosthesis. This is why we chose to ask two questions to identify the arthroplasty population. The second question used to identify prosthesis recipients " Do you have a prosthesis replacing a part of your body?" and if yes, "Is it a lower limb prosthesis?" could not identify all remaining prosthesis recipients. Nevertheless, the first question, identifying prosthesis recipients with problems, represented 37% of all selected prosthesis recipients. Moreover, the study group represented 691 000 subjects, which is consistent with the data of a survey performed in France identifying an estimated 820 000 people with hip or knee arthroplasty.[32] Another possibility is that people treated by osteosynthesis after a hip fracture might be included in the arthroplasty group if they misunderstood the first question. However, this group was probably small as hip fractures were mentioned in the sample by only 48 people, representing 38 000 subjects in the general population. As our results are based on reports from patients, we cannot provide information about the different indications for surgery, the surgical procedures, the rehabilitation programmes, the postoperative complications, and the revision rates. Moreover, we could not distinguish between hip and knee arthroplasty and compare disability in these two groups. Several studies

conclude that the benefits for hip and knee arthroplasty[16] are the same, but others provide evidence that after knee replacement there is less and slower improvement.[17 26 30 33] Finally, this analysis was performed only in the French non-institutionalised population and the prevalence of arthroplasty in France may be underestimated. However, in the French institutionalised population (660 000 subjects), an estimated 22 400 subjects have hip or knee arthroplasty (data not shown). All these limitations are counterbalanced by the fact that this descriptive survey gives detailed data on the disability of a representative sample of the whole arthroplasty population and reflects the functional status of the population with lower limb arthroplasty in France.

In conclusion, our results provide a detailed description of the disabilities of subjects with lower limb arthroplasty and should be useful to policy makers considering population strategies for managing disabling arthritis. This study suggests that other studies are needed to understand the determinant of lower limb disability in this population.

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Conflict of interest: none.

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