

A brief screening tool for knee pain in primary care (KNEST). 2. Results from a survey in the general population aged 50 and over

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Objective. To use a brief screening tool to identify knee pain (all knee pain, non-chronic and chronic knee pain) and associated health-care use in the general population aged 50 yr and over.

Methods. A cross-sectional survey was mailed to 8995 individuals registered with three general practices in North Staffordshire, UK. The questionnaire included a Knee Pain Screening Tool (KNEST), the Short Form 36 (SF36), demographic questions and, for those who reported knee pain, the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

Results. The survey achieved a 77% response. The 12-month period prevalence of all knee pain was 46.8% [95% confidence interval (CI) 45.6%, 48.0%]. Figures for non-chronic knee pain (pain of less than 3 months duration) and chronic knee pain (pain of more than 3 months duration) were 21.5% (95% CI 20.5%, 22.5%) and 25.3% (95% CI 24.3%, 26.4%) respectively. An estimated 6% of the older population had non-chronic but severe knee pain or disability. Thirty-three per cent of all knee pain sufferers had consulted their general practitioner (GP) about their symptom in the last year. This included 34% of those with non-chronic but severe knee pain or disability and 56% of those with chronic and severe knee pain or disability. The use of private treatments or services for knee pain was minimal. A third of those with chronic and severe knee pain or disability had not used any services (including GP) in the last year.

Conclusions. The KNEST is a simple tool for the identification of individuals with knee pain and their health-care use. Focusing only on chronic knee pain will underestimate the total need and demand for health-care in knee pain sufferers in the general older population, as non-chronic as well as chronic knee pain has a significant impact on people's lives and on their use of primary health-care. The KNEST, when combined with the WOMAC, identifies population groups who have potentially diverse health-care needs and who might benefit from effective health-care. These data can be used alongside evidence on effective treatments by service planners when considering needs for the care of older adults in primary care.

KEY WORDS: Knee Pain Screening Tool (KNEST), Knee pain, Prevalence, GP consultation, Health-care use, Epidemiology, Needs assessment.

One purpose of population-based health-care needs assessment is to present a simple picture of the burden of a problem in terms of prevalence, severity and its impact on health status. Needs assessment also assumes that there might be health-care or prevention strategies that can meet the potential needs. Another purpose, therefore, is to determine current patterns of health-care use in the population, as 'unmet need' can relate either to people who are receiving health-care that might be ineffective or to people who are not seeking or able to access health-care.

We have published elsewhere details of the population impact of knee pain and related disability as measured by the Western Ontario and McMaster Universities Osteoarthritis index (WOMAC) [1]. The WOMAC is a reliable disease-specific instrument for the measurement of levels of pain and physical function difficulty in populations with knee pain, and is a widely used outcome measure in clinical trials of knee osteoarthritis. The WOMAC is not designed, however, to act as an initial screen to identify those who have knee pain in the general population, nor does it enquire about current use of health-care. We have developed and validated a short questionnaire, the Knee Pain Screening Tool (KNEST) [2] in order to provide such a screen,

which can be used in combination with instruments such as the WOMAC.

In the present work, our aims were (i) to describe the application of the KNEST in a population sample, and to provide tables of prevalence by age, gender, chronicity and severity, (ii) to investigate whether the classification provided by KNEST distinguishes groups with different general health status and different levels of disability specifically related to the knee problem, and (iii) to determine the recent use of health-care in relation to levels of pain and disability in groups of older people with knee pain. The overall aim was to describe how such an instrument might provide the first stage of a population-based needs assessment for use in primary care populations.

Methods

A cross-sectional survey of 8995 individuals (aged 50 yr and over) registered with three general practices in North Staffordshire was undertaken. These practices are members of the North Staffordshire GP Research Network. The network contains 15

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general practices that collaborate with the Primary Care Sciences Research Centre at Keele University. For the purposes of mailing questionnaires, patient lists were accessed from the research practices' age/sex registers. This was achieved on the basis of specific ethical approval and formal agreements being signed with the practices, specifying the practices' and university's respective obligations in relation to meeting data protection guidelines, data confidentiality and data security procedures. The Index of Deprivation [3] shows that the general practices used are in a range of socioeconomic areas and are heterogeneous (a rural affluent town, a semi-rural mixed deprived and affluent area, and an urban deprived area). North Staffordshire Research Ethics Committee approved the project.

The full questionnaire included the KNEST (shown in the Appendix); the Short Form 36 (SF36), a self-reported health status measure that reports on eight dimensions of general health [4]; demographic questions; and, for those who report knee pain, the WOMAC [5]. Reminders were sent at 2 and 4 weeks. We used computer-assisted data entry (Teleform; Cardiff Software Inc.) and the returned questionnaires were processed through a scanner [6].

The prevalence of knee pain according to the KNEST was calculated overall and by level of chronicity. The knee pain screening question was used to calculate the 12-month period prevalence of all knee pain. The 'days in pain' question was used to calculate the prevalence of 'non-chronic' knee pain (days in pain less than 3 months in the past year) and chronic knee pain (days in pain 3 months or more in the past year). The 'days in pain' question was based on a question developed by Von Korff *et al.* [7] for the study of low back pain. To correct the prevalence figures for age and gender differences between responders and the target general practice population, we used direct standardization.

The WOMAC was used to provide data on symptom and functional severity. We have previously shown the WOMAC to be a reliable tool for use in an elderly community population with knee pain. In the present study, item responses for the WOMAC were summed to produce subscale scores (pain range 0–20, stiffness 0–8, physical function 0–68), as recommended by the developers [5]. Higher scores indicate worse health. Recommended guidelines for dealing with missing data were also followed. As there is no agreed cut-off to define severity of pain or disability in the WOMAC literature [8], the severity of WOMAC items was defined categorically by grouping WOMAC responders who scored 'severe' or 'extreme' on at least one item on the pain or physical function scales into a 'severe' group.

The SF36 was used to investigate whether the KNEST questions identify sensible and distinct groups with respect to their general health status. Item responses in the SF36 were summed and transformed to provide scores ranging from 0 (worst) to 100 (best) health for each of eight dimensions, as recommended by the developers [4]. Scores were calculated where more than half of the items on a scale were completed. Descriptive statistics were calculated (mean, s.d., median) for each SF36 scale. Multiple linear regression was performed with each SF36 subscale as the dependent variable in separate models, and 'no knee pain' and 'chronic knee pain' as independent indicator variables. The model was adjusted for age, gender and body mass index (weight (kg)/[height (m)]²).

General practitioner (GP) consultation and other data on health-care use from the KNEST were applied to subgroups on the basis of chronicity and severity of their knee pain. Overall estimates of health-care use were then derived for the population aged 50 yr and over.

Results

Response rate

Of the 8995 people who were sent a questionnaire, there were 171 exclusions due to wrong address or removals. A total of 6792 people returned the questionnaire (56% female, 99.6% white

UK/European). The adjusted response was 77%. Females and those aged between 65 and 74 yr had slightly higher response rates. Respondents had a mean age of 65.4 yr (s.d. 10.1, range 50–100).

Descriptive data for all of the KNEST questions are displayed in Table 1. Table 2 presents the prevalence of knee pain by age, gender, chronicity (based on the KNEST) and severity (based on the WOMAC).

Prevalence of knee pain

Among responders, 6462 (95%) answered the KNEST knee pain question. The 12-month period prevalence of pain 'in or around the knee' was 3023/6462 or 46.8% [95% confidence interval (CI) 45.6%, 48.0%]. When standardized to the practice population by age and gender, the prevalence of knee pain remained at 46.8% (95% CI 45.1%, 48.4%). The prevalence of knee pain was similar across the age groups. Overall, there was a slightly higher prevalence in females compared with males (49 and 44% respectively), although this became more marked with age. In the over-75 yr age group, 51% of females reported knee pain in the last 12 months compared with 37.9% of males (difference = 13.2%, 95% CI 7.6%, 18.6%).

Prevalence of knee pain chronicity

Forty-six per cent of those who had knee pain reported pain for less than 3 months in the last year. In the whole sample of responders, this means that the 12-month period prevalence of non-chronic knee pain by this definition was 21.5% (95% CI 20.5%, 22.5%). The 12-month period prevalence of chronic knee pain was 25.3% (95% CI 24.3%, 26.4%). Standardizing to the practice population by age and gender had little effect on these prevalence rates (non-chronic 21.4%, 95% CI 20.3%, 22.5%; chronic 25.4%, 95% CI 24.1%, 26.6%).

TABLE 1. Results of the KNEST in a general adult population sample of men and women aged 50 yr and over

| KNEST question | Number | % |
|---|--------|----|
| Previous knee injury (ever) ^a | | |
| No | 4791 | 73 |
| Yes | 1732 | 27 |
| Knee pain in last year ^a | | |
| No | 3439 | 53 |
| Yes | 3023 | 47 |
| Laterality of knee pain ^b | | |
| Unilateral | 1411 | 48 |
| Bilateral | 1499 | 52 |
| Chronicity ^b | | |
| <7 days | 420 | 15 |
| 7 days to 4 weeks | 448 | 16 |
| 1 month to <3 months | 458 | 16 |
| ≥3 months | 1565 | 54 |
| GP consultation in last year ^b | | |
| No | 1966 | 67 |
| Yes | 967 | 33 |
| Other health-care use (NHS or private) ^b | | |
| Drugs (prescription) | 833 | 29 |
| Physiotherapy | 312 | 10 |
| Hospital specialist | 263 | 9 |
| Knee operation | 74 | 2 |
| Knee injection | 85 | 3 |
| Acupuncture | 52 | 2 |
| Osteopath/chiropractor | 65 | 2 |

NHS, National Health Service; free at point of contact.

^aOf all survey responders.

^bOf survey responders with knee pain.

Characterizing knee pain

We have reported on the full use of WOMAC among knee pain sufferers in this older adult population elsewhere [1]. In this paper we are concerned with its use alongside the KNEST as part of a population screen. Overall, 49% of those with knee pain had severe pain or severe difficulty with physical function; the percentage was higher in women and at older ages. This represents 23% of all survey responders, 6% ($n=332$) of this older population having non-chronic but severe knee pain or disability and 17% ($n=1039$) chronic and severe knee pain or disability.

The KNEST chronic knee pain group represents 75% of those with severe problems on the WOMAC. This was consistent across all age-gender groups. Sixty-eight per cent of those with chronic knee pain (by KNEST) had severe problems on the WOMAC. The figure rose to 82% in females over 75 yr. In addition, 26% of those with non-chronic pain on the KNEST had severe pain or disability measured by the WOMAC.

In order to investigate whether the chronic, non-chronic and no knee pain groups, as identified by the KNEST, were distinct and different in their overall health status, SF36 data were assessed according to the three groups (Table 3). There was a clear downward trend of scores (indicating more limitations) from no pain to non-chronic pain to chronic pain for all SF36 subscales. For each subscale, scores were significantly higher (better) for responders reporting no knee pain than for those with non-chronic knee pain after adjustment for age, gender and body mass index (BMI). The largest differences in the multiple linear regression models were found in the subscales for body pain, role limitations (physical) and physical functioning (on average 12.2, 9.7 and 7.8 points lower for the non-chronic group respectively). However,

differences in mean scores were even more marked between the chronic and non-chronic groups. After adjustment for age, gender and BMI, the largest differences were for role limitations (physical), body pain and physical function. For example, scores on the physical function domain were, on average, 18.6 points higher for the non-chronic group when compared with those with chronic knee pain.

Health-care use

GP consultation. Among responders with knee pain (according to the KNEST knee pain screening question), 33% ($n=967$) reported visiting their GP about this in the last 12 months. Extrapolating these findings to all survey responders (by age and gender) gives an estimated 15% (95% CI 14.1%, 16.0%) of adults in the general population (aged 50+) who consult their GP about knee pain in a 1-yr period.

GP consultation by chronicity (KNEST) and severity of pain or disability (WOMAC) is shown in Table 4. Forty-six per cent of those with chronic knee pain and 18% of those with non-chronic knee pain reported having consulted their GP. Of all consulters, one in four had non-chronic knee pain ($n=238$).

Of those with non-chronic but severe knee pain or disability, 34% had consulted their GP in the last 12 months, compared with 56% of people with chronic and severe knee pain or disability. When these figures are extrapolated to the general practice population, we estimate that approximately 1 in 12 people aged 50 yr and over have chronic and severe knee pain or disability and do not recall having consulted their GP about this in the last year.

TABLE 2. Prevalence of knee pain and disability in a general adult population (aged 50 yr and over) by age and gender

| Gender, age (yr) | Total ^a | All knee pain ^b <i>n</i> (%) | Chronicity of knee pain ^c : <i>n</i> (%) | | Severe knee pain or difficulty with physical function ^d : <i>n</i> (%) | |
|------------------|--------------------|--|--|-------------------------|--|-----------|
| | | | Non-chronic (< 3 months) | Chronic (≥ 3 months) | Less severe | Severe |
| F, 50–64 | 1752 | 832 (47) | 421 (25) | 375 (22) | 468 (27) | 332 (19) |
| F, 65–74 | 1069 | 545 (51) | 233 (23) | 288 (28) | 239 (23) | 291 (28) |
| F, 75+ | 766 | 391 (51) | 108 (15) | 260 (36) | 88 (12) | 272 (38) |
| M, 50–64 | 1511 | 690 (46) | 351 (24) | 321 (22) | 424 (29) | 242 (17) |
| M, 65–74 | 870 | 378 (43) | 152 (18) | 212 (25) | 184 (22) | 178 (21) |
| M, 75+ | 494 | 187 (38) | 61 (14) | 109 (24) | 73 (16) | 103 (22) |
| Total | 6462 | 3023 (47) | 1326 (22) | 1565 (25) | 1476 (24) | 1418 (23) |

Numbers in brackets are percentages of the total population.

^aTotal responder population.

^bDetermined by the KNEST knee pain screening question.

^cDetermined by the KNEST days in pain question.

^dSevere knee pain or disability measured by the WOMAC.

TABLE 3. SF36 scores by reporting of knee pain chronicity ($n=6462$ survey responders aged 50 yr and over)

| Scale | No knee pain | | | Non-chronic knee pain ^a | | | Chronic knee pain ^b | | |
|----------------------|--------------|-------------|--------|------------------------------------|-------------|--------|--------------------------------|-------------|--------|
| | <i>n</i> | Mean (S.D.) | Median | <i>n</i> | Mean (S.D.) | Median | <i>n</i> | Mean (S.D.) | Median |
| Physical function | 3266 | 70.0 (29.5) | 80.0 | 1268 | 63.2 (28.9) | 70.0 | 1472 | 39.8 (29.5) | 35.0 |
| Role limitations (P) | 3191 | 62.9 (43.6) | 100.0 | 1231 | 54.8 (44.7) | 75.0 | 1481 | 29.3 (39.8) | 0.0 |
| Role limitations (E) | 3147 | 75.0 (39.0) | 100.0 | 1220 | 68.9 (42.0) | 100.0 | 1396 | 56.4 (45.1) | 66.7 |
| Social functioning | 3276 | 80.9 (19.0) | 100.0 | 1265 | 77.0 (27.4) | 88.9 | 1502 | 61.5 (32.0) | 66.7 |
| Mental health | 3301 | 73.5 (19.0) | 76.0 | 1279 | 70.7 (19.4) | 76.0 | 1504 | 66.0 (21.0) | 68.0 |
| Energy/vitality | 3277 | 57.4 (22.6) | 60.0 | 1276 | 52.3 (21.9) | 55.0 | 1497 | 42.0 (22.8) | 40.0 |
| Body pain | 3300 | 70.8 (27.0) | 77.8 | 1278 | 58.1 (24.4) | 55.6 | 1504 | 39.6 (22.5) | 44.4 |
| General health | 3300 | 62.7 (23.0) | 67.0 | 1272 | 59.5 (22.7) | 62.0 | 1485 | 47.4 (23.6) | 45.0 |

^aDetermined by the KNEST days in pain question and categorized as pain of < 3 months duration.

^bDetermined by the KNEST days in pain question and categorized as pain of ≥ 3 months duration.

Other health-care use. The profile of treatments or services used (other than the GP) by survey responders is presented in Table 1. Overall, 1129 (37%) of responders with knee pain had received or used one or more of the treatments or services shown (services other than GP). Of those who used other treatments or services (e.g. physiotherapy or acupuncture), 2% or less had used private services.

Lack of any health-care use

Overall, 1610 (55%) of responders with knee pain had not accessed or received any of the services or treatments shown (including GP). This figure varied from 50% of people with non-chronic but severe knee pain or disability to 30% of people with chronic and severe knee pain or disability.

The data from the KNEST and WOMAC on knee pain prevalence and health-care use were extrapolated to the wider population (Fig. 1 and Table 5). For example, Fig. 1 shows that 5.1% of the population aged 50 yr and over had chronic and severe knee pain or disability but had not accessed any health-care in the last 12 months. Table 5 simply applies the data from Fig. 1 to the population of 1000 people aged 50 yr and over and classifies the figures according to unmet and expressed need. 'Expressed need'

(GP consultation or use of other services) relates to self-perceived symptoms for which health-care has been sought and is taken as one measure of demand. 'Unmet need' relates to those who do not seek health care. The estimates in Table 5 suggest that 79 (28 + 51) per 1000 older adults in the general population have severe knee pain or disability for which they have not accessed any health-care in a 1-yr period.

Discussion

Subdividing a health problem into categories can help provide a picture of varying needs for health-care in the population. Identifying non-recipients of potentially beneficial health-care can highlight possible unmet needs [9]. We used a brief screening tool for knee pain in order to describe a broad group with knee pain, subgroups with non-chronic and chronic knee pain, and related health-care use in the general population.

The KNEST knee pain screening question yields a 12-month prevalence of knee pain in the general population (aged 50+ yr) of 47%. This figure is higher than that reported in previous postal surveys of knee pain in the community as the KNEST question is designed to capture all grades of knee pain, not just that which is chronic. Previous studies have used the NHANES question that

TABLE 4. GP consultation in the last 12 months by adults aged 50 yr and over with knee pain (by chronicity and severity)

| Gender, age (yr) | Total knee pain ^a n (%) | Chronicity ^b : n (%) | | Severity pain or physical function ^c : n (%) | |
|------------------|---------------------------------------|---------------------------------|---------------------|---|----------|
| | | Non-chronic (<3 months) | Chronic (≥3 months) | Less severe | Severe |
| F, 50–64 | 237 (29) | 64 (15) | 171 (46) | 74 (16) | 162 (50) |
| F, 65–74 | 178 (34) | 49 (21) | 127 (44) | 41 (17) | 131 (46) |
| F, 75+ | 158 (43) | 28 (26) | 127 (50) | 22 (25) | 132 (50) |
| M, 50–64 | 209 (31) | 59 (17) | 149 (47) | 78 (19) | 129 (55) |
| M, 65–74 | 120 (32) | 29 (19) | 90 (43) | 31 (17) | 88 (50) |
| M, 75+ | 65 (37) | 9 (15) | 54 (50) | 17 (24) | 47 (48) |
| Total | 967 (33) | 238 (18) | 718 (46) | 263 (18) | 689 (50) |

^aDetermined by the KNEST knee pain screening question.

^bDetermined by the KNEST days in pain question.

^cSevere knee pain or disability measured by the WOMAC.

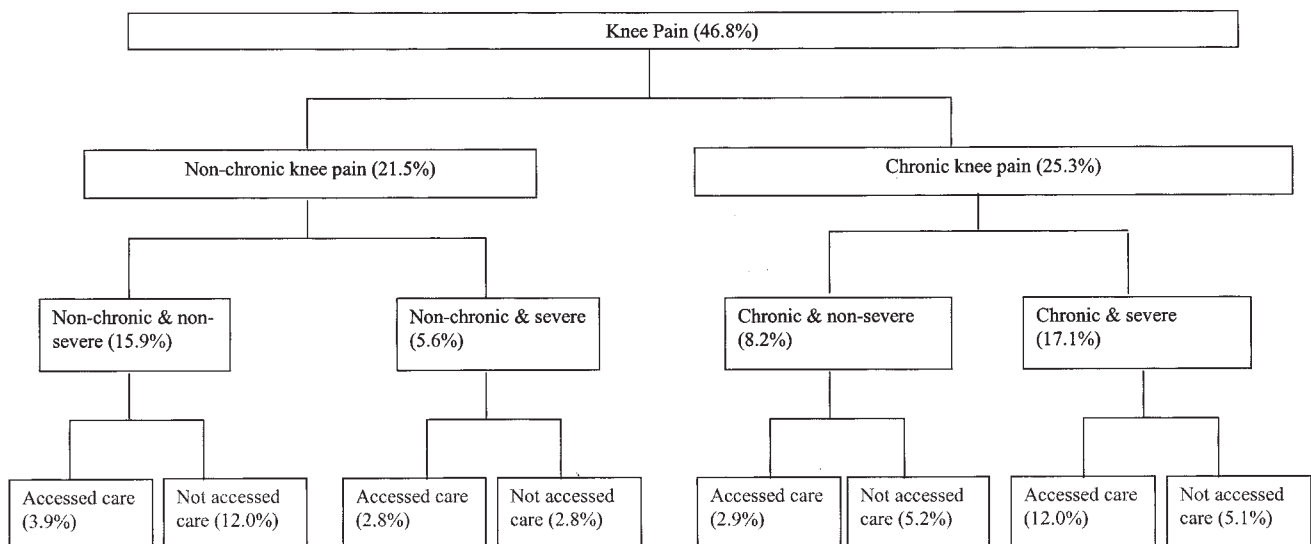


FIG. 1. Template for assessing potential need and recent demand for care related to knee pain in the general population aged 50 yr and over. Percentages are related to the total population in this age-group. Care includes GP, drugs on prescription, physiotherapy, hospital specialist, knee operation, knee injection, acupuncture and osteopath/chiropractor.

TABLE 5. Need and demand for health-care per 1000 population aged 50 yr and over

| | Accessed care ^a | Not accessed care ^b |
|----------------------------|----------------------------|--------------------------------|
| Non-chronic and non-severe | 39 | 120 |
| Chronic and non-severe | 29 | 52 |
| Non-chronic and severe | 28 | 28 |
| Chronic and severe | 121 | 51 |
| Total with knee pain | 217 | 251 |

Health-care includes GP, drugs on prescription, physiotherapy, hospital specialist, knee operation, knee injection, acupuncture and osteopath/chiropractor.

^aExpressed need or demand for health-care, but if services inappropriate or ineffective, also may indicate unmet need.

^bPotential unmet need for health-care.

asks specifically about pain on most days of a month. This question may not capture mild or intermittent knee pain and will hence underestimate the total prevalence of knee pain in the community [10]. In one study, 'the numbers reporting knee pain on most days of the previous month approximately doubled if pain at any time in the previous month was used' [11]. As a starting point for needs assessment in a locality, the KNEST describes a broader group of men and women aged 50 yr and over in the general population with knee pain.

As well as identifying the broad group with knee pain, the KNEST adds to earlier studies of knee pain by distinguishing individuals with more persistent (chronic) pain (≥ 3 months of pain in the past year) from those with non-chronic knee pain (< 3 months of pain in the past year). In this general population (aged 50+ yr) the 12-month period prevalence of chronic knee pain was estimated at 25%. This prevalence of chronic knee pain is in line with the prevalence figures reported in Bristol by McAlindon *et al.* (25%) [12] and in Nottingham by O'Reilly *et al.* (28%) [13], studies that both used the NHANES knee pain screening question. The chronic group identified by the KNEST may provide a reference point if the target is individuals who are usually labelled as having osteoarthritis in clinical practice and who are more likely to include the subgroup with associated changes of osteoarthritis on radiographs. We did not set out to identify the subgroup who might benefit from surgery, but this might be an aim of more in-depth investigation of a subgroup of people identified by the KNEST.

The KNEST adds to previous work on knee pain and health-care use [14] as it identifies those with non-chronic knee pain—individuals who may have been classified in previous studies with the group reporting no knee pain. We have found that the non-chronic group constitutes nearly half of those who report knee pain. It is reasonable to question whether identifying the non-chronic group really matters. It may be that this group do not want or need contact with their family doctor or wish to use any treatments or services. However, we have found that this group already differs from responders with no knee pain in terms of their general health status. In addition, a quarter of those with non-chronic knee pain had severe restrictions according to the WOMAC. Needs assessment that focuses on chronic knee pain only will miss 6% of the older population who have severe pain or disability associated with non-chronic knee pain. Finally, identifying the non-chronic group may be relevant to the prevention of progression of radiographic osteoarthritis, given that epidemiological studies have shown that knee pain (of 1 month or more) predicts the presence of osteophytes [15].

Health-care use

The potential for health gain in the population can be estimated by identifying 'non-recipients of beneficial health-care interventions'

[16]. The starting point is to identify groups in the community who have needs related to knee pain and disability but have not expressed these in seeking or using health-care.

Tennant *et al.* [17] reported on recalled GP consultation in men and women aged 55 yr and over for those with 'extremely severe' or 'severe' knee pain who scored above 14 points on the Lequesne ISK [18]. In this severe group, who may be in need of surgery, 97% reported seeing their GP in the last year. By contrast, the KNEST, based on recalled health-care use for the full range of knee pain, found that a minority (33% of all, 18% of non-chronic and 46% of chronic knee pain sufferers) had consulted their GP about their pain in the previous year. The difference between recalled consultation in the present study and in the study of Tennant *et al.* is likely to reflect different levels of severity in the population groups studied.

The reason why only a third of responders in the present study had consulted a GP in the previous year could be that they were seeking help elsewhere. However, this is unlikely, given the finding of low use of other services and treatments or of private services. The KNEST may have identified a group with potential unmet needs, given that nearly half of responders with chronic and severe knee pain or disability in our study had not consulted a GP in the last year and 30% had not used any treatments or services. Unmet needs may also exist in the group who report using GP or other services. This is suggested by our data, which illustrate that severe pain or disability still exists despite recent contact with health-care services. One explanation is that the current supply of services and treatments in primary care may not be the most effective for managing knee pain and disability in older adults.

There are three potential applications of our work. First, we have presented the results of using the KNEST in an older general population sample. Our tables and extrapolated population data give an indication of the extent of knee pain, and could be used by health-care providers to estimate the extent of the problem in their locality.

Secondly, when combined with the WOMAC, these data could also be used by health-care organizations to identify groups of individuals at whom to target both prevention and treatment programmes. These combined data, for example, may be useful for public health initiatives and for medical and social service planning in primary care. Identifying all those aged 50 yr and over with knee pain and distinguishing them as shown in the list of categories below is relevant because the different groups carry different implications for the type of preventive or therapeutic and social care that might be needed. The percentages shown in Fig. 1 are estimated prevalences in the total population of older adults and, because the eight groups are mutually exclusive, total to the 47% of older adults who have knee pain.

- A non-chronic and non-severe group, accessing services: 4%
- A non-chronic and non-severe group, not accessing services: 12%
- Non-chronic and severe, accessing services: 3%
- Non-chronic and severe, not accessing services: 3%
- Chronic and non-severe, accessing services: 3%
- Chronic and non-severe not accessing services: 5%
- Chronic and severe, accessing services: 12%
- Chronic and severe, not accessing services: 5%.

Thirdly, as the KNEST is able to screen for and characterize the nature of knee pain, it can be used in research to classify patients, for example, in intervention studies.

This paper reports on the findings of the KNEST when used in a cross-sectional survey. We have not yet tested the actual usefulness of the tool in a public health context. The value of screening with the KNEST as a contribution to the management of knee pain and prevention of knee osteoarthritis needs to be studied and estimated in longitudinal designs.

Because this study was cross-sectional, it investigated knee pain and disability in the population at one point in time. Knee pain can

be intermittent, with individuals experiencing episodes of pain and related disability separated by pain-free periods. This cross-sectional survey may have failed to capture some such recurrently painful episodes, thereby introducing some underestimation of episodic knee pain with respect to those who did not have knee pain at the time of the survey. Self-reported data were used to calculate the BMI, and this may underestimate the true population BMI [19].

We used a sample of all those aged 50 yr and over registered with three general practices. Approximately 98% of the British population is registered with a GP [20] and the register provides a convenient sampling frame for a local population. As our survey achieved a high response rate (77%), the effects of non-response bias should be limited, although there were slight differences between responders and non-responders in terms of age, gender and general practice. The mean BMI score in our population sample was 26.2, in line with national trends [21]. On the basis of population estimates for mid-2000 [22], the demographic profile of the sample is similar to that of North Staffordshire and England and Wales. For example, in the present study, 56% of responders were female, whereas 54% of the population over 50 yr in North Staffordshire and England and Wales are female. The proportion of people aged 75+ yr in the survey sample was 21%, compared with 22% in North Staffordshire and 23% in England and Wales. Our results are only generalizable to Caucasians as 99% of responders were of white UK/European origin, reflecting the nature of our local population.

Conclusion. Previous population studies that have focused on chronic knee pain have found that knee pain is common in the elderly. We administered a brief knee pain screening tool (the KNEST) and report a prevalence of 47% for knee pain in the over 50s. This figure takes account of non-chronic pain, the relevance of which is emphasized by the substantial number in this group with severe knee pain or disability. Our short screening instrument might provide a useful preliminary screen of an older population as a means of distinguishing groups with differing levels of knee pain and disability. However, its usefulness in practice, both alone and in combination with the WOMAC, needs to be investigated in prospective studies. The KNEST can help to identify different groups in the population with diverse needs for health-care and those with potentially unmet needs. In line with demographic changes, the burden of knee pain for older people is likely to grow, and the need to identify practical and effective means of reducing this burden remains a clear priority for research and development in primary care.

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Appendix: The Knee Pain Screening Tool (KNEST)

| Screening characteristic | Question used | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--------------------------|-----------|---------------|------------------|--------------------------|--------------------------|------------------------|--------------------------|--------------------------|----------------|--------------------------|--------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------|--------------------------|--------------------------|-------------------|--------------------------|--------------------------|-------------------------|-------|-------|
| Knee injury | Have you ever injured your knee badly enough to see a doctor about it? <i>(Please put a cross in one box only)</i> No <input type="checkbox"/> Right knee only <input type="checkbox"/> Left knee only <input type="checkbox"/> Both knees <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knee pain | Have you had pain in the last year in or around the knee? <i>(Please put a cross in one box only)</i> Yes <input type="checkbox"/> No <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| The following questions are specific to people who answer 'yes' to the above question on knee pain | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Degree of pain | Please think back over the last 12 months . Please put a cross in one box to show if you have pain, or have had pain: In both knees <input type="checkbox"/> In the right knee <input type="checkbox"/> In the left knee <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Days in pain* (chronicity) | Again please think back over the last 12 months . On how many days have you had this pain? <i>(Please put a cross in one box only)</i> <input type="checkbox"/> Less than 7 days <input type="checkbox"/> 1–4 weeks <input type="checkbox"/> More than 1 month but less than 3 months <input type="checkbox"/> More than 3 months | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GP consultation | Have you consulted your GP (family doctor) in the last 12 months because of your knee pain? <i>(Please put a cross in one box)</i> Yes <input type="checkbox"/> No <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Services used | Which of the following services or treatments have you used in the last 12 months because of your knee pain? For each service you have used please put a cross to show whether the NHS provided this, or if you had private treatment. If you have used NHS and Private services please cross both boxes. For any service that you have not used please leave blank. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 20%; text-align: center;">Yes (NHS)</th> <th style="width: 20%; text-align: center;">Yes (Private)</th> </tr> </thead> <tbody> <tr> <td>a) Physiotherapy</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>b) Hospital specialist</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>c) Acupuncture</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>d) Osteopath/Chiropractor</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>e) Drugs on prescription</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>f) Knee operation</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>g) Knee injection</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>h) Other (please state)</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> </tr> </tbody> </table> | | Yes (NHS) | Yes (Private) | a) Physiotherapy | <input type="checkbox"/> | <input type="checkbox"/> | b) Hospital specialist | <input type="checkbox"/> | <input type="checkbox"/> | c) Acupuncture | <input type="checkbox"/> | <input type="checkbox"/> | d) Osteopath/Chiropractor | <input type="checkbox"/> | <input type="checkbox"/> | e) Drugs on prescription | <input type="checkbox"/> | <input type="checkbox"/> | f) Knee operation | <input type="checkbox"/> | <input type="checkbox"/> | g) Knee injection | <input type="checkbox"/> | <input type="checkbox"/> | h) Other (please state) | | |
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*Derived from a question by von Korff *et al.* [7]