

Population survey comparing older adults with hip versus knee pain in primary care

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ABSTRACT

Background

Knee pain is nearly twice as prevalent as hip pain in elderly people, yet knee replacement is far less common than hip replacement.

Aim

To investigate whether systematic differences in the primary care management of hip versus knee problems might explain the disparate rates of joint replacement.

Design of study

Cross-sectional, population-based postal survey.

Setting

Random sample of 5500 Oxfordshire residents aged 65 years and above.

Method

Screening questions were used to identify symptomatic individuals: 'During the past 12 months, have you had pain in or around either of your hips/knees on most days for 1 month or longer?'. Standard (Lequesne) severity ratings were obtained for each hip and knee. Logistic regression was used to estimate odds ratios (ORs) for 'knee cases' versus 'hip cases' for selected healthcare services and attitudes toward replacement.

Results

Among 3341 responders, 212 hip cases and 612 knee cases were identified. Knee pain led to a GP consultation more often than hip pain (OR = 1.76, $P = 0.04$), but specialist referral was no more likely (OR = 0.85, $P = 0.57$). Similar percentages of hip and knee cases would agree to hip/knee replacement surgery if it was offered, but hip and knee cases differed in their views on the general success of joint replacement.

Conclusions

Some variations in primary care management for hip versus knee pain were apparent. People with hip pain were mostly positive about replacement outcomes, whereas people with knee pain were more uncertain about replacement. Attitudes appeared to be influenced by knowing someone who had undergone such surgery.

Keywords

arthroplasty; health services; hip; knee; osteoarthritis; pain.

INTRODUCTION

Hip and knee pain is a predominant cause of disability in elderly people, and can lead to a substantial deterioration in general health status.^{1,2} Chronic hip and knee pain in older adults is primarily due to osteoarthritis (OA).³ For severe symptoms of OA, joint replacement (arthroplasty) is the treatment of choice and hip and knee surgical procedures are both considered to be similarly effective.⁴

Research has shown that severe knee pain is more prevalent than hip pain — yet UK rates of primary arthroplasty are considerably higher for hips than for knees.⁵ This contrasts with countries such as the US where rates are similar,⁶ leading to the assertion that people in the UK with knee pain have comparatively unmet healthcare needs.⁴ There are several factors that may involve the patient's decision to consult a GP; such as their attitude towards surgery; the existence of other health problems or priorities; and the primary care management of symptoms — including decisions about specialist referral. A shortage of specialist knee surgeons in the UK (relative to hip surgeons) may also explain the disparity in replacements relative to hip and knee pain prevalence rates.

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Juni *et al*⁷ recently reported findings from an exploratory analysis of healthcare utilisation of people aged over 35 years with hip and knee disease, but no other studies have provided a comparative analysis of health service utilisation of people with hip pain versus people with knee pain. Using data from a population-based, cross-sectional survey of people aged 65 years and over, the primary aim of this paper is to identify any reported differences in the primary care management of symptomatic hips and knees that may explain why older people with hip rather than knee pain are more likely to receive a joint replacement. We also examined whether differences in consulting behaviour and attitudes towards joint replacement exist between people with hip versus knee pain.

METHOD

Study population

A random sample of 5500 Oxfordshire residents, aged 65 years and above as of January 2002, was obtained from the Oxfordshire Health Authority register. A postal questionnaire with covering letter was sent out within a 2-week period during April 2002 and followed up with two postal reminders. A response rate of 66.3% (3341 of 5039 eligible people) was obtained. More details of the study design, procedures and sample have been provided elsewhere.²

Questionnaires

The questionnaire was divided into three sections: general demographic, 'hip' and 'knee'. The hip section began with a screening question identical to other studies:⁷⁻¹⁰ 'During the past 12 months, have you had pain in or around either of your hips on most days for one month or longer?'. Items concerning which hip was symptomatic and details of any previous hip replacement surgery followed,

with standard response categories offered separately for the left and right hips.

Additional questions were asked of people who reported having a symptomatic hip in the last year ('hip cases'), with symptom severity for the right hip and left hip assessed separately. Severity during the past 4 weeks was assessed using the Lequesne functional index,¹¹ a composite measurement score that ranges from 1 to 24 points and is based on 11 items concerned with mobility, pain, discomfort and the ability to function. Pain severity during the past 4 weeks was assessed separately using a scale ranging from 'none' to 'very severe'. Information regarding the presence of serious comorbidity was asked: 'Do you currently have another health problem that is at least as bad as the problem with your hip?'. Remaining questions focused on health service utilisation for the hip problem and attitudes towards total hip replacement surgery.

The knee section of the questionnaire was identical to the format of the hip section, with the word 'knee' substituted for the word 'hip'. Patient consent for obtaining information from their GP was sought from those reporting hip or knee pain, and where consent was given, GPs were asked if they had knowledge of the hip or knee problem, and if the problem was due to primary or secondary OA.

Statistical analysis

All analyses compared hip and knee cases. Responders who reported both hip and knee pain were excluded from the analysis, as were people with previous hip or knee replacement, because health service utilisation and attitudes toward joint replacement surgery were likely to be modified by these factors.

Demographic and joint-specific characteristics were compared between hip and knee cases. Fisher's exact test was used for all of the unadjusted comparisons between the hip and knee groups. Three severity groups, conforming to the threshold values suggested by Lequesne,¹¹ were defined separately for the hips and knees: a 'mild-moderate' group (Lequesne scores 1-7); a 'severe' group (Lequesne scores 8-13); and an 'extremely severe' group (Lequesne scores 14 and above). Three pain groups (based on the pain severity item) were defined as mild, moderate and severe. In bilateral cases, the most severe and most painful joint was used for these classifications.

Health service utilisation for hip and knee symptoms and attitudes towards joint replacement were examined using both an unadjusted and adjusted analysis with logistic regression (adjusted for age, sex, severity, pain, bilaterality, comorbidity and time of onset, where applicable). An odds ratio

How this fits in

In the UK, severe knee pain is more prevalent than hip pain among elderly people, yet considerably more hips are surgically replaced than knees. Variations in the treatment of hips and knees may exist, but there is no single explanation for the differential rate of arthroplasty. Hip replacement surgery is generally viewed as successful by people with hip pain, while people with knee pain appear less certain about the success of knee replacement operations. Such attitudes appear to be influenced by knowing someone who has undergone such surgery; thus, attitudes are likely to change as knee replacement becomes more common.

Table 1. Characteristics of people aged ≥ 65 years reporting hip pain versus those reporting knee pain.

	Hip cases (<i>n</i> = 212) ^a <i>n</i> (%)	Knee cases (<i>n</i> = 612) ^a <i>n</i> (%)	Fisher's exact test <i>P</i> -value
Age group (years)			
65–74	135 (63.7)	341 (55.7)	
75–84	63 (29.7)	224 (36.6)	0.13
>85	14 (6.6)	47 (7.7)	
Sex			
Male	92 (43.4)	274 (44.8)	
Female	120 (56.6)	338 (55.2)	0.75
Lives alone	61/207 (29.5)	186/594 (31.3)	0.66
Home owner	161/201 (80.1)	441/589 (74.9)	0.15
Education			
School	77/200 (38.5)	198/564 (35.1)	0.39
Degree	30/194 (15.5)	60/550 (10.9)	0.10
Professional	57/194 (29.4)	129/542 (23.8)	0.15
Body mass index			
Male <30	77/85 (90.6)	220/256 (85.9)	
Male ≥ 30	8/85 (9.4)	36/256 (14.1)	0.35
Female <30	100/116 (86.2)	245/308 (79.6)	
Female ≥ 30	16/116 (13.8)	63/308 (20.5)	0.13
Joints affected			
Unilateral	164/210 (78.1)	365/610 (59.8)	
Bilateral	46/210 (21.9)	245/610 (40.2)	<0.001
Severity (Lequesne functional index) ^b			
Mild-moderate	69/133 (51.9)	162/445 (36.4)	
Severe	41/133 (30.8)	176/445 (39.6)	
Extreme	23/133 (17.3)	107/445 (24.0)	0.007
Pain score			
Mild	70/163 (42.9)	199/539 (36.9)	
Moderate	71/163 (43.6)	229/539 (42.5)	
Severe	22/163 (13.5)	111/539 (20.6)	0.10
Other health problem(s) at least as bad as hip/knee problem			
Yes	90/151 (59.6)	243/498 (48.8)	0.08
Time since onset of joint problem (months) (<i>n</i> = 121 hips, <i>n</i> = 402 knees)			
Median	24	48	
IQR ^c	12–60	24–120	<0.001 ^c

^aDenominators are indicated where missing values exist for a characteristic. ^bLequesne missing values: 37.3% hip cases; 27.3% knee cases (*P* = 0.006). ^cWilcoxon rank-sum test.

^cIQR = interquartile range.

(OR) of >1 indicated increased use of services/treatment by knee cases compared to hip cases, an increased willingness to undergo joint replacement and greater belief in the success of surgery. All analyses were conducted using Stata 8.0.

RESULTS

Sample characteristics

While 3341 responders completed the questionnaire, the response rate for individual items varied. Denominators exclude missing responses and they therefore vary throughout the results section. Thus, responders with a missing value for

the hip or knee screening question were excluded from the denominator where applicable. Among the 3341 responders, 263 out of 3175 (8.3%) reported hip pain only, 695 out of 3194 (21.8%) reported knee pain only and 347 out of 3076 (11.3%) reported both hip and knee pain during the past year on most days for 1 month or longer. Of the 263 hip cases and 695 knee cases, 51 (19.4%) and 83 (11.9%) respectively had had a hip or knee replacement, leaving 212 hip cases and 612 knee cases with no previous arthroplasty eligible for the analysis. Table 1 shows the baseline characteristics of these two groups.

Healthcare utilisation and treatment

The unadjusted and adjusted analysis of health service utilisation by people with hip versus knee problems are presented in Tables 2 and 3. In the adjusted analysis, knee cases were found to be nearly twice as likely as hip cases to consult a GP about their painful joint(s) and to have their joint(s) examined by the GP, but were about half as likely to receive an x-ray as the hip cases. The main reason people gave for not visiting a GP was that the joint problem was not considered bad enough (44 out of 62 [71.0%] non-consulting hip cases, 85 out of 117 [72.6%] non-consulting knee cases). Nevertheless, 12 out of 43 (27.9%) of the hip cases and 37 out of 81 (45.7%) of the knee cases who had given this reason also reported having at least moderate joint pain during the past 4 weeks.

The adjusted analysis shows that knee cases were less likely to use painkillers for their problem than hip cases, but were just as likely to use complementary therapies. More knee than hip cases reported the use of glucosamine for their joint problem, but more hip than knee cases had consulted an osteopath or chiropractor. There were no other reported differences in the use of such therapies. We also examined whether consulting a GP about their joint problem affected responders' use of these treatments. Among hip cases, 24 out of 75 (32.0%) consulters and 7 out of 71 (9.9%) non-consulters had used a complementary therapy. This compared with 58 out of 337 (17.2%) consulters and 16 out of 147 (10.9%) among the knee cases. The estimated OR of using complementary therapies for consulters versus non-consulters (hip and knee cases combined) was 2.17 (95% CI = 1.13 to 4.17, *P* = 0.02).

More knee than hip joints cases had received an injection or a washout/lavage of the joint, and they were more likely to have undergone surgical procedures such as arthroscopy or osteotomy. A greater proportion of knee cases also reported that they had been offered surgery of any type, including

Table 2. Health service utilisation for hip versus knee pain in people aged ≥ 65 years.

For the recent/current painful joint(s) have you:	Hip cases (n = 212) ^a n (%)	Knee cases (n = 612) ^a n (%)	Fisher's exact test P-value
Consulted a GP ^b	76/151 (50.3)	354/512 (69.1)	<0.001
IF YES, GP has:			
Examined the joint(s)	38/76 (50.0)	222/354 (62.7)	0.05
Requested a joint x-ray	51/76 (67.1)	179/354 (50.6)	0.01
Referred to a physiotherapist	17/76 (22.4)	96/354 (27.1)	0.47
Provided written information/leaflets	5/76 (6.6)	24/354 (6.8)	1.00
Suggested specialist referral	21/76 (27.6)	115/354 (32.5)	0.50
Advised on diet	3/76 (3.4)	20/354 (5.7)	0.78
Taken painkillers	79/154 (51.3)	219/495 (44.2)	0.14
IF YES:			
GP prescription	56/79 (70.9)	144/217 (66.4)	
Over-the-counter	18/79 (22.8)	58/217 (26.7)	0.8
Both	5/79 (6.3)	15/217 (6.9)	
Used any complementary therapies	33/151 (21.9)	75/488 (15.4)	0.08
IF YES, did this include:			
Glucosamine	12/33 (36.4)	52/75 (69.3)	0.003
Homeopathy	0/33 (0.0)	2/75 (2.7)	1.00
Osteopathy/chiropractor	22/33 (66.7)	23/75 (30.7)	0.001
Hydrotherapy	1/33 (3.0)	0/75 (0.0)	0.31
Acupuncture	6/33 (18.2)	14/75 (18.7)	1.00
Had an injection into the joint/washout/lavage	6/151 (4.0)	53/488 (10.9)	0.01
Had surgery other than joint replacement; for example, arthroscopy, osteotomy	1/151 (0.7)	26/488 (5.3)	0.01
Seen a specialist	34/156 (21.8)	143/504 (28.4)	0.12
IF YES:			
As an NHS patient only	23/33 (69.7)	112/141 (79.4)	
As a private patient	10/33 (30.3)	29/141 (20.6)	0.25
Offered surgery (any type including joint replacement)	3/33 (9.1)	56/136 (41.2)	<0.001
IF YES:			
Waiting for surgery on NHS	2/3 (66.7)	20/51 (39.2)	
Waiting for private surgery	0/3 (0.0)	1/51 (2.0)	0.59
Not waiting for surgery	1/3 (33.3)	30/51 (58.8)	

^aDenominators are indicated where missing values exist for a health service. ^bJoint(s) refers, in all analyses, to the current painful hip joint(s) for the hip cases and the current painful knee joint(s) for the knee cases.

knee replacement. In the adjusted analysis, no difference was found in the proportion of hip and knee cases that had seen a specialist. The main reasons provided for not seeing a specialist were that the problem was not bad enough (64 out of 97 [66.0%] non-referred hip cases; 182 out of 294 [61.9%] non-referred knee cases) or that the GP had not suggested it (24 out of 97 [24.7%] non-referred hip cases; 93 out of 294 [31.6%] non-referred knee cases).

Attitudes toward replacement surgery

Tables 4 and 5 show the results for attitudes of people with symptomatic hips or knees towards arthroplasty. There was no difference in willingness to proceed with joint replacement for the current joint problem if offered surgery. The main reason people gave for being unwilling to have a joint replaced was that the problem was not regarded as bad enough (76 out of 108 [70.4%] non-willing hip cases; 199 out

of 310 [64.2%] non-willing knee cases). Nevertheless, 20 out of 62 (32.3%) of the hip cases and 76 out of 166 (45.8%) of the knee cases who had given this reason had reported having 'severe' or 'extremely severe' symptoms in the past 4 weeks, and 35 out of 74 (47.3%) of the hip cases compared with 100 out of 195 (51.3%) of the knee cases had reported pain that was at least moderate.

Those with hip problems were around five times more likely than those with knee problems to know someone who had had the same type of joint replaced, and about twice as likely to believe that a replacement of that joint represented a successful type of operation. Knowing someone with the same type of joint replacement was found to have a positive influence on the perceived success of the operation (OR = 7.27, 95% CI = 4.86 to 10.88, $P < 0.001$). Few people viewed arthroplasty as 'not at all successful'.

Table 3. Logistic regression analysis comparing health service utilisation by people with knee versus people with hip pain.

Health service/treatment	Estimated odds ratio ^a (95% CI)	
	Knees versus hips	P-value
Hips (reference group)	1.00	
Ever consulted GP about the painful joint(s) ^b	1.76 (1.03 to 3.00)	0.04
GP ever examined the joint(s)	1.88 (1.01 to 3.50)	0.05
GP ever requested a joint x-ray	0.47 (0.24 to 0.93)	0.03
Ever taken painkillers for the painful joint(s)	0.56 (0.32 to 0.98)	0.04
Ever used complementary ^c therapy for the painful joint(s)	0.71 (0.39 to 1.27)	0.25
Ever seen a specialist about the painful joint(s)	0.85 (0.48 to 1.50)	0.57

^aAdjusted for age, sex, severity, comorbidity (has a health problem as least as bad as the hip or knee), bilaterality and time of onset. ^bJoint(s) refers, in all analyses, to the currently painful hip joint(s) for hip cases and the currently painful knee joint(s) for knee cases. ^cComplementary therapy includes glucosamine, homeopathy, osteopathy, chiropractic, hydrotherapy and acupuncture.

Table 4. Attitudes of hip cases towards hip replacement surgery and knee cases towards knee replacement surgery.

	Hip cases (n = 212) ^a n (%)	Knee cases (n = 612) ^a n (%)	Fisher's exact test P-value
If offered hip/knee ^b replacement surgery, would you accept the operation?			
Yes, as soon as possible	15/145 (10.3)	53/461 (11.5)	
Maybe in the future	104/145 (71.7)	311/461 (67.5)	0.66
No, definitely not	26/145 (17.9)	97/461 (21.0)	
IF YES, would you be prepared to go to another country for the operation?			
Yes	5/15 (67.7)	22/50 (44.0)	
No	10/15 (33.3)	28/50 (56.0)	0.56
Do you know anybody who has had a total hip/knee replacement?			
Yes	125/146 (85.6)	250/449 (55.7)	
No	21/146 (14.4)	199/449 (44.3)	<0.001
Do you think that total hip/knee replacement operations are generally:			
Very successful	51/149 (34.2)	84/448 (18.8)	
Fairly successful	70/149 (47.0)	179/448 (40.0)	
Not successful	0/149 (0.0)	11/448 (2.5)	
Not sure	28/149 (18.8)	174/448 (38.8)	

^aDenominators are indicated where missing values exist for a question. ^bIn all cases 'hip/knee' refers to hip joint for the hip cases and knee joint for the knee cases.

GP diagnosis

Consent to contact their GP was obtained from 99 out of 212 (46.7%) hip cases and 369 out of 612 (60.3%) knee cases. The GP response rate was 62 out of 99 (62.6%) and 245 out of 369 (66.4%) respectively. GPs were significantly more aware of knee problems among those reporting knee pain

than they were of hip problems among those reporting hip pain (144 out of 241 [59.8%] versus 24 out of 62 [38.7%], $P = 0.004$). In the majority of cases where the GP had knowledge of the problem, the diagnosis provided by the GP was primary or secondary OA (20 out of 24 [83.3%] hip cases and 118 out of 142 [83.1%] knee cases).

DISCUSSION

Summary of main findings

In our sample of people aged 65 years and over, knee symptoms were significantly more prevalent and severe than hip symptoms. There was evidence (although weak) to suggest that people with knee pain were more likely to consult a GP about their knee problem, and that GPs were more likely to examine a knee joint but less likely to request an x-ray than for people with hip pain. GPs also tended to be more aware of the problem in people with knee pain than hip pain. Invasive therapies and minor surgical procedures were more commonly used for knee joints, and while similar proportions of hip and knee cases had consulted a specialist about their joint problem, more knee cases had been offered surgery (albeit based on small numbers).

Willingness to undergo arthroplasty was comparable in both groups. The majority of hip cases knew someone who had had a hip replaced but fewer knee cases knew someone who had had a knee replaced. This finding was associated with attitudes about the success of arthroplasty. The main reason provided by responders for not consulting a GP, seeing a specialist or agreeing to joint surgery was that the problem was not perceived as bad enough. However, a considerable proportion of people who gave this reason reported severe or extremely severe symptoms.

Strengths and limitations

This study has focused on older people with hip or knee pain only, but a substantial number of elderly people have concurrent hip and knee pain,² which is likely to modify health-seeking behaviour and clinical management. The order in which symptoms develop (that is, whether hip pain precedes knee pain or vice versa), may have some relevance to differential treatment of hips and knees. However, we were unable to address this issue with cross-sectional data. Likewise, we were unable to comment in detail on disease progression and whether one type of joint (that is, hip or knee) tends to deteriorate more rapidly than the other.

We were unable to obtain complete data for every variable measured due to missing responses to some questions in the questionnaire, which included the Lequesne functional index. As with all

multi-item scores, calculation of the overall score is dependent on the responder completing every item comprising the score. However, while there was a significant difference in completion rates for the Lequesne functional index between hip and knee cases, we found no differences in the age and sex distribution between responders and non-responders for this score.

Relationship to other research

In agreement with Juni *et al*⁷ we found that people with knee pain consulted a GP more readily than people with hip pain. We did not, however, find that people with knee pain had lower rates of specialist referral. Also consistent with our findings, Juni *et al*⁷ reported that around one-third of the knee patients with symptoms severe enough to require a total knee replacement would not accept surgery if offered. Similarly, a Canadian study of adults aged 55 years and above,¹² found that only 15% with severe hip or knee arthritis were willing to undergo arthroplasty.

Our finding that hips were more likely to be x-rayed than knees and that knee joints were more frequently given a clinical examination suggests that many GPs are following current primary care guidelines.¹³ These recommend that OA of the knee (but not the hip) is best diagnosed clinically as there is little good indication for x-ray. However, some studies have found that the presence of radiographic evidence of OA in the hip or knee has a marked impact on treatment and the decision to refer to secondary care.^{14–16}

In common with previous studies, we found significantly greater use of complementary therapies among those who had consulted their GP about their hip or knee problem than among non-consulters. This is unsurprising as such therapies are frequently prescribed or accessed via general practice.^{17,18}

Implications of findings

Our study has suggested that some differences may exist in healthcare utilisation, treatment and attitudes of people with hip pain compared to those with knee pain within the primary care setting. However, these variations alone are not enough to explain the differential rates of hip and knee arthroplasty in the UK; in particular, we found no difference in specialist referral, suggesting that reasons for the disparity may lie at the secondary care level. Certain procedures seem to be favoured for knees (for example, arthroscopy, injection, lavage), probably because these operative techniques are more difficult to perform on the hip.¹⁹ Evidence for the effectiveness of these therapies for

Table 5. Logistic regression analysis comparing attitudes of hip and knee cases towards total hip/knee replacement surgery.

Response variable	Estimated odds ratio (95% CI)	
	knees versus hips	P-value
Would agree to a total hip/knee ^a replacement if offered surgery	1.12 ^b (0.51 to 2.47)	0.78
Knows someone with a total hip/knee ^a replacement	0.21 ^c (0.13 to 0.35)	<0.001
Believes that total hip/knee ^a replacement is generally successful	0.58 ^d (0.35 to 0.97)	0.04

^aHip/knee refers to hip for the people with hip pain and knee for people with knee pain.

^bAdjusted for age, sex, severity, comorbidity (has a health problem at least as bad as the hip or knee), bilaterality and time of onset. ^cAdjusted for age and sex. ^dAdjusted for age, sex and whether person knows someone with a hip/knee replacement.

relieving pain and improving functional ability is inconclusive, certainly beyond the shorter term.^{20,21}

We recommend that future studies addressing the healthcare needs of people with hip or knee pain should concentrate on the level of secondary care provision, and in particular, the types of treatment or surgery offered for hip and knee problems, interactions that take place between patients and surgeons, and the numbers of hip relative to knee surgeons operating in this country. In addition, given that concurrent hip and knee pain is widespread in elderly people,² future research should focus on the impact that pain in multiple weight-bearing joints has on healthcare decision-making. This should include a study into how pain in one weight-bearing joint may cause degeneration in the other joints and whether the rate of deterioration is different for hips and knees.

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Ethics committee and reference number

Local research ethics committee approval was obtained for the study (Applied and Qualitative Research Ethics Committee [AQREC]). (A01.060)

Competing interests

None

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