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Disability and quality of life of patients with knee or hip osteoarthritis in the primary care setting and factors associated with general practitioners' indication for prosthetic replacement within 1 year[1]

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Summary

Objective: To assess disability and health-related quality of life (HRQoL) of patients with knee or hip OA in primary care and to determine factors associated with GPs' opinion that their patients will need prosthetic replacement within 1 year after the consultation.

Methods: *Design*: A cross-sectional national survey.
Setting: Primary care in France.
Participants: 1471 GPs and 4183 patients with hip or knee OA.
Measures: Pain on an 11-point numeric scale (0−10), disability on the Western Ontario and MacMaster Universities Osteoarthritis Index (WOMAC) (1−100) and Lequesne index (0−24), and quality of life on the Medical Outcomes Study 36-item Short Form (MOS SF-36; 0−100).

Results: We analyzed records of 4121 patients (2540 knee, 1581 hip OA). Patients with knee or hip OA exhibited high and similar levels of pain (5.2 ± 2.1 and 5.3 ± 2.3) and disability (Lequesne score: 12.0 ± 4.2 and 11.8 ± 4.3; WOMAC score: 45.7 ± 19.3 and 45.2 ± 17.3) The decrease in HRQoL was similar for patients with either location of the disease. GPs more often considered that their patients with hip OA would need prosthetic replacement within 1 year (28.1%) than those with knee OA (15.8%). Most factors associated with GPs' opinion were identified for both locations of disease and were related to disability and pain levels.

Conclusions: In the primary care setting, patients with knee or hip OA have similar, high disability levels and substantially low HRQoL. Patients' disability seems to play a central role in GPs' opinion of the need for their patients with either type of OA to undergo prosthetic replacement within 1 year.
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Key words: Knee, Osteoarththritis, Total joint replacement, Health-related quality of life, Survey.

Pain and physical disability, the two main symptoms of knee and hip osteoarthritis (OA), have a significant impact on health-related quality of life (HRQoL)[1]. The high prevalence of OA in elderly people and the aging of the population will lead to increased OA and, consequently, costs to treat these patients. For example, the projections for 2030, based on changes expected in the US population's age profile, foresee an increase of about 80% and 85% of total hip and knee replacements, respectively[2]. In France, the entire hospital costs in 2001 for primary joint replacement for hip and knee OA were 591 and 411 M euros, respectively[3]. Hence, to forecast public health policies, disability and HRQoL of this increasing population should be precisely assessed and integrated in treatment option decisions.

However, disability and HRQoL are not usually recorded in the primary care setting, largely because such recording is time-consuming for general practitioners (GPs). Therefore, data on disability and HRQoL for these patients are largely extracted from secondary and tertiary care settings or clinical trials, which do not always reflect "real-life" conditions[4,5]. As well, data on levels of disability and HRQoL in the general population of patients with hip and knee OA are still scarce, even in industrialized countries[6]. Moreover,

decisions about treatment are based largely on empirical data, despite the publication of guidelines[7]. Reasons for a GP to refer a patient to an orthopedic surgeon for total joint arthroplasty are not standardized[8–16] and differ among countries and even within a country[17–20]. Finally, previous reports suggest that GPs' and orthopedic surgeons' opinions about the need for total joint replacement differ[21], and reasons to propose an arthroplasty might not always be related to the patient's clinical state[22].

Although the final decision of total joint arthroplasty belongs to the surgeon, GPs' opinions of the indication for the arthroplasty largely influence patients. In France, to be totally reimbursed for medical costs, patients must consult a GP before seeing a specialist. Therefore, referral to a surgeon depends in part on a GP's opinion. Determining whether GPs' opinions are related to clinically relevant data (such as levels of pain and disability, and HRQoL) is important to try to maximize management of patients with hip and knee OA.

Our objectives were to assess disability and HRQoL in a national sample of patients with hip and knee OA in the primary care setting and to assess associations between patients' characteristics and GPs' opinions about the need to propose total joint replacement within 1 year after the consultation.

Methods

DESIGN

We conducted a cross-sectional survey among a national sample of general practitioners (GPs).

RECRUITMENT OF GPS

In June 2004, we invited 2300 GPs selected at random from a national database according to a computerized allocation with geographic stratification to participate in the survey.

RECRUITMENT OF PATIENTS

Between September 2004 and February 2005, each GP was to enroll the first three patients consulting for knee or hip OA. Patients were included if (1) they were more than 45 years old, (2) the main motive for consulting was knee or hip OA defined by GPs, and (3) they had radiographic evidence of hip or knee OA. Patients were excluded if they (1) had both hip and knee OA; (2) had had surgery of the knee or hip; (3) had disabling co-morbidities; (4) were unable to understand, speak, or write French; (5) or declined to participate.

ETHICAL APPROVAL

French bioethics legislation does not require consent from the hospital ethics committee for this type of survey. The survey was conducted in compliance with the protocol Good Clinical Practices and Declaration of Helsinki principles. In accordance with the French national law, GPs and patients gave their written agreement to participate after being informed of the survey protocol.

PHYSICIAN QUESTIONNAIRE

The physician self-administered questionnaire contained questions about demographics (age and sex) and professional practice (years and environment [rural/urban]). Before recording the patient's Lequesne index score (see following), the physician had to answer the question "Do you think that this patient needs or will need a total hip/knee replacement? If yes, within 1 year after this consultation?"

PATIENT QUESTIONNAIRE

For each patient, the GP recorded the following: demographic data (age, sex, sports activities [none, mild, intense]); main motive for consulting (treatment renewal, OA flare-up, OA diagnosis); clinical data (weight, height, body mass index, disease duration, OA location [hip/knee/one or both sides], other OA location [spine, hands, feet], OA clinical symptoms [pain, stiffness, joint swelling (yes/no)], number of days with pain during the previous month, number of days with disability [defined as difficulty performing daily tasks (home, work, leisure, social)] during the previous month); treatments for OA; cardiovascular, gastrointestinal, and mental (depression) co-morbidities; and Lequesne index score[23].

Before including patients, GPs received a letter explaining how to complete these two questionnaires.

The patient self-administered questionnaire concerned family situation (living alone, with a partner, with family, in an institution), housing (apartment, house, presence of an elevator, rural/urban area, moved because of OA, house adaptation because of OA), educational level (primary school, high school, post-graduate), work situation (retired, working, not working, unemployed, disabled status), pain (on an 11-point numeric scale, from 0, no pain, to 10, maximal pain), patients' perceived disability (on a 6-point Likert scale, from not at all, to unbearable), functional status (on the function subscale of the Western Ontario and MacMaster Universities Osteoarthritis Index [WOMAC] for hip[24] and modified WOMAC for knee[25,26], from 0, no disability, to 100, maximal disability), and HRQoL (on the Medical Outcomes Study 36-item Short Form [SF-36])[27]. This questionnaire was completed by the patient alone after consultation with the GP and supervised by the GP to avoid missing data.

STATISTICAL ANALYSIS

Data analysis involved use of SAS 8.2 software (SAS institute Inc, Cary, NC, USA). Quantitative variables are described with means ± standard deviations (SD) and qualitative variables with raw data and percentages. In univariate analysis, means were compared with use of the Wilcoxon rank sum test and percentages were compared with use of the χ^2 test. A P value < 0.05 was considered statistically significant.

Severity thresholds for the Lequesne index and the WOMAC were calculated using the Youden method. For this purpose severity was defined as answering important, very important, or unbearable to the question about patients' perceived disability.

Stepwise logistic regression analysis was performed to determine whether GP's opinions about the need for their patients to undergo total hip/knee replacement within 1 year were associated with patients' or GPs' characteristics selected from univariate analysis. Factors included in the multivariate analysis were those with statistically significant difference between groups ($P < 0.05$) on univariate analysis. We did not include factors without statistically significant difference but, rather, included those with $P < 0.2$ because of the high number of factors. However, factors considered clinically pertinent, such as gender, age, BMI, main reason for consulting, and OA location, were entered (forced) in the model without considering the statistical significance of the differences observed between groups on univariate analysis. Multicolinearity among the variables can hinder the interpretation of the results. A stepwise selection allowed for identifying the independently associated variables (with levels to enter and to stay in the model of $P < 0.10$ and 0.15, respectively). For each of the selected covariates, odds ratios (ORs) with 95% confidence intervals (CIs) were calculated.

An internal validation of the model was performed using the bootstrap resampling technique[28]. The model was applied to 1000 replicated bootstrap samples. For each bootstrap sample, a stepwise logistic regression was performed with the variables entered in the analysis performed in the original sample. For each variable the frequency of being in the final model was calculated. Finally, we checked whether variables most often selected in the model were the ones selected in the original model.

Results

PHYSICIAN CHARACTERISTICS

A total of 1471 GPs (64% of GPs invited to participate) enrolled at least one patient. Mean age was 49 years old, and most physicians were male (85%) and working in a rural environment (59%). Our sample differed slightly from the general population of French GPs (national register) by involving more men (85.0% vs 71.3% in the national register) who were older (49 years vs 47 years in the national register) and probably more likely to work in a rural environment (no reliable data available because of different definitions of rural/urban). The mean number of patients included by GPs was 2.81 (95% CI: 2.78–2.84, median 3.0).

PATIENTS' DEMOGRAPHIC AND CLINICAL DATA

Patients' demographic characteristics and clinical data according to OA location are shown on Table I. Records of 4121 patients (98.7% of patients included) were analyzed (2540 knee, 1581 hip OA). Geographic location of patients followed that of the general population (Fig. 1). More than half of the patients (57%) visited their GP for treatment renewal, 40% for OA flare-up, and almost 3% for the diagnosis of OA. Patients with either knee or hip OA showed high and similar levels of pain (5.2 ± 2.1 and 5.3 ± 2.3) and disability (Lequesne index: 12.0 ± 4.2 and 11.8 ± 4.3 and WOMAC: 45.7 ± 19.3 and 45.2 ± 17.3). For hip OA, severity thresholds were 13 for the Lequesne index and 52 for the WOMAC. For knee OA, they were 12 for the Lequesne index and 49 for the WOMAC. Patients with either location of OA showed similar decreased HRQoL as compared with the French general population (SF-36 physical component score (PCS): 32.0 ± 8.4 and 31.8 ± 8.4 and mental component score (MCS): 47.1 ± 10.9 and 46.8 ± 11.1 for patients with knee and hip OA, respectively) (Table II).

DEMOGRAPHIC AND CLINICAL DATA OF PATIENTS WITH OR WITHOUT GPS' INDICATION FOR PROSTHETIC REPLACEMENT WITHIN 1 YEAR AND FACTORS ASSOCIATED WITH THE NEED FOR TOTAL JOINT REPLACEMENT

Demographic characteristics and clinical data of patients with or without GPs' indication for prosthetic replacement within 1 year according to OA location are shown in Table III. Patients with a GP's indication for prosthetic replacement within 1 year were more likely to have hip than knee OA (28.1% and 15.8%, respectively; OR: 2.1, 95% CI: 1.8−2.4) and had higher pain, disability, and decreased HRQoL levels than patients without a GP's indication (Table III). They also were more likely to have a female GP (17.4% and 14.0%, respectively, $P = 0.01$).

We also compared GPs' indication for prosthetic replacement for hip and knee OA because we wanted to know whether the factors for replacement with each OA type (for instance pain and disability) were the same and clinically relevant. Among patients with an indication for joint replacement, patients with knee OA were more likely to be female, be older, have a lower education level, have longer duration of OA symptoms, report fewer days with pain or disability during the previous month, and have a higher Lequesne score than those with hip OA, with no difference in other assessments of pain, disability and HRQoL.

On univariate analysis, as compared to patients without an indication for total hip replacement within 1 year, those with an indication more likely lived in a rural environment (as did their GP), were male, were older, had a higher body mass index and fewer physical activities, had a lower level of education and less often occupational activities, had spinal OA with more joint stiffness and more often took medication for OA, were more often depressed, had hypertension, considered their disability as important, had more days with pain and disability during the previous month, had higher scores for disability (Lequesne and WOMAC) and lower scores for HRQoL (PCS and MCS) (Fig. 1), and were less likely to have had a stroke.

As compared to patients without an indication for total knee replacement within 1 year, those with an indication more likely lived in a rural environment (as did their GP);

Table I
Demographic and clinical characteristics of patients with knee or hip OA

	Whole sample ($N = 4121$)	Knee OA ($N = 2540$)	Hip OA ($N = 1581$)
Age (mean $\pm$ SD), years	67 ± 10	67 ± 10	67 ± 10
Age > 65 years (yes)	2510 (61%)	1539 (61%)	971 (61%)
Sex (M)	1703 (42%)	994 (40%)	709 (45%)
Living situation			
Living alone	1203 (29%)	750 (30%)	453 (28%)
Living with a partner	2467 (60%)	1487 (59%)	980 (62%)
Living with family	419 (10%)	275 (11%)	144 (9%)
Living in institution	39 (1%)	25 (1%)	14 (1%)
Education level			
Primary school	2352 (57%)	1483 (59%)	869 (55%)
High school	1274 (31%)	773 (31%)	501 (32%)
Post-graduate	477 (12%)	268 (10%)	209 (13%)
Work status			
Working	749 (18%)	487 (19%)	262 (17%)
Retired	2886 (70%)	1760 (69%)	1126 (71%)
Housewife, other homemaker	357 (9%)	213 (8%)	144 (9%)
Unemployed	58 (1%)	38 (2%)	20 (1%)
Disabled status	67 (2%)	36 (2%)	31 (2%)
Environment (rural)	1678 (41%)	1044 (42%)	634 (40%)
Housing			
Moving because of OA (yes)	145 (4%)	95 (4%)	50 (3%)
House adaptation because of OA (yes)	408 (10%)	247 (10%)	161 (10%)
OA duration (mean $\pm$ SD), years	5.7 ± 4.9	5.9 ± 5.0	5.4 ± 4.8
Body mass index (kg/m^2)	27.7 ± 4.6	28.2 ± 4.8	27.0 ± 4.0
Main reason for consulting GP			
Treatment renewal	2362 (57%)	1430 (56%)	932 (59%)
OA flare-up	1650 (40%)	1034 (41%)	616 (38%)
OA diagnosis	121 (3%)	68 (3%)	43 (3%)
Sports activities			
None	2518 (61%)	1534 (61%)	984 (62%)
Occasional	1476 (36%)	922 (36%)	554 (35%)
Usual	118 (3%)	73 (3%)	45 (3%)
Medications			
Analgesics (yes)	3317 (84%)	2014 (84%)	1303 (85%)
NSAIDs (yes)	3120 (79%)	1876 (78%)	1244 (81%)
SYSADOA (yes)	1725 (44%)	1086 (45%)	639 (42%)
Pain level (mean $\pm$ SD) (0−10)	5.2 ± 2.0	5.2 ± 2.1	5.3 ± 2.3
Number of days with pain during the previous month	17.4 ± 9.1	17.2 ± 8.9	17.7 ± 9.2
Number of days with disability during the previous month	18.2 ± 9.3	18.1 ± 9.2	18.5 ± 9.4
Self-rated disability			
None	31 (1%)	18 (1%)	13 (1%)
Weak	469 (12%)	266 (11%)	203 (13%)
Moderate	1567 (39%)	957 (39%)	610 (39%)
Severe	1365 (34%)	869 (35%)	496 (32%)
Extremely severe	556 (14%)	347 (14%)	209 (14%)
Unbearable	49 (1%)	28 (1%)	21 (1%)
Lequesne score (0−24)	11.9 ± 4.3	12.0 ± 4.2	11.8 ± 4.3
WOMAC score (0−100)	45.6 ± 18.8	45.7 ± 19.3	45.2 ± 17.3

Values are number of patients (percentages); NSAID: nonsteroidal anti-inflammatory drug; SYSADOA: slow-acting drug for OA.
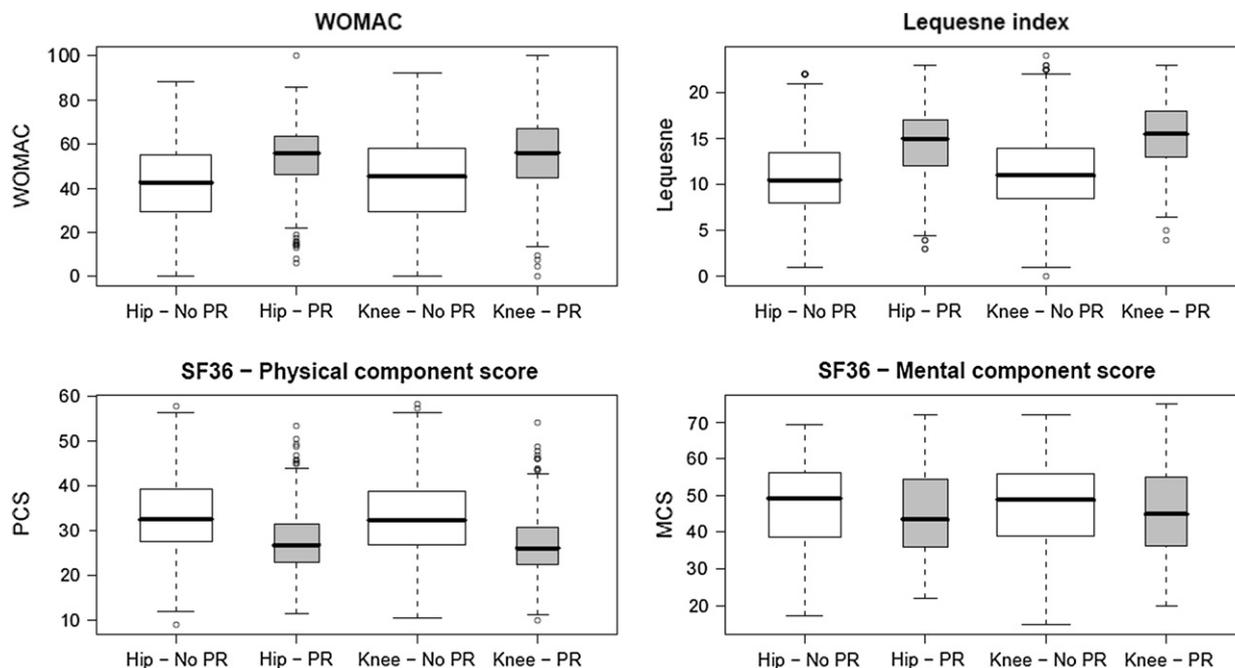
Fig. 1. Box plots (25th percentile) of disability and health-related quality-of-life scores according to OA location and indication for prosthetic replacement (PR).

had a female GP; were older; had a higher body mass index and fewer physical activities; had a lower level of education and less often occupational activities; had hand, foot and spinal OA with more joint stiffness or swelling; more often took medication for OA; had angina or infarction; had hypertension, considered their disability important; had more days with pain and disability during the previous month; had higher scores for disability (Lequesne and WOMAC) and lower scores for HRQoL (PCS and MCS) (Fig. 1); and were less likely to have had a stroke.

Results of multivariate analysis are shown in Table IV. Factors associated with an increased risk of undergoing total joint replacement were common for those with hip and knee OA and related to disability or pain levels, except for being a male, which was a risk factor for only patients with hip OA. Factors selected from the original logistic regression were those most often observed in bootstrap analysis (Table IV).

Discussion

MAIN RESULTS

Patients consulting their GPs for hip or knee OA have similar levels of pain, disability, and HRQoL. Patients' pain and disability levels seem to play a central role in GPs' opinion of the need for the patients to undergo prosthetic replacement within 1 year of consultation, regardless of location of OA.

Our results suggest that the burden of hip and knee OA in primary care is substantial and similar. We report, for the first time, similar levels of disability and low HRQoL among patients with hip or knee OA consulting in primary care. A Dutch survey conducted in primary care reported patients with hip complaints having higher levels of disability and decreased HRQoL than those with knee complaints[6]. These discrepancies may be due to differences in the population studied − more heterogeneous in the Dutch survey,

Table II
HRQoL as assessed by the SF-36 in knee and hip OA

	Whole sample (N = 4121)	Knee OA (N = 2540)	Hip OA (N = 1581)	French general population[*] (N = 3656)
Physical functioning	39.6 ± 24.5	40.0 ± 24.5	39.0 ± 24.6	83.0 ± 23.8
Physical role	31.8 ± 37.1	32.9 ± 37.5	30.1 ± 36.5	77.9 ± 35.3
Bodily pain	39.6 ± 15.7	39.6 ± 15.6	39.7 ± 15.8	70.2 ± 23.4
General health perception	48.7 ± 18.4	48.7 ± 18.3	48.6 ± 18.6	70.1 ± 21.4
Mental health	60.9 ± 18.8	61.1 ± 18.8	60.6 ± 18.9	57.0 ± 21.1
Emotional role	55.2 ± 43.0	55.8 ± 43.1	54.3 ± 42.9	83.6 ± 23.0
Vitality	51.4 ± 18.2	51.7 ± 18.2	51.4 ± 18.2	83.1 ± 23.6
Social functioning	60.5 ± 23.0	61.2 ± 22.7	59.4 ± 23.6	75.2 ± 17.6
PCS	31.9 ± 8.4	32.0 ± 8.4	31.8 ± 8.4	
MCS	47.0 ± 11.0	47.1 ± 10.9	46.8 ± 11.1	

*Leplège A, Ecosse E, Pouchot J, Coste J, Perneger T. Le questionnaire MOS SF-36: Manuel de l'utilisateur et guide d'interprétation des scores. Paris: Editions Estem, 2001, 156 pp.

Table III
Demographic and clinical characteristics of patients without and with GPs' indication for prosthetic replacement within 1 year

	No indication (whole sample) (N = 3272)	Indication (whole sample) (N = 849)	χ^2 or Wilcoxon P value (indication vs no indication)	Indication knee OA (N = 401)	Indication hip OA (N = 448)	χ^2 or Wilcoxon P value (knee vs hip)
Age (mean ± SD), years	67 ± 9	70 ± 9	0.0001	71 ± 9	68 ± 9	0.0002
Age > 65 years	1905 (53%)	605 (72%)	0.001	303 (76%)	302 (68%)	0.01
Sex (M)	1338 (41%)	365 (43%)	0.3	149 (38%)	216 (48%)	0.002
Living situation			0.027			0.86
Living alone	1957 (60%)	257 (30%)		125 (31%)	132 (29%)	
Living with a partner	946 (28%)	510 (60%)		238 (60%)	272 (61%)	
Living with family	351 (11%)	68 (8%)		30 (7%)	38 (9%)	
Living in institution	26 (1%)	13 (2%)		7 (2%)	6 (1%)	
Education level			0.001			0.01
Primary school	1815 (56%)	537 (64%)		270 (68%)	267 (60%)	
High school	1037 (32%)	237 (28%)		109 (27%)	128 (29%)	
Post-graduate	408 (12%)	69 (8%)		22 (5%)	47 (11%)	
Work status			0.001			
Work during the last year (no)	2410 (77%)	712 (87%)		342 (89%)	370 (85%)	0.18
Environment (rural)	1278 (39%)	400 (47%)	0.001	196 (49%)	204 (46%)	0.28
OA duration (mean ± SD), years	5.5 ± 5.0	6.0 ± 4.5	0.01	6.0 ± 5.0	5.5 ± 4.7	0.001
Body mass index (kg/m^2)	27.5 ± 4.3	28.1 ± 4.8	0.03	28.9 ± 5.2	27.4 ± 4.2	0.05
Main reason for consulting GP			0.06			0.51
Treatment renewal	1880 (57%)	482 (57%)		235 (59%)	247 (55%)	
OA flare-up	1299 (39%	354 (42%)		113(41%)	191 (43%)	
OA diagnosis	100 (3%)	11 (1%)		1(0%)	1 (0%)	
Sports activities			0.001			0.61
None	1938 (59%)	580 (69%)		280 (70%)	300 (67%)	
Occasional	103 (3%)	250 (29%)		113 (28%)	137 (31%)	
Usual	1226 (38%)	15 (2%)		6 (2%)	9 (2%)	
Medications						
Analgesics (yes)	2575 (78%)	742 (87%)	0.001	349 (87%)	393 (88%)	0.76
NSAIDs (yes)	2401 (73%)	719 (84%)	0.001	337 (84%)	382 (84%)	0.81
SYSADOA (yes)	1381 (42%)	344 (41%)	0.42	169 (42%)	175 (39%)	0.36
Pain level (mean ± SD) (0–10)	5.0 ± 2.0	6.3 ± 1.7	0.0001	6.4 ± 1.8	6.3 ± 1.7	0.53
Number of days with pain during the previous month	15.9 ± 8.7	23.1 ± 8.0	0.001	22.6 ± 8.1	23.7 ± 7.8	0.04
Number of days with disability during the previous month	16.7 ± 9.0	24.2 ± 7.8	0.001	23.9 ± 8.1	24.5 ± 7.7	0.04
Self-rated disability			0.001			0.262
None/weak/moderate	1849 (58%)	218 (26%)		96 (24%)	122(28%)	
Severe/extremely severe/unbearable	1355 (42%)	615 (74%)		298 (76%)	317 (72%)	
Lequesne score (0–24)	11.2 ± 4.1	14.9 ± 3.6	0.001	15.3 ± 3.5	14.5 ± 3.7	0.006
WOMAC score (0–100)	43.2 ± 18.6	54.8 ± 15.2	0.001	55.3 ± 16.3	54.3 ± 14.2	0.41
SF-36 score						
Physical functioning	43.2 ± 24.2	25.9 ± 20.7	0.0001	25.3 ± 20.2	26.5 ± 21.0	0.49
Physical role	35.1 ± 38.0	17.8 ± 29.7	0.0001	18.7 ± 30.0	17.0 ± 29.4	0.36
Bodily pain	41.7 ± 15.4	31.5 ± 13.8	0.0001	31.1 ± 14.5	31.9 ± 13.2	0.24
General health perception	49.8 ± 18.1	44.3 ± 18.7	0.0001	43.9 ± 18.6	44.7 ± 18.9	0.66
Mental health	61.9 ± 18.5	57.0 ± 19.4	0.0001	57.3 ± 19.7	56.7 ± 19.2	0.63
Emotional role	57.9 ± 47.2	44.8 ± 43.1	0.0001	45.3 ± 43.0	44.3 ± 43.3	0.71
Vitality	52.7 ± 17.9	46.0 ± 18.3	0.0001	46.2 ± 18.6	45.8 ± 18.1	0.80
Social functioning	62.8 ± 22.3	51.5 ± 23.6	0.0001	52.7 ± 23.4	50.4 ± 23.6	0.18
PCS	33.1 ± 8.4	27.5 ± 6.8	0.01	27.2 ± 6.8	27.6 ± 6.7	0.39
MCS	47.4 ± 10.8	45.2 ± 11.6	0.01	45.6 ± 11.9	44.8 ± 11.4	0.34

Values are number of patients (percentages); SYSADOA: slow-acting drug for OA; NSAID: nonsteroidal anti-inflammatory drug.

whereas we focused on a more homogenous population with hip or knee OA. As well, the inclusion criterion in the Dutch survey was new episodes of complaints but in our survey, consulting for OA.

Substantial decreases in HRQoL have been previously reported in hip and knee OA[29]. Results of a Chinese survey conducted in primary care suggested that patients perceived knee OA to be more disabling than hypertension, diabetes mellitus, and heart disease[30], whereas doctors considered the three latter conditions as the most important chronic conditions[31]. This discrepancy between how patients and doctors define the importance of an illness

Table IV

Factors associated with GPs' indication for patients to undergo total joint replacement within 1 year after consultation in multivariate analysis

Factors	Both OA locations [OR (95% CI)]	Frequency of variable selection (bootstrap analysis, 1000 sample) (%)	Hip OA [OR (95% CI)]	Frequency of variable selection (bootstrap analysis, 1000 sample) (%)	Knee OA [OR (95% CI)]	Frequency of variable selection (bootstrap analysis, 1000 sample) (%)
Lequesne score (>severity threshold)	2.40 (1.90–3.04)	100	2.62 (1.83–3.75)	100	2.36 (1.71–1.25)	100
Number of days with pain per month (10 days)	1.71 (1.43–2.04)	100	1.95 (1.50–2.55)	100	1.39(1.10–1.75)	80
Number of days with disability per month (10 days)	1.40 (1.17–1.67)	95	1.39 (1.07–1.82)	64	1.50 (1.19–1.91)	88
Patients' opinion of their disability (moderate/severe)	1.65 (1.30–2.11)	98	1.74 (1.20–2.51)	73	1.57 (1.013–2.20)	77
SF-36 PCS	0.97 (0.95–0.99	90	0.96 (0.94–0.99)	74	0.97 (0.95–0.99)	53
Rural environment	1.39 (1.13–1.70)	88	1.49 (1.09–2.04)	68	1.43 (1.09–1.87)	71
Age ≥ 65	1.43 (1.10–1.86)	79	1.51 (1.07–2.11)	46	1.87 (1.36–2.56)	87
Gender (male)	1.67 (1.35–2.06)	98	1.92 (1.39–2.65)	96	1.18 (0.71–1.47)	0
Hip OA	2.74 (2.18–3.45)	100	NA	NA	NA	NA
Treatment for OA (yes)	2.77 (1.33–5.77)	82	2.89 (0.92–9.04)	45	2.22 (0.85–5.82)	42

NA: not applicable.

associated with substantial decreases in HRQoL and the ability to perform daily activities in knee OA we and others report should lead to a paradigmal shift toward a more patient-centered approach in hip and knee OA[32].

GPs more often considered that patients with hip than knee OA would need total joint replacement within 1 year after consultation or sooner or later. GPs might believe knee replacement results in more disability than hip replacement. However, data on the comparison between hip and knee arthroplasty are inconsistent. Nevertheless, prospective studies[33–41] reported greater postoperative improvement in pain relief and physical function for subjects with hip than knee arthroplasty. However, results of a recent study suggested that the level of mobility is similar between people with recent knee arthroplasty and those with recent hip arthroplasty[42]. Moreover, people with recent knee arthroplasty reported a lower level of disability than the other group for washing and bending forward.

Therefore, that patients with knee OA whose GPs consider as needing total joint replacement within 1 year of consultation tended to be older with longer OA duration than patients with hip OA is not surprising. However, both groups had the same level of pain and low HRQoL. Concerning disability, knee and hip OA groups needing total joint replacement within 1 year differed in Lequesne score but not WOMAC or physical functioning score of the SF-36. The Lequesne score was significantly different between the groups (0.8 on a 24-point scale) but this difference is probably not clinically relevant.

Patients with knee or hip OA whose GPs considered as needing total joint replacement within 1 year had higher pain and disability levels and low HRQoL than patients without an indication for replacement, and factors associated with GPs' opinion mainly concerned pain and disability levels. Our results differ from those of a large Canadian population-based survey suggesting no significant difference in pain and function between patients with and without a recommendation for joint replacement[22]. Although severe pain and disability are probably not the only factors determining who undergoes total joint replacement[43,44] and personal meanings are probably of importance[45], GPs probably consider patients with more pain and disability to be more likely to undergo total joint replacement within 1 year.

LIMITATIONS

Although we tried to ensure a national representation of GPs, our sample differed slightly from the general population of French GPs (national register). This limitation has already been observed in previous national surveys on acute and subacute low back pain conducted in primary and secondary care settings[46,47]. Our response rate was low but was higher than that previously reported for this kind of survey in this setting in France[46]. Therefore, we cannot exclude that our patient sample differs slightly from the knee and hip OA population consulting GPs in France, and these limitations might bias the generalizability of our results. We chose radiological evidence of OA as an inclusion criterion because we wanted to maximize the probability that hip or knee pain was related with OA. By making this choice, we probably missed a few patients with a very early stage of OA.

We recorded GPs' perceptions of the need for prosthetic replacement surgery, and these statements are not actions. We cannot exclude that, outside the context of the survey, GPs may not consider referring their patient to surgeons.

We did not interview GPs about the potential influence of the health care system on their opinion for the indication of prosthetic replacement. However, France does not have waiting lists or no current health care plan for total joint replacement and the cost of the intervention for patients is minimal. Therefore, the French health care system likely has no or only a marginal influence on GPs' opinions; however, this may be one reason why our results probably cannot be generalized to other countries with more restricting health care systems.

The completion of questionnaires by the patient after their consultation with the primary care physician may have resulted in a potential bias, since the patient's responses may have been influenced by the physician's opinion of the severity of disease. We cannot exclude that this bias might result in the finding of an association between the

GP's recommendation of joint replacement surgery within a year and the patient's perceived disability.

Finally, ours is a cross-sectional study, so we do not have any data on the chronology of the occurrence of the factors investigated; therefore, we can make statements only about associations but cannot assume causation. Data from observational studies should be viewed with caution and should not be extrapolated.

In conclusion, patients with knee or hip OA in the primary care setting have similar high disability levels and substantially low HRQoL. GPs' opinion of the need for patients with either location of OA to undergo prosthetic replacement within 1 year seems to be mainly influenced by clinical considerations.

Conflict of interest

Acknowledgment

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