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Health-related and overall quality of life of patients with chronic hip and knee complaints in general practice

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Abstract

Background: Information about quality of life of patients with chronic hip or knee complaints in general practice is scarce. This study describes the health-related and overall quality of life (HRQL) of these complaints. *Methods:* Data were obtained from a cohort study in general practice. HRQL at three months follow-up was analysed. HRQL was measured as: symptoms, physical, psychological and social functioning, and general health perceptions, using the Western Ontario and McMaster Universities osteoarthritis index (WOMAC) and the MOS 36-item short-form-health survey (SF-36). Overall quality of life was measured using a 5-point rating scale. *Results:* The results show that patients with chronic hip or knee complaints have a substantial lower HRQL compared to patients who had recovered from baseline hip or knee complaints. The largest effect was found on symptoms and physical functioning: up to 2.9 standard deviations below patients who had recovered from baseline hip or knee complaints. Scores of patients with both chronic hip and knee complaints were significantly worse than scores of patients with only knee complaints on most subscales. *Conclusion:* In patients with chronic hip or knee complaints the worst scores were seen on scales that measure symptoms and physical functioning, but still a substantially lower score was obtained for overall quality of life. Quality of life was poorer for patients with both chronic hip and knee complaints compared to those with chronic hip or knee complaints only.

Key words: Burden of illness, Hip, Knee, Quality of life

Introduction

Many people suffer from hip or knee complaints. The 12-months prevalence among adults in the general population in the Netherlands is estimated at 28% [1]. The prevalence increases with age [1]. In the Netherlands, every year 9.6 patients per 1000 persons visit their general practitioner (GP) with a new episode of hip complaints and 31 patients per 1000 persons with a new episode of knee complaints [2]. Although these complaints are often self-limiting and of relatively short duration, many of these patients develop chronic pain.

Musculoskeletal disorders such as chronic hip and knee complaints have a large impact on functional disability, health care costs, sick leave and work disability [3] and have, therefore, substantial economical consequences [4–6]. The United Nations, the World Health Organization (WHO), governments, professional and patients' organisations have therefore declared 2000–2010 the Bone and Joint Decade, with the aim of determining the burden of musculoskeletal diseases and improving the health related quality of life (HRQL) of people with musculoskeletal conditions [7–9]. Quantifying the health burden of (musculoskeletal) disorders is

critical to decisions involving the allocation of limited health care resources.

The burden of hip and knee complaints relates not only to its incidence and prevalence, but also to its impact on the HRQL of the patients who suffer from it [8]. Although HRQL in patients with osteoarthritis of the hip or knee treated in secondary or tertiary care has been studied extensively, data about the HRQL of patients with chronic hip or knee complaints in general practice are still scarce. We recently performed a systematic review, describing the impact of hip and knee complaints on HRQL as measured by the MOS 36-item short form health survey (SF-36). Most studies concerned patients in clinical studies, and include referred patients with more serious complaints. Only one study in general practice was found [10]. This study [10] describes the HRQL of new attenders with hip pain. Data about the HRQL of patients with chronic hip and knee complaints in general practice is lacking.

The purpose of this paper is, therefore, to determine the HRQL of patients with chronic hip or knee complaints presented in general practice. A model was used as a framework for studying HRQL (Figure 1). This model was based on the 'disablement process' described by Verbrugge and Jette [11] and on a HRQL model of patient outcomes, introduced by Wilson and Cleary [12]. In this model the term HRQL is used as a summary term for three outcome levels: symptoms (physical, psychological and social) functioning and general health perceptions. Clinical (biological or physiological) processes are on the left side of the model. These clinical processes are experienced by the patient as symptoms such as pain or stiffness. These symptoms can lead to functional limitations in daily activities, such as walking, working, or visiting friends, which influences the general health perceptions and overall quality of life. The objective of the present study was to assess the HRQL of patients with chronic hip or knee complaints as measured at three different levels of outcome: symptoms (pain and stiffness), physical, psychological, and social functioning and general health perceptions. In addition, overall quality of life was assessed.

Methods

Design

Data were obtained from a cohort study in 61 general practices (97 GPs) on determinants of the

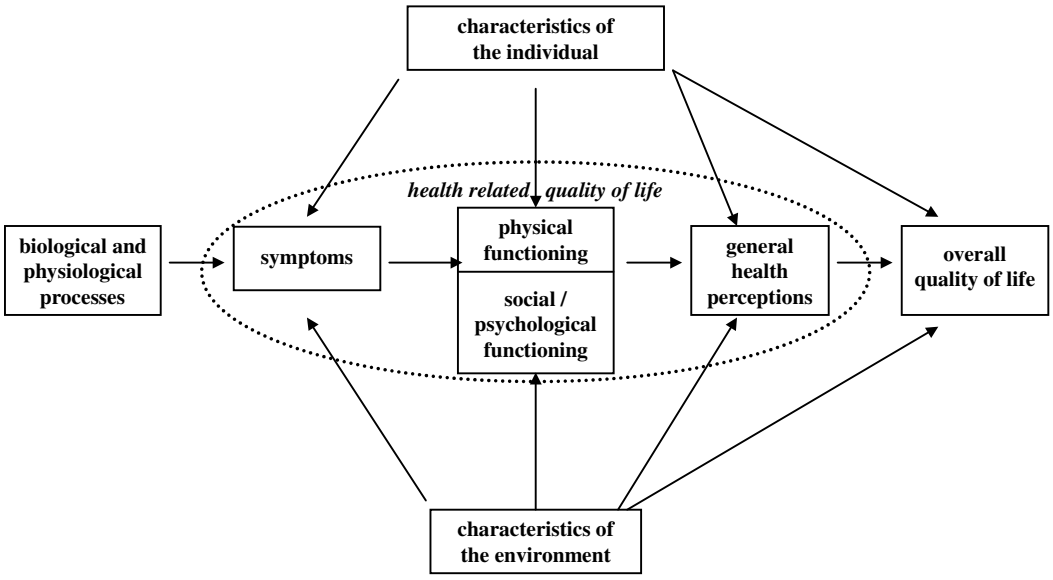

Figure 1. Relationships among measures of patient outcome in a HRQL model. Adapted from Verbrugge and Jette [11] and Wilson and Cleary [13].

Table 1. ICPC codes, selected for inclusion

L01	Neck symptoms/complaints
L08	Shoulder symptoms/complaints
L09	Arm symptoms/complaints
L10	Elbow symptoms/complaints
L11	Wrist symptoms/complaints
L12	Hand/finger symptoms/complaints
L13	Hip symptoms/complaints
L14	Leg/thigh symptoms/complaints
L15	Knee symptoms/complaints
L16	Ankle symptoms/complaints
L17	Foot/toe symptoms/complaints
L18	Muscle pain/fibrositis
L19	Other symptoms, multiple/unspecified muscle
L20	Symptoms multiple/unspecified joints
L28	Disability/impairment
L29	Other and multiple musculoskeletal symptoms
L77	Sprain of ankle/foot
L78	Sprains/strains of knees
L79	Sprains/strains other joints
L80	Dislocations
L81	Other injury musculoskeletal
L83	Syndrome of cervical spine
L84	Osteoarthritis spine
L85	Acquired deformities of spine
L87	Ganglion joint/tendon
L88	Rheumatoid arthritis
L89	Osteoarthritis hip
L90	Osteoarthritis knee
L91	Other osteoarthritis
L92	Shoulder syndrome
L93	Tennis elbow
L94	Osgood-schlatter, osteochondritis
L95	Osteoporosis
L96	Acute meniscus/ligament knee
L97	Chronic internal knee derangement
L98	Acquired deformities limbs
L99	Other musculoskeletal/connective disorder
N93	Carpal tunnel syndrome

clinical course of musculoskeletal complaints. The GPs who participated in this study form a random sample of all Dutch GPs. Part of these GPs participated in the Second Dutch National Survey of General Practice (NS2) [13]. The GPs all used ICPC codes (International Classification of Primary Care) to classify the main complaint of each patient at each consultation [14]. A selection of ICPC codes was made to identify patients with musculoskeletal complaints (Table 1). Patients were eligible for participation in the study if they met the following inclusion criteria: patients who visited their GP with a new complaint or new episode of a complaint of the hip or knee (according to selected ICPC codes); were 18 years or older and were capable of filling in Dutch questionnaires. An episode of complaint was considered 'new' if patients had not visited their GP for the same complaint during the preceding 3 months. Patients were excluded from the study if a fracture, malignancy, prosthesis, amputation or congenital defect caused the complaint at issue or if a patient was pregnant. Patients who were eligible for participation, were informed about the study by their GP and their names and addresses were send to the EMGO Institute. At baseline and after 3, 6, 12 and 18 months of follow-up, individual patient data were collected by means of self-administered questionnaires. Depending on the location of the complaint, patients received a complaint-specific questionnaire for (1) complaints of the neck and upper extremities, (2) complaints of the hip or knee or (3) complaints of the ankle or foot. For this article, patients who filled in the questionnaire about complaints of the hip or knee were used to study HRQL at three months follow-up. Further details about the design of the study are described elsewhere [15].

Complaints were considered chronic if patients indicated that they still had hip or knee complaints after three months follow-up. The question asked in the questionnaire was: 'Is the complaint for which you consulted your GP, still troubling you?'. Data from patients with hip or knee complaints at baseline, but who had recovered after 3 months were used as reference data.

The Medical Ethics Committee of the VU University Medical Center approved the study protocol.

HRQL assessment

Three questionnaires were used. First, the Western Ontario and McMaster Universities (WOMAC) osteoarthritis index [16] was used as a disease-specific HRQL questionnaire. The WOMAC contains three subscales: pain, stiffness and physical functioning with 5, 2, and 17 questions, respectively. The 5-point Likert version of the WOMAC was used. Item responses range from 'none' to 'extreme' complaints. The WOMAC is well tested, and its reliability, validity, and responsiveness are considered to be satisfactory [17, 18]. The version of the WOMAC used in this

study asks respondents to think about their 'hip or knee complaints' instead of their 'arthritis'. The scores of the three subscales were standardised to a range of values from 0 to 100: 100 representing the best health status and 0 the worst possible health status. Second, the SF-36 [19] was used as a generic HRQL questionnaire. The questionnaire is a 36-item generic HRQL measure designed to assess eight health concepts relevant to a person's functional status and well being. The eight scales measured by the SF-36 are physical functioning, role limitations in physical functioning, role limitations in emotional functioning, social functioning, bodily pain, mental health, vitality and general health. Scale scores range from 0 to 100 with higher scores representing better perceived health. The SF-36 is a well-validated, reliable measure of HRQL and has been used in patients with many different chronic conditions [20]. Third, perceived overall quality of life was measured with a single question, asking: 'How would you rate your quality of life in general?'. It was scored on a 5-point rating scale, based on the format of the first question of the general health perceptions subscale of the SF-36. Higher scores represent better perceived quality of life.

The various subscales of the above-mentioned questionnaires correspond to the different outcome levels in our model (Figure 1). The symptoms pain and stiffness were measured. Pain was measured using the pain scale of the WOMAC and the subscale bodily pain of the SF-36. Stiffness was measured using the stiffness subscale of the WOMAC. Various aspects of physical functioning were measured using the physical functioning scale of the WOMAC and two subscales of the SF-36 (physical functioning and role limitations in physical functioning). Psychological and social functioning were measured using three subscales of the SF-36: mental health, social functioning and role limitations in emotional functioning. General health perceptions were measured using two subscales of the SF-36: vitality and general health. Perceived overall quality of life was measured with the single overall quality of life-item.

Statistical analyses

Scores on the WOMAC, SF-36 and quality of life item were computed and presented separately for three different patient groups: patients with chronic knee complaints, patients with chronic hip complaints and patients with chronic hip and knee complaints. This subdivision of patients was based on the complaints that patients indicated in the 3-months follow-up questionnaire. If a patient indicated that he/she had both hip or knee complaints he/she was included in the group 'both'. At least one of these complaints already existed at baseline. To put the scores of patients with chronic complaints into perspective, data from two references populations were used. For the SF-36, data from a representative sample of the Dutch general population was used [21]. For the WOMAC, no reference data from a general population are available, because the WOMAC is usually only completed by patients with hip or knee complaints. However, in our cohort study, patients were asked to complete all questionnaires during follow-up, even when they had recovered from their complaints. We used the group of patients who had recovered from their baseline hip or knee complaints after 3 months follow-up as a proxy for a reference group from the Dutch general population. Analysis of variance (ANOVA) with post hoc Bonferroni analysis was performed to compare mean scores on HRQL measures between the three patient groups and the reference group of patients who had recovered. Age and gender were used as covariates since in general women and people with higher age score lower on HRQL scales.

Subsequently, z-scores (effect sizes) were calculated for each HRQL measure by dividing the difference between the mean score of the patient group and the mean score of a reference population by the standard deviation of the mean score of the reference population. For all subscales, data from the patient group who had recovered from their baseline hip or knee complaints were used as reference data. Results were presented separately for the three different patient groups with chronic complaints. Computing z-scores enables a direct comparison between the different HRQL measures. The guidelines of Cohen for the interpretation of effect sizes were used [22]. Using these guidelines, a z-score of 0.2 is considered a small difference, a z-score of 0.5 a moderate difference, and a z-score of 0.8 a large difference. According to previous studies, the threshold for clinically important differences in HRQL appears to be half

Table 2. Characteristics of the study population

	Chronic hip complaints	Chronic knee complaints	Chronic hip and knee complaints	Recovered from hip or knee complaints
Number	33	102	25	97
Sex – % women	70%	54%	64%	46%
Age in years – mean (SD)	47 (15.4)	48 (15.5)	57 (14.2)	46 (15.4)
Paid activities, working	55%	64%	24%	69%
No paid activities	45%	36%	76%	30%
Other musculoskeletal complaints				
Upper extremities	42%	17%	56%	26%
Foot or ankle	3%	7%	16%	7%
Back pain	27%	21%	36%	20%
No other musculoskeletal complaints	39%	61%	20%	62%

a standard deviation (SD) [23]. Therefore, a *z*-score of 0.5 or larger was considered a clinically important difference.

Results

A total of 257 patients with hip or knee complaints out of the 333 (77%) who completed the baseline questionnaire, also completed the three months follow-up questionnaire. The characteristics of these patients are shown in Table 2. Of these 257 patients, 160 (63%) still had complaints after 3 months and were considered as having chronic complaints. Most of the patients who had chronic complaints, suffered from knee complaints only (64%); 33 patients (21%) experienced only hip complaints, while 25 patients (15%) suffered from both hip and knee complaints. As shown in Table 2, patients with hip and knee complaints were on average older ($p < 0.05$) than patients who had recovered from baseline hip or knee complaints. Furthermore, patients with both hip and knee complaints more frequently reported other coexisting musculoskeletal complaints ($p < 0.05$).

Figure 2 shows the mean WOMAC scores for the four patient groups. Patients with only hip complaints scored similar to patients with only knee

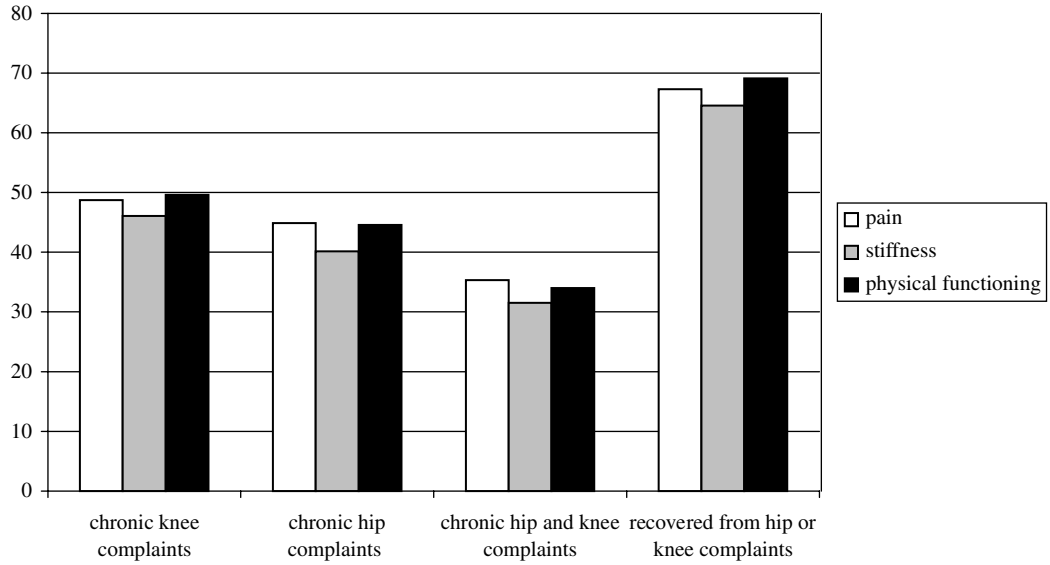

Figure 2. Mean WOMAC scores * in patients with hip or knee complaints in general practice (*scores are standardised to a range of values from 0 to 100 and adjusted for differences in age and gender).

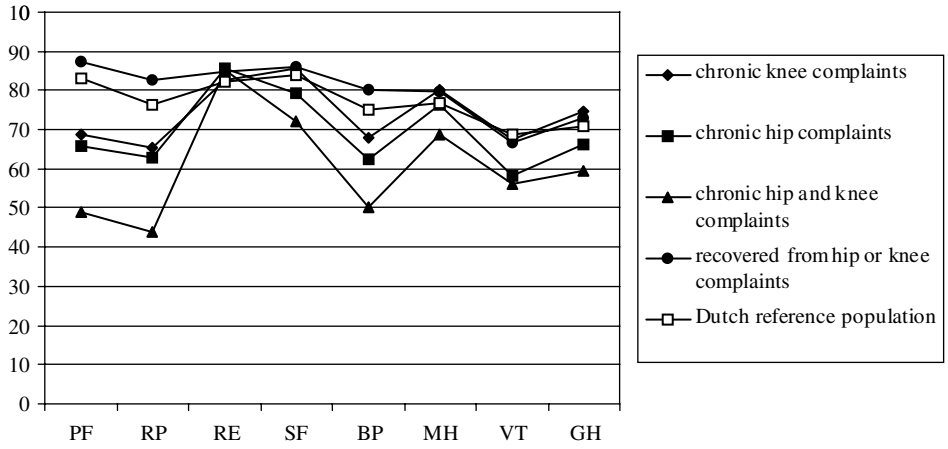

Figure 3. Mean SF-36 scores* in patients with hip or knee complaints in general practice (*scores are standardised to a range of values from 0 to 100 and adjusted for differences in age and gender). PF: physical functioning, RP: role limitations in physical functioning, RE: role limitations in emotional functioning, SF: social functioning, BP: bodily pain, MH: mental health, VT: vitality, GH: general health.

complaints. Patients with both hip and knee complaints scored worst on all subscales of the WOMAC. On average, they scored 9–11 points below the scores of patients with hip complaints only (not statistically significant) and 13–16 points below patients with knee complaints only ($p < 0.05$). All differences were adjusted for differences in age and gender. All patient groups differed significantly from the reference group ($p < 0.05$).

Figure 3 shows the SF-36 scores according to the type of complaint. Again, patients with both hip and knee complaints scored worst on all subscales, especially on the subscales physical functioning, role limitations in physical functioning and bodily pain. On these subscales all patient groups scored significantly lower than the reference group of patients who had recovered from baseline hip or knee complaints ($p < 0.05$). Patients with both hip and knee complaints also had significantly lower scores on the mental health, general health, vitality and social functioning subscales than the patients who had recovered from baseline hip or knee complaints ($p < 0.05$). The scores of the patients who had no complaints anymore, were similar to the scores of the Dutch reference population [21]. The scores of patients with either hip or knee complaints were rather similar. All analyses were adjusted for differences in age and gender.

The overall quality of life scores are presented in Figure 4. Again, patients with both hip and knee complaints scored worst: a mean score of 2.1 (SD = 0.8); significantly lower than the reference group ($p < 0.05$). Patients with knee complaints have a significantly higher mean score than patients with hip complaints (2.6 (SD = 0.9) vs. 2.2 (SD = 0.8), $p < 0.05$) and have the same scores as patients who did not have complaints anymore. The scores of patients with chronic hip complaints were significantly lower than the reference group ($p < 0.05$). All differences were adjusted for differences in age and gender.

Table 3 summarises the calculated *z*-scores. All three patient groups scored worst on the WOMAC subscale physical functioning (1.6–2.9 SD below the reference group), followed by the WOMAC pain subscale (1.3–2.3 SD below the reference group). The differences between the three patient groups and the reference group were moderate (>0.5 SD) to large (>1.0 SD) for all measures of symptoms and physical functioning. Scores related to psychological functioning, social functioning and general health perceptions were more than 0.5 SD below the reference group for patients with both hip and knee complaints only. Overall quality of life was more than 0.5 SD below the reference group for patients with hip complaints and patients with both hip and knee complaints. In general patients with both hip and knee complaints had the lowest scores for HRQL.

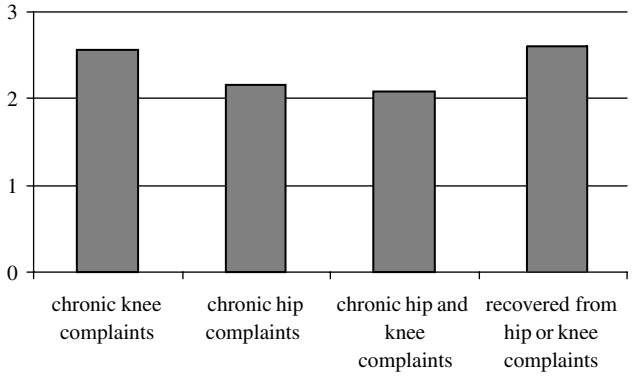

Figure 4. Mean overall quality of life scores* in patients with hip or knee complaints in general practice (*scores range from 0 to 5 and adjusted for differences in age and gender).

Table 3. Measures of quality of life in patients with hip or knee complaints in general practice: z-scores

		Chronic knee complaints	Chronic hip complaints	Chronic hip and knee complaints
Symptoms	WOMAC pain	**−1.32**	**−1.59**	**−2.27**
	SF-36 BP	**−0.63**	**−0.91**	**−1.50**
	WOMAC stiffness	**−1.06**	**−1.41**	**−1.90**
Physical functioning	WOMAC physical functioning	**−1.59**	**−1.99**	**−2.86**
	SF-36 PF	**−1.10**	**−1.26**	**−2.27**
	SF-36 RP	**−0.55**	**−0.63**	**−1.23**
Social/psychological functioning	SF-36 SF	−0.03	−0.36	**−0.74**
	SF-36 MH	0.04	−0.21	**−0.69**
	SF-36 RE	−0.07	0.03	0.01
General health perceptions	SF-36 VT	0.04	−0.49	**−0.62**
	SF-36 GH	0.09	−0.40	**−0.78**
Overall quality of life	Quality of life-scale	−0.03	**−0.58**	**−0.67**

Bold: *z*-score below −0.50 (compared to patients who had recovered from baseline hip or knee complaints).
PF – physical functioning, RP – role limitations in physical functioning, BP – bodily pain, GH – general health, VT – vitality, SF – social functioning, RE – role limitations in emotional functioning, MH – mental health.

Discussion

The results of this observational study in general practice on patients with chronic hip or knee complaints show that patients with these disorders have a substantially lower HRQL and overall quality of life. The worst scores were seen on scales that measure symptoms and physical functioning: all patient groups (i.e., patients with hip and knee complaints; patients with knee complaints only; patients with hip complaints only) scored more than half a SD (0.6–2.9 SD) below patients who had recovered from baseline hip or knee complaints. This concerned all WOMAC subscales. General health perception scores were more than 0.5 SD below the reference group only for patients with both hip and knee complaints. Overall quality of life scores were more than 0.5 SD below the reference group for patients with only hip complaints and patients with both hip and knee complaints. These results indicate a considerable effect of chronic hip or knee complaints on all aspects of

HRQL, especially on symptoms and physical functioning, and on quality of life.

In general, patients with knee complaints had a better HRQL than patients with hip complaints, although these differences were small (0.3–0.4 SD). Patients with both hip and knee complaints showed the worst HRQL, up to 2.9 SD below the reference group. Relatively poor scores on all HRQL measures were seen for patients with both hip and knee complaints. This effect is still present after the differences have been corrected for differences in age and gender. The patients with both hip and knee complaints also reported more coexisting musculoskeletal complaints at other locations, as can be seen in Table 2, which can also partly explain the lower scores.

The scores on the different subscales of the SF-36 of patients who had recovered from baseline hip or knee complaints resembled the scores of the Dutch reference population. This supports the decision to use this group as a proxy for a reference group from the Dutch general population.

The incidence of hip and knee complaints in general practice was estimated to be 30 per 1000 person years (based on unpublished data from the NS2 [13]). In the present study we expect that not all eligible patients were enrolled by the GP. Exact data about the number of eligible patients who were invited to participate, and the number refusing participation were not available to us. Nonetheless, we have no indication that selection bias has strongly influenced our findings. Regular contact was maintained with the GPs during recruitment. GPs indicated that the most important reasons for not including patients concerned the exclusion criteria, and lack of time or motivation to ask all patients during office hours.

The results of the present study clearly demonstrate the different levels of outcome in the model used in this study (Figure 1). Moving from left to right in the model means moving from the cell to the individual as a member of society. The concepts at each level from left to right are increasingly influenced by individual and environmental characteristics. We found that the worst scores in patients chronic hip and knee complaints can be seen on the level of functioning, followed closely by the level of symptoms and increases when moving to the right side of the model. However, patients with both hip and knee complaints and patients with hip complaints only also had substantially low scores at the level of general health perceptions and overall quality of life.

In this study chronic hip or knee complaints were defined on the basis of prospective data. At baseline and after 3 months follow-up patients were asked about their complaints. Haggerty and Ness [24] showed that a single assessment underestimates the occurrence of chronic complaints. Asking patients about their complaints twice, can give a more reliable estimate of the duration of their complaints.

The population in western countries is ageing, and an increasing number of people are suffering from hip or knee complaints. Most of these patients are encountered and cared for in primary care. However, in a recently conducted systematic review, we only found one study measuring HRQL in patients with hip or knee disorders in a primary care setting. This study [10] concerned an older population (mean age = 63), which may limit the possibilities for generalising these results to other primary care populations. Furthermore, this study [10] included only patients with hip pain. Our study fills the gap in presenting HRQL data of patients of all ages with chronic hip or knee complaints in general practice. These data support the effort of the organisers of the Bone and Joint Decade [9] to determine the burden of musculoskeletal diseases and underscore their statement that the HRQL and overall quality of life of people with hip or knee complaints should be improved.

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