

Non-consultation among community-dwelling older adults with knee pain: completing the picture

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Aim: To investigate knee-related and comorbid consultations in a sample of community-dwelling older adults with knee pain. **Background:** Knee pain affects 25–37% of people aged over 50 years. Previous studies suggest a minority will consult their general practitioner (GP) about it. One reason might be the relatively low priority given to this problem in the context of multi-morbidity. **Methods:** Adults aged over 50 years, registered with three local general practices reporting knee pain within the last 12 months, were recruited to an observational cohort. Consultation data were reviewed for the three-year period following study entry. All knee-related consultations, including those for knee osteoarthritis (OA), were identified. Contacts for non-knee-related morbidity were also identified. Consultation patterns were summarized as incidence rates using exact person-time and cumulative incidences. **Findings:** Seven hundred and forty-two people (mean age 65.5 years (SD 8.6); 54% female) were included and provided 1917 person-years of observation. The rate of knee-related consultations was 38.5 per 100 person-years (95% CI 35.8, 41.3), of knee OA consultations 10.6 (9.2, 12.1), and of comorbid contacts 790.6 (778.0, 803.3). The cumulative incidence of knee-related consultation at three years was 41.0%. Knee-related consultation was related to severity of knee pain but almost 50% with high levels of pain intensity did not visit the GP about their knee problem. Contrastingly, within six months of study entry 85.6% of participants had contacted the practice about other comorbid illness (predominately circulatory disease or other musculoskeletal complaints). By three years, 99.6% participants had consulted about comorbid illness. Incidence rates for knee-related consultations and comorbid contacts were associated with the relative importance the patient gave to their knee problem. For every knee-related consultation there were 20 comorbid contacts. There is considerable scope for opportunistic care of knee pain and for further research on how patients and GPs prioritize health conditions in the context of multi-morbidity.

Key words: knee; pain; consultation; community

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Introduction

Knee pain affects 25–37% of people aged over 50 years (McAlindon *et al.*, 1992; O'Reilly and Muir, 1998; Jinks *et al.*, 2004; Linsell *et al.*, 2005) and is

the commonest pain complaint presented by older adults to their general practitioner (GP) (Mäntyselkä *et al.*, 2001). Yet only a third of older people reporting knee pain in a given year will visit their GP about it during this period (Jordan *et al.*, 2006). Mild symptoms, adequate social support, a history of not visiting the doctor about it in the past, and low mood may be behind the decision not to consult (Jordan *et al.*, 2006).

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We suggest an additional explanation: that non-consultation reflects the higher priority that patients and health care professionals give to other comorbid health problems (Bedson *et al.*, 2007). Comorbidity is common in older adults with joint problems (Kadam *et al.*, 2004; Caporali *et al.*, 2005) and so it seems likely that knee pain sufferers who do not consult their GP about their knee problem may nevertheless attend for other health problems. Focussing on 'index condition' consultations in isolation will overlook this wider picture of consulting behaviour in a population with multi-morbidity. In this short report, we describe the pattern of comorbid consultations in a sample of community-dwelling older adults with knee pain. Specifically, we wished to know how frequently they visited their GP about other health problems and what these were, and whether the relative importance that they attached to their knee problem was related to the pattern of knee-related and other comorbid consultations.

Methods

The Clinical Assessment Study (Knee) – CAS(K) – is a population-based prospective observational cohort study of 819 adults aged 50 years and over with knee pain in the 12 months prior to baseline recruitment. The study protocol was approved by North Staffordshire Research Ethics Committee and has been published in full (Peat *et al.*, 2004; Thomas *et al.*, 2004).

Briefly, participants were identified from a two-stage postal survey of all adults aged 50 years and over registered with three general practices in North Staffordshire (Peat *et al.*, 2004). Respondents with recent knee pain who provided written consent to further contact were invited to attend a research clinic for more detailed assessment. This included completing the seven-item Chronic Pain Grade (von Korff and Keefe, 1992) that classifies knee pain severity into four hierarchical categories (Grade I – low disability–low intensity, Grade II – low disability–high intensity, Grade III – high disability–moderately limiting, and Grade IV – high disability–severely limiting). We have previously shown this to be a valid measure for grading knee pain severity in this age group (Peat *et al.*, 2006a). Participants were asked at the interview for their 'two most important health

problems at the moment'. Those naming their knee problem – or a generalized musculoskeletal problem such as 'arthritis' in which respondents incorporated the knee – were counted as 'knee'. Those nominating different health problems were classed as 'other comorbid'. The remainder who reported no important health problems at the time of interview were classed as 'none'.

A review of consultation data held on the general practice computer system was undertaken for the three years after their clinic attendance for all consenting participants. Doctors at the practices routinely code and enter details of all patient consultations on the computer. Individual problems are coded separately during each consultation. Removing coded consultations for the knee problems therefore does not lead to a loss of comorbid consultations. The participating practices are members of the Keele GP Research Partnership and the completeness of consultation coding is subject to annual quality review (Porcheret *et al.*, 2004).

The consultation data review comprised two parts. Firstly, all consultations related to the knee were identified through a search of relevant Read codes (NHS Connecting for Health, 2008) and free-text entries (full details of the search strategy are available from the authors). Free-text entries were independently assessed by two of the authors (J.B. and G.P.). Disagreements were resolved at a consensus meeting. The subset of Knee osteoarthritis (OA) Read coded entries was identified. Secondly, after removing knee-related consultations, all other Read-coded consultations (face to face with the GP or nurse), and contacts (phone consultations) were identified by their Read code chapter. Chapters with fewer than 200 consultations in the study period were excluded, as were consultations in chapters L (complications due to pregnancy), P (congenital anomalies), and Q (perinatal conditions). Numbered Read code chapters 1 (history and symptoms), 6 (preventative procedures), 7 (operations, procedures, sites), and 8 (therapeutic processes) were included. Frequently, patients would consult about more than one problem in a single day. Consequently, only the first of these was retained for use in analysis, since the first comorbid problem recorded on a given day was taken as the 'index' condition, assuming that this was given priority by the patient.

Statistical analysis

We summarized consultation patterns as consultation rates and cumulative incidences (Szklo and Nieto, 2007). Consultation rates were calculated using exact person-time (ie, time in days from study entry to exit or three years) and expressed in rates per 100 person-years with 95% confidence intervals (95% CI), calculated via the distribution-free jackknifing method (Vogt, 1993; StataCorp, 2005). Rates were separately calculated for knee-related consultations, knee OA consultations, and other comorbid contacts. We checked whether consultation rates were uniform within the three-year period by calculating rates for each six-month interval. Consultation rates reflect both the proportion consulting and the average frequency of consultation per person over the three-year period, thus providing a measure of the overall consultation burden arising from a group of individuals. To examine the proportion of individuals that consulted at least once, we calculated cumulative incidences of knee-related consultation, knee OA consultation, and comorbid contact for each six-month time interval using the classic life table interval approach. Cumulative incidences were then stratified by knee pain severity. Finally, for individuals with clinically significant pain (CPG II–IV), we reported the consultation rates according to participants' self-rated health priority (none, knee, or other comorbid).

Results

Of the 819 people attending the research clinic, 742 (mean age 65.5 years (SD 8.6); 54% female) were eligible for inclusion in the current analyses (38 had no knee pain in six months prior to study

entry, 39 did not consent to medical record review). The 742 participants provided 1917 person-years of observation. There were 51 losses to follow-up (10 in year 1, 28 in year 2, 13 in year 3).

Consultation rates

During the three-year follow-up period there were 734 knee-related consultations, of which 202 were for knee OA, with an additional 15 088 comorbid contacts (non-knee). Incidence rates for all three types of consultations were uniform throughout the entire three-year study period (data not shown). The overall rate of knee-related consultations was 38.5 (95% CI 34.1, 43.5) per 100 person-years, of knee OA consultations 10.6 (8.4, 13.5) per 100 person-years, and of comorbid contacts 790.6 (752.7, 830.9) per 100 person-years. Thus, in this sample of older adults with knee pain, one in every four knee-related consultations was coded as knee OA, and for every knee-related consultation there were on average 20 comorbid contacts. Table 1 shows the consultation rates per 100 person-years for knee-related, knee OA, and comorbid consultations stratified by gender and age. It would appear that in each case, the highest consultation rates were seen in those aged over 65 years and who were of female gender.

Cumulative incidences

By the end of the three-year period, the cumulative incidence of knee-related consultation was 41.0% (ie, the probability of consulting about the knee at least once). The probability of knee-related consultation was higher for those with more severe knee pain at baseline (CPG I 32.1%, CPG II 49.5%, CPG III/IV 53.9%). This still indicates, however, that even amongst those with clinically significant levels of pain intensity (CPG

Table 1 Age and gender stratified consultation rates per 100 person-years over three-year period

Knee-related	50–64	65+
Male	28.10 (20.61, 39.34)	37.07 (29.97, 46.43)
Female	39.13 (30.33, 51.40)	46.60 (38.13, 57.56)
Knee osteoarthritis (OA)	50–64	65+
Male	3.12 (1.68, 6.50)	12.02 (8.40, 17.84)
Female	7.39 (3.01, 17.60)	17.66 (12.70, 25.32)
Comorbid	50–64	65+
Male	662.62 (593.01, 742.95)	839.75 (767.86, 915.81)
Female	766.55 (690.36, 853.74)	862.03 (788.36, 944.57)

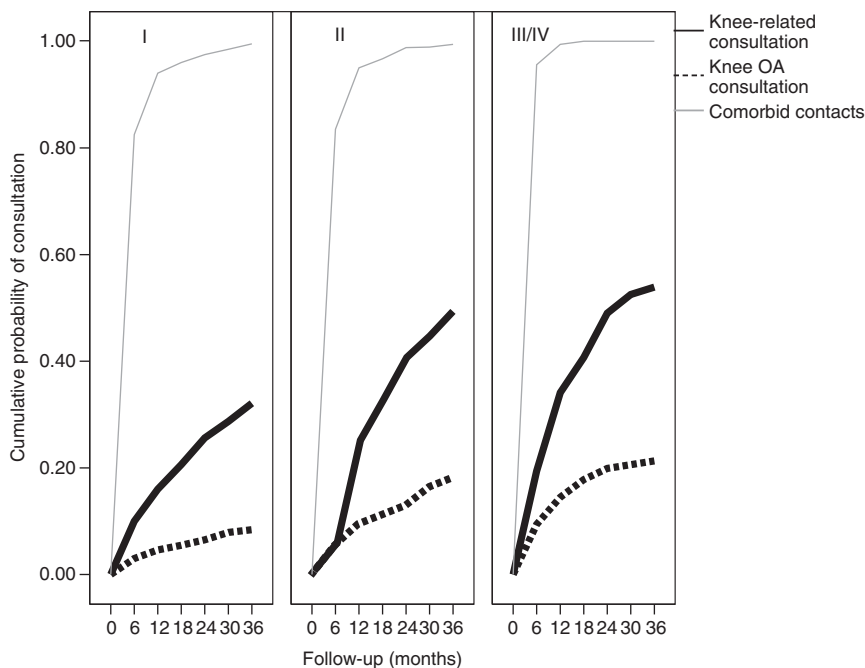


Figure 1 Three-year cumulative incidence of knee-related consultation, knee osteoarthritis consultation, and comorbid contacts, by baseline knee pain severity

II–IV), approximately half did not visit the GP about their knee problem in the three-year study period. This contrasts sharply with comorbid contacts (Figure 1). Within six months of study entry, 85.6% of participants had contacted the practice about other comorbid illness, increasing to 99.6% at three years. The cumulative incidence of comorbid contacts was slightly higher among those with more severe knee pain (at six months: CPG I 82.5%, CPG II 83.5%, CPG III/IV 95.6%). The high rate of comorbid contacts is therefore not simply due to knee consulters also frequently consulting for other health matters. The very high cumulative incidence of comorbid contacts means that knee non-consulters must also be contacting the practice about other health problems.

Figure 2 shows a similar pattern of consultation rates of comorbid contacts across all chapters for knee consulters and knee non-consulters, with both groups having the highest rates for circulatory diseases. Higher rates of musculoskeletal and respiratory disease contacts were apparent in knee consulters than in knee non-consulters

(156 versus 82 and 105 versus 68 contacts per 100 person-years). Though relatively small in number, knee consulters also had twice the rate of operations and digestive diseases compared to knee non-consulters. Contacts for preventative procedures were more common for knee non-consulters than for knee consulters (81 versus 26 contacts per 100 person-years).

The pattern of knee-related and comorbid consultations appeared to be related to the priority that participants gave to their knee problem (Table 2). The ratio of comorbid contacts to knee-related consultations was 30:1 for people who prioritized other comorbid health problems above their knee complaint, whereas it was 15:1 for participants prioritizing their knee problem.

Table 3 shows the average knee pain score at baseline, 18 months, and three years for knee consulters, knee non-consulters, and overall. Slightly fewer knee non-consulters had knee pain at three years (89.2%) compared to knee consulters (95.6%), with knee consulters reporting a worse average pain score (4.98) compared to knee non-consulters (3.63).

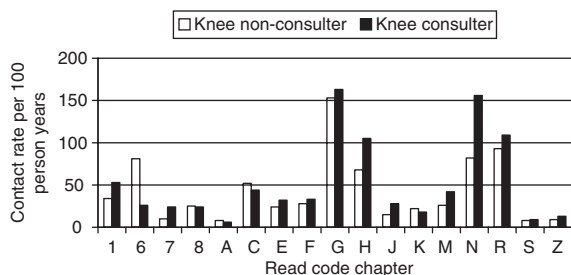


Figure 2 Comparison of rates of comorbid contacts in each Read code chapter, knee non-consulters versus knee consulters

1 = history/symptoms; 6 = preventative procedures; 7 = operations, procedures, sites; 8 = therapeutic procedures; A = infectious/parasitic diseases; C = endocrine, nutritional, metabolic and immunity disorders; E = mental disorders; F = nervous system and sense organs; G = circulatory system diseases; H = respiratory system diseases; J = digestive system diseases; K = genitourinary system diseases; M = skin and subcutaneous tissue diseases; N = musculoskeletal and connective tissue diseases; R = symptoms, signs and ill-defined conditions; S = injury and poisoning; and Z = unspecified conditions.

Discussion

Amongst community-dwelling older adults with knee pain, comorbid contacts dwarf the number of knee-related consultations. Although 50% of people with clinically significant knee pain do not consult their GP about this over three years, almost all will have contacted the practice about other health problems within six months. This appears, in part at least, to reflect the relative importance that people give to their knee pain in the context of other comorbid illness.

The frequency and pattern of consultations and the selection of Read codes and completeness of morbidity recording are likely to vary between populations and between general practitioners and practices. Our findings are based on a relatively modest sample drawn from the registered populations of three general practices located within a geographical region that has higher levels of social deprivation than the national average. In addition, we have previously demonstrated a degree of

Table 2 Rates of knee-related consultations and comorbid contacts among participants with clinically significant pain, by self-rated health priority

Priority	Person time (days)	Knee-related consultations		Comorbid contacts	
		Consultations	Rate (95% CI)	Contacts	Rate (95% CI)
None	88 642	86	35.44 (25.55, 50.63)	1520	626.32 (535.26, 737.85)
Comorbid	284 649	219	28.10 (23.04, 34.64)	6948	891.54 (835.87, 951.95)
Knee/MSK	323 796	429	48.39 (41.17, 57.59)	6620	745.75 (689.97, 809.58)

MSK = musculoskeletal.

Table 3 Pain outcomes

Mean (SD)	Overall	Knee consulters ^a	Knee non-consulters
Baseline	4.65 (2.36)	5.19 (2.31)	4.29 (2.33)
18 months	1.97 (13.72)	0.86 (14.98)	3.60 (11.47)
Three years	4.17 (3.33)	4.98 (3.41)	3.63 (3.16)
%>0	Overall	Knee consulters ^a	Knee non-consulters
Baseline	99.46	99.66	99.33
18 months	92.54	95.64	90.38
Three years	91.75	95.56	89.19

Pain was measured on 0–10 scale.

Average pain over the previous six months.

^a Consulted for knee-related problem between baseline and three years.

selective participation in this cohort (Peat *et al.*, 2006a). As a result of these factors, the absolute estimates of consultation frequency may differ in other populations. Nevertheless, our estimate of the proportion of non-consulters is consistent with comparable estimates from other studies in the same geographical region (Jordan *et al.*, 2006), and we have no reason to doubt that our general finding on the relative frequency of comorbid contacts to knee-related consultations would be substantially biased. In addition, the consistent level of consultation throughout the three years suggests that clinic attendance and questionnaire assessment did not induce a Hawthorne effect on consultation rates during the study period. One other issue we need to consider is that variability in consultation rates within individual patients may also be exacerbated by patients being clustered within GPs, the GP adding another source of variability. Only multi-level modelling could adequately address this and the number of GPs in our study was insufficient to support that and hence this needs to be considered when interpreting the results.

Early intervention in knee pain (weight loss, knee exercises, physiotherapy, analgesia) (Ettinger *et al.*, 1997; Towheed and Hochberg, 1997; Deyle *et al.*, 2000) improves prognosis, and our findings here suggest that there is a need for primary care to be proactive in identifying the 50% of patients with severe knee pain that will at some point consult for a comorbid condition rather than their knee if this is to be achieved. Future research therefore needs to focus on what factors deter patients from consulting about their knee pain, and in which way we can positively identify these individuals.

Because all patients consulted at some point during the study, one area we were interested in was what they were consulting about other than their knee pain. The Read code comparison of crude consulting rates gives us some indication of what is happening. Patients with OA, of which knee OA is one of the commonest forms, tend to have more co-existent disease in primary care. In addition, consultation rates in primary care for the general population tend to be higher for circulatory, respiratory, skin, and other musculoskeletal conditions (MSK) (Kadam *et al.*, 2004; Royal College of General Practitioners, 2004). Our study reflected these observations but did observe lower rates for skin and subcutaneous

conditions, and perhaps this is because our findings are related only to those aged over 50 years. Like us, Hopman-Rock observed that for patients with knee pain, the commonest conditions they suffered with were circulatory, respiratory, and other musculoskeletal conditions (Hopman-Rock *et al.*, 1997). We, however, were considering two groups of patients with knee pain, those that consulted for it and those that did not. Firstly, for both groups, the most frequent consultation type was for circulatory disease. This is in keeping with studies of chronic disease consultation rates (Schellevis *et al.*, 1994), and general practice work load analysis, which indicates that there are over eight million consultations per year for the circulatory system (Royal College of General Practitioners, 2004). Numerous other Read code groups showed equal levels of consulting for both knee and non-knee consulters, but marked differences were evident in two Read code chapters specifically. Firstly, knee consulters consulted regarding other MSK conditions more frequently than knee non-consulters. A previous study has observed this, and it may be related to patients who present with one joint problem being more inclined to discuss other 'aches and pains' when they consult their GP (Bedson *et al.*, 2007). Secondly, knee non-consulters tended to consult more frequently than knee consulters regarding preventative procedures. With the introduction of the new general medical services contract in 2004 (GMS2), there has been an increased emphasis in primary care on actively managing patients with chronic disease (Department of Health, 2004). Because comorbidity including chronic diseases such as ischaemic heart disease and respiratory diseases are common in osteoarthritic conditions, which include knee problems, patients may attend surgery for preventative programmes relating to such conditions in preference to their knee. In addition, since chronic disease management is an active process on behalf of the practices, knee non-consulters might be invited to attend clinics designed to manage their condition. All of these potentially reflect their increased attendance regarding preventative procedures compared to knee consulters and as such it may be the comorbidity that displaces the knee problem, with knee non-consulters preferring to attend surgery for their chronic disease condition. These are, as yet, tentative observations that require further investigation and testing.

In conclusion, consultation for comorbid illness is common amongst patients with knee-related problems. However, even amongst those with the most severe knee problems, only half will have consulted about their knee after three years, whereas almost certainly they would have consulted about another comorbid condition. Potentially these other comorbid conditions may contribute to this non-consultation for knee problems, but overall general practice is missing an opportunity to engage these individuals regarding their knee pain when they consult for other conditions. Since common therapies can help both knee problems and other comorbid conditions, perhaps a more proactive approach to identifying patients with knee pain in primary care is required.

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