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ORIGINAL ARTICLE

MDHAQ/RAPID3 scores in patients with osteoarthritis are similar to or higher than in patients with rheumatoid arthritis: a cross-sectional study from current routine rheumatology care at four sites

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ABSTRACT

Objective To compare patients with a primary diagnosis of osteoarthritis (OA) versus rheumatoid arthritis (RA) for scores on a patient self-report MDHAQ/RAPID3 (Multidimensional Health Assessment Questionnaire/Routine Assessment of Patient Index Data 3), and for physician global assessment (DOCGL).

Methods All patients with all diagnoses complete an MDHAQ/RAPID3 at all routine rheumatology visits in the waiting area before seeing a rheumatologist at four sites, one in Australia and three in the USA. The two-page MDHAQ includes 0–10 scores for physical function (in 10 activities), pain and patient global assessment [on 0–10 visual analogue scales (VAS)], compiled into a 0–30 RAPID3, as well as fatigue and self-report painful joint count scales. Rheumatologists estimate a 0–10 DOCGL VAS. Demographic, MDHAQ/RAPID3 and DOCGL data from a random visit were compared in patients with RA versus patients with OA using multivariate analysis of variance, adjusted for age, disease duration and formal education level.

Results Median RAPID3 was higher in OA versus RA at all four sites (11.7–16.8 vs 6.2–11.8) ($p<0.001$ at three sites). Median DOCGL in OA versus RA was 5 vs 4, 4 vs 3.7, 2.2 vs 2.5 and 2 vs 1. Patterns were similar for individual RAPID3 items, fatigue and painful joint scales, and in stratified analyses of patients aged 55–70.

Conclusion Patient MDHAQ/RAPID3 and physician DOCGL indicate similar or higher disease burden in OA versus RA. Routine MDHAQ/RAPID3 allows direct comparisons of the two diseases. The findings suggest possible revision of current clinical and public policy views concerning OA.

Key messages

What is already known about this subject?

- Rheumatoid arthritis is regarded as more severe than osteoarthritis, although osteoarthritis is recognised as having a severe impact on patient function, pain and well-being.
- Many people consider osteoarthritis an inevitable consequence of 'wear and tear' and not a 'disease.'

What does this study add?

- Osteoarthritis is associated with functional disability, pain, and patient global assessment, and Routine Assessment of Patient Index Data 3 score, as well as other Multidimensional Health Assessment Questionnaire scores, at levels similar to or higher than rheumatoid arthritis, in routine care at four rheumatology centres.

How might this impact on clinical practice?

- Osteoarthritis, which is more than 20 times as prevalent as rheumatoid arthritis, is a serious clinical problem, appearing to require attention comparable to rheumatoid arthritis, as well as more support for research.
- Routine completion of the same simple questionnaire by all patients in the waiting area at all visits facilitates recognition of disease burden in patients with any rheumatic disease, with minimal extra work for the doctor, while increasing available information and documentation.

INTRODUCTION

Osteoarthritis (OA) generally is regarded by physicians and the public as less severe than rheumatoid arthritis (RA),[1 2] for example, the 2003 Bulletin of the WHO for the 'Bone and Joint Decade 2000–2010' stated that 'rheumatoid arthritis…is a more disabling disease…than lower limb osteoarthritis.'[3] In focus groups of middle-aged and older-aged adults, although many OA participants reported 'an impact on work, leisure, social activities, and relationships…OA was often seen as part of a normal aging process

requiring acceptance, not treatment.'[4] Direct comparison of patients with OA versus RA is complex, because of differences in physical examination, imaging and laboratory test results.

A few quantitative comparisons of OA versus RA are available from data on the same self-report questionnaire completed by patients with either diagnosis. A 1989 report indicated that physical function, pain and patient global assessment on a Modified Health Assessment Questionnaire (initially designed to assess RA) were significantly higher in RA than in OA, although pain visual analogue scale (VAS) scores were significantly higher in OA.[5] A 1999 report indicated that scores on a Western Ontario McMaster (WOMAC) scale were higher in OA versus RA (although the WOMAC scale was designed to be sensitive to OA).[6] A 2009 study indicated some measures were higher in RA than in patients with hand OA, while other measures were higher in patients with OA.[7]

One recent study of 39 patients with RA and 36 patients with OA indicated that scores for Routine Assessment of Patient Index Data 3 (RAPID3), a self-report index composed of physical function, pain and patient global assessment[8 9] on a Multidimensional Health Assessment Questionnaire (MDHAQ),[10] were 12.6 (of 30) in RA vs 12.4 in OA at an initial patient visit, but 9.2 in RA vs 10.3 in OA in the same patients 2 months later.[11] These results likely reflect superior treatments for RA than for OA, but nonetheless, indicate that disease burden in OA appears similar to RA at this time, suggesting possible modification of a traditional view that RA is the more severe form of arthritis. Further comparison of disease burden in RA and OA was possible at three additional sites at which the same MDHAQ/RAPID3 is completed by all patients at all visits.[10 12] This report presents a cross-sectional analysis of disease burden in 1157 unselected patients, 626 with OA and 531 with RA from four sites, including data from the initial site for comprehensiveness, according to MDHAQ/RAPID3 and physician global assessment (DOCGL) data.

PATIENTS AND METHODS

Patients

All patients with all diagnoses complete an MDHAQ/RAPID3 at all visits in the waiting area before seeing the rheumatologist as part of routine care at the four clinical settings in this study: Liverpool Hospital in New South Wales, Australia, a public academic centre; Rush University Medical Center in Chicago, Illinois, USA, a private academic centre; NYU Hospital for Joint Diseases in New York, New York, USA, another private academic centre; and Arthritis and Rheumatology, a solo private practice in Ridley Park, Pennsylvania, USA. Certain data had been presented in previous reports, but in different contexts: data from Ridley Park on use of MDHAQ/RAPID3 to document improvement in many rheumatic diseases,[11] and data from NYU concerning discordance between patient and physician global estimates.[13] These data are included here to provide for a more comprehensive study, particularly as the NYU data differ somewhat from the other three sites, with similar scores in RA and OA, rather than higher scores in OA.

Completion of MDHAQ/RAPID3 in routine care has been approved by the Institutional Review Board at each setting, or was regarded as a component of routine care, without a requirement for consent at each completion, and approved for a retrospective review of MDHAQ data. Patient diagnoses of primary OA or RA were assigned by the patient's rheumatologist at each of the four settings. Information concerning possible secondary OA in patients with RA was not collected systematically, and therefore not available for analyses.

Patient self-report MDHAQ /RAPID3

The MDHAQ is a two-page, single-sheet self-report questionnaire,[10] adapted from the Stanford Health Assessment Questionnaire (HAQ)[14] to improve the quality of care in busy clinical settings, while saving time for patients and doctors.[15] The MDHAQ includes scores for physical function, pain and patient global estimate (PATGL), the three RA core data set measures.[16] Physical function is assessed on 10 activities, scored 0–3 in the format of the original HAQ,[14] 0='without any difficulty', 1='with some difficulty', 2='with much difficulty' and 3='unable to do'; a total physical function (FN) score of 0–30 is converted to 0–10 using a template on the MDHAQ. Pain and PATGL are assessed using a 21 circle (rather than 10 cm lime) 0–10 VAS.[17] RAPID3 is a composite index of physical function, pain and PATGL,[8 9] each scored 0–10, comprising a 0–30 score.[8 9] Higher scores indicate poorer status. Four RAPID3 severity categories have been proposed: high (>12), moderate (6.1–12), low (3.1–6) and near remission (≤3).[18]

The MDHAQ also includes a fatigue 0–10 VAS, and Rheumatoid Arthritis Disease Activity Index (RADAI) self-report joint count to score pain in 16 specific joint groups, eight each on the right and left sides: fingers, wrists, elbows, shoulders, hips, knees, ankles and toes. Scoring options are 0 (none), 1 (mild), 2 (moderate) or 3 (severe) pain, with a total score range from 0 to 48.[19] RADAI self-report joint counts have been shown to be useful in patients with different rheumatic diseases.[20]

Physician global estimate of status

The rheumatologist assigns a DOCGL on a 21 circle 0–10 VAS at each site.

Databases

Demographic data, MDHAQ/RAPID3 scores and DOCGL from each of the four sites were entered into separate databases at each of the four sites. Age, education level, RAPID3, fatigue, RADAI self-report joint count and DOCGL were available from all sites. Duration of disease was available only from Liverpool and Ridley Park. RADAI self-report joint counts were available only from Liverpool, Rush and NYU.

Statistical analyses

Data from each of the four sites were analysed independently, as pooling data from the four sites could result in an undue influence of a single site on the total. Missing data other than duration of disease were seen in fewer than 5% of possible instances; no adjustment for missing data was made. Means with SD were calculated for normally distributed data, medians with 25th–75th percentiles for non-normally distributed data, and percentages for categorical variables. Quantitative results were compared using independent t-tests or Mann-Whitney tests as appropriate. Proportions were analysed using χ^2 tests. Multivariate analyses of variance for each MDHAQ/RAPID3 variable and DOCGL were performed to adjust for possible confounding by age, formal education level or duration of disease. As patients with OA were older, additional stratified analyses were performed to compare mean levels of RAPID3 and its components only in patients aged 55–70 with OA versus RA, as well as RAPID3 scores according to duration of disease of <5, 5–10 and >10 in these patients. All analyses were carried out using STATA V.12.0 for Mac (StataCorp, College Station, Texas).

RESULTS

Patients

Overall, 1157 patients were analysed independently at four sites, including 531 with RA and 626 with OA (table 1). Patients with OA were older by 7.5–13.3 years than patients with RA at the four settings (p≤0.001 at all sites (table 1)). Median duration of disease was 6.7–6.9 years in patients with RA vs 3.9–4.4 years in patients with OA (p<0.001) (table 1). Median levels of education ranged from 10 to 16 years, but were similar in patients with RA and OA within each setting (p>0.05). Overall, 74%–86% of patients with RA and 73%–88% of patients with OA were female (p>0.05) (table 1). All comparisons of clinical measures were adjusted for age, disease duration and education.

RAPID3 and component scores

Median MDHAQ scores for most variables were significantly higher in patients with OA compared with RA at three of the four sites, Liverpool, Rush and Ridley Park, while similar in both diseases at NYU (table 2). Median RAPID3 scores (0–30) were 9.7 for RA vs 16.8 for OA at Liverpool, 11.8 for RA vs 15.5 for OA at Rush, 11.0 for RA vs 11.7 for OA at NYU, and 6.2 for RA vs 12.2 for OA at Ridley Park (p<0.001 at Liverpool, Rush and Ridley Park, and p>0.05 at NYU, adjusted for age, education and disease duration) (table 2). Median RAPID3 indicated high severity (>12) in three of four OA groups versus moderate severity (6.1–12) in all four RA groups. Median scores for RAPID3 components reflected those for the index, with greatest differences for pain, followed by PATGL, and least for physical function (table 2).

Table 1 Demographic measures in patients with RA and OA at four clinical sites: Liverpool Hospital, Rush University Medical Center, NYU Hospital for Joint Diseases and Ridley Park

	Liverpool Hospital			Rush University Medical Center			NYU Hospital for Joint Diseases			Ridley Park		
	RA (n=64)	OA (n=55)	p	RA (n=173)	OA (n=199)	p	RA (n=145)	OA (n=173)	p	RA (n=149)	OA (n=202)	p Value
Demographic measures												
Age, mean (SD) years	58.6 (14.0)	66.1 (10.7)	0.001	57.9 (15.9)	67.2 (12.1)	<0.001	49.3 (15.7)	62.6 (12.4)	<0.001	61.3 (15.7)	70.5 (12.3)	<0.001
Education level (years)	10 (9–12)	10 (8–12)	0.11	14 (12–16)	14 (12–16)	0.85	16 (13–18)	16 (13–18)	0.99	12.5 (12–15.5)	12 (12–14)	0.09
Female, %	79.7%	88.6%	0.58	86.1%	85.4%	0.84	75%	76%	0.85	75%	73%	0.66
Disease duration, years	6.7 (3.5–14.3)	4.4 (1.4–7.4)	0.01	NA	NA	NA	NA	NA	NA	6.9 (2.8–14.2)	3.9 (1.1–9.9)	<0.001

Values are median and IQR unless indicated otherwise. Mann-Whitney for non-normally distributed variables, t-test for normally distributed variables and χ^2 for qualitative variables.
NA, not available; OA, osteoarthritis; RA, rheumatoid arthritis.

Table 2 MDHAQ measures for physical function, pain, patient estimate of global status, as well as RAPID3 composite scores, fatigue, RADAI self-report joint count in patients with RA and OA at four clinical sites: Liverpool Hospital, Rush University Medical Center, NYU Hospital for Joint Diseases and Ridley Park

	Liverpool Hospital			Rush University Medical Center			NYU Hospital for Joint Diseases			Ridley Park		
	RA (n=64)	OA (n=55)	p	RA (n=173)	OA (n=199)	p	RA (n=145)	OA (n=173)	p	RA (n=149)	OA (n=202)	p Value
MDHAQ: Patient self-report measures												
Function	1.7 (0.7–3)	3.3 (2.3–4.7)	<0.001	2.7 (0.7–3.7)	2.7 (1.3–4)	0.157	1.7 (0.3–3.7)	1.7 (0.7–3.3)	0.65	1 (0.3–2.7)	1.7 (0.7–3.3)	<0.001
Pain	4.3 (2.5–8.3)	7.0 (5.5–8.3)	<0.001	5 (2–7.5)	7 (5–8.5)	<0.001	4.7 (2–7)	5 (3–7.5)	0.03	2.5 (1–5)	5 (3–7.5)	<0.001
PATGL	4.3 (1.3–6.8)	6.0 (4.3–8)	0.002	4.5 (1.5–7)	5.7 (3.5–8)	<0.001	5 (1.5–7)	5 (2–6.5)	0.64	3 (1–5)	5 (3–7)	<0.001
RAPID3	9.7 (5.5–17)	16.8 (11.3–19.7)	<0.001	11.8 (4.3–18.7)	15.5 (10.2–19.5)	<0.001	11 (4–16.7)	11.7 (6.7–16.7)	0.28	6.2 (3–11.3)	12.2 (7.3–16.5)	<0.001
Fatigue	4 (1–7)	5 (2.8–8)	0.25	4 (1–7)	5 (2–7.5)	0.03	5 (0.5–8)	3.2 (1–7)	0.22	2.5 (1–5)	4 (1–6.5)	0.08
RADAI (0–48)	8 (3–15)	17 (10–22)	<0.001	7.5 (2–16)	10 (5–16)	0.11	5 (2–17.5)	6 (4–12)	0.48	7 (3–16)	8 (4–15)	0.08
RADAI (0–16)	5 (3–10)	10 (6–14)	0.01	6 (2–11)	6 (3–10)	0.79	5 (2–11.5)	4 (2–8)	0.66	6 (2–11)	6 (3–10)	0.80

Values are median and IQR unless indicated otherwise, analysed by Mann-Whitney for non-normally distributed variables, t-test for normally distributed variables, χ^2 for qualitative variables. p Values according to multivariate analysis of variance, adjusted for age, education level and disease duration (disease duration available only from Liverpool Hospital and Ridley Park).
*Disease duration not available.
MDHAQ, multidimensional health assessment questionnaire; OA, osteoarthritis; PATGL, patient global assessment; RA, rheumatoid arthritis; RADAI, rheumatoid arthrtitis disease activity index; RAPID3, routine assessment of patient index data 3.

Other MDHAQ patient self-report measures

Median 0–10 VAS scores for fatigue ranged from 2.5 to 5 for RA and from 3.2 to 5 for OA, significantly higher in OA only at Rush (p=0.03) (table 2). Median 0–48 RADAI self-report painful joint count scores ranged from 5 to 7.5 for RA and from 6 to 10 for OA from three settings. Median 0–16 RADAI self-report painful joint counts (the number of affected joint groups—total=16) ranged from 5 to 6 in RA and 4 to 10 in OA (p<0.001 only at Liverpool, and p>0.05 at Rush and NYU) (table 2).

Stratified analyses in patients aged 55–70

Since patients with OA were older, mean levels of RAPID3 and its components were compared in OA versus RA only in patients aged 55–70 (table 3). Mean age was within a year in all but Ridley Park, where patients with OA were 2.7 years older (table 3). Mean physical function differed significantly only at Liverpool, but mean scores for pain, PATGL and RAPID3 were significantly higher (indicating poorer status) at three of the four sites, all but NYU, at which they were in a similar range (table 3).

Additional stratified analyses were conducted in the age 55–70 groups according to duration of disease (table 4). Higher scores were seen in patients with OA versus RA in both groups, with most marked differences in patients with 5–10 years of disease (table 4). These data indicate further that poorer status of patients with OA compared with patients with RA is not explained by age or disease duration.

Physician global estimates

Median DOCGL (0–10) ranged from 1 to 4 for RA and from 2 to 3 for OA at the four settings (table 5) (again, p<0.001 at Liverpool, Rush and Ridley Park, and p>0.05 at NYU).

Discussion

The data presented in this report indicate that patients with OA in contemporary routine care reported MDHAQ scores higher than patients with RA at three of four settings, many of which were statistically significant. These differences are not explained by age, duration of disease or patient formal education level. Median DOCGL also was higher for OA than RA at three of the four settings and identical in the fourth (table 5), indicating that rheumatologists recognise similar or higher disease burdens in patients with OA versus RA.

The physician global estimate was developed initially to assess the degree of inflammatory activity in RA clinical trials, reflected primarily as swollen joints. However, clinicians also may consider evidence of joint damage and/or distress such as fibromyalgia and/or depression when making global estimates, although different rheumatologists may approach this matter quite differently. The sites that are included in the study use a RheuMetric physician checklist to estimate individual 0–10 VAS subscales for inflammation, damage and distress (in addition to DOCGL), and the relative proportion of each to clinical decisions.[21] In this study, DOCGL estimates were equivalent or greater in patients with OA than in patients with RA, as seen with patient scores, across all sites.

At the one site from which data were available at first visit, MDHAQ/RAPID3 and DOCGL were slightly higher in RA than OA, unlike at the second visit, at which OA scores were higher,[11] indicating that treatment of RA is more effective than OA. RA may have been considerably more severe relative to OA in previous years, but is milder in recent years, in part explained by earlier and new treatments,[22 23] with substantially improved patient status.[24–26] The findings do not support a hierarchy of RA being considerably more severe than OA at this time.

Several important limitations are seen in this study. First, the data are from a single random visit, and patients with RA appear to have slightly more severe status than patients with OA at baseline, but less severe status at follow-up visits at the one site from which systematic baseline and follow-up data were available.[11] Second, only four sites are included, although the four study sites include public academic, private academic and private practice settings, and, along with previous reports in which the same questionnaire was compared in patients with OA and RA[5–7] suggest likely generalisability of the observations. Third, the data are from tertiary rheumatology referral sites, and may not necessarily represent RA and OA in the community. Fourth, differences in apparent disease burden may vary according to different self-report questionnaires and other measures, as noted in prior reports.[5–7 11 13] Fifth, data concerning important possible modifiers of disease burden, such as specific joints involved, body mass index and comorbidities were not collected rigorously in routine care and therefore not analysed. Sixth, data concerning the presence of clinically apparent secondary/concomitant OA in patients with RA also were not collected systematically in routine care, and not analysed. Seventh, data concerning duration of disease were available at only two of the four sites.

Nonetheless, the data underscore that disease burden in OA often is severe and underestimated, as documented here and in previous reports,[5–7 11 13] suggesting that the results may be generalisable. A longer duration of disease and/or the presence of secondary OA in patients with RA would raise rather than lower self-report scores in the RA group, contrary to the observation of generally higher scores in the OA group. Indeed, several reports indicate that OA often has adverse consequences for individual patients and society,[27–32] including increased mortality rates in some,[33–36] but not all, reports.[37] In one report,[36] the standard mortality ratio of 1.55 for OA was similar to RA.[38] Retrospective review of incidental observations in earlier reports which were focused on clinical use of questionnaires rather than the status of patients with RA versus OA, use of MDHAQ/RAPID3 to document improvement in many rheumatic diseases, and

Table 3 Mean MDHAQ scores for physical function, pain, patient estimate of global status and RAPID3 composite scores in patients aged 55–70 with RA and OA at four clinical sites: Liverpool Hospital, Rush University Medical Center, NYU Hospital for Joint Diseases and Ridley Park

	Liverpool Hospital			Rush University Medical Center			NYU Hospital for Joint Diseases			Ridley Park		
	RA	OA	p	RA	OA	p	RA	OA	p	RA	OA	p Value
N	35	31	–	62	86	–	36	83	–	43	69	–
Age	62.5 (61.0–64.0)	62.1 (60.1–64.0)	0.721	62.2 (61.1–63.3)	62.6 (61.7–63.4)	0.648	62.2 (60.9–63.6)	63.2 (62.2–64.1)	0.266	60.4 (59.2–61.6)	63.1 (62.1–64.2)	0.001
Disease duration	11.1 (3.2–14.6)	6.0 (1.4–6.5)	0.01	NA	NA	NA	NA	NA	NA	10.3 (1.9–15.1)	6.3 (1.4–9.2)	0.03
Function	2.4 (1.6–3.2)	3.7 (3.1–4.3)	0.011	2.6 (2.1–3.1)	2.9 (2.4–3.3)	0.402	2.2 (1.5–2.9)	2.2 (1.8–2.6)	0.889	1.8 (1.2–2.3)	1.8 (1.4–2.2)	0.828
Pain	4.9 (3.9–5.9)	7.2 (6.4–7.9)	<0.001	5.0 (4.3–5.8)	6.4 (5.8–7.1)	0.005	4.8 (3.6–5.9)	5.3 (4.8–5.9)	0.316	3.2 (2.5–4.0)	4.8 (4.0–5.5)	0.005
PATGL	4.2 (3.2–5.2)	5.8 (4.8–6.8)	0.034	4.5 (3.8–5.3)	5.8 (5.2–6.5)	0.008	4.5 (3.4–5.6)	4.3 (3.7–5.0)	0.801	3 (2.2–3.8)	4.7 (4.1–5.3)	0.001
RAPID3	11.4 (8.8–14.0)	16.9 (14.8–19.0)	0.002	11.9 (9.8–14.1)	15.4 (13.5–17.2)	0.015	11.6 (8.8–14.4)	11.9 (10.4–13.3)	0.844	8.0 (6.1–9.9)	11.2 (9.7–12.8)	0.009

Values are means and 95% CI, p values according to t-test.
MDHAQ, Multidimensional Health Assessment Questionnaire; NA, not available; OA, osteoarthritis; PATGL, patient global estimate; RA, rheumatoid arthritis; RAPID3, Routine Assessment of Patient Index Data 3.

Table 4 Mean RAPID3 scores according to duration of disease in patients with OA or RA between 55 and 70 years of age at two sites

Site	Disease duration <5 years	5–10 years	>10 years	Total	p Value
Liverpool					
RA	13.2 (7.3)	5.8 (6.3)	13.7 (7.0)	11.6 (7.5)	0.91
OA	15.7 (5.3)	21.4 (3.1)	15.9 (5.6)	16.8 (5.4)	0.45
p	0.32	0.0003	0.50	0.001	
Ridley Park					
RA	8.1 (5.4)	5.0 (3.9)	8.1 (6.3)	7.7 (5.6)	0.53
OA	11.3 (6.5)	11.9 (5.1)	10.3 (7.1)	11.2 (6.3)	0.79
p	0.07	0.01	0.37	0.009	

OA, osteoarthritis; RA, rheumatoid arthritis; RAPID3, Routine Assessment of Patient Index Data 3.

discordance between patient and physician global estimates support the concept of a high disease burden in OA, often similar to RA.[5–7 11 13]

The authors do not suggest that either OA or RA is 'more severe' at a group or individual level. Considerable variation in disease burden is seen between individual patients and settings, even in this relatively small study from four sites. Nonetheless, the composite evidence that many patients with OA experience a severe disease burden in a similar or greater range as patients with RA (and vice versa for some individual patients) may not be consistent with current beliefs concerning OA and RA. OA is 20–40 times as prevalent as RA[39] and would present a great disease burden to society.[27 40]

The findings also add to the pragmatic and scientific rationale for all patients with all diagnoses to complete a patient questionnaire at all visits. Completion of the same MDHAQ/RAPID3 in the waiting area by each patient at each visit adds to clinical care,[41] and provides the capacity to compare disease burden in different rheumatic diseases. Although developed initially to assess RA,[18] MDHAQ/RAPID3 has been found informative in clinical care of patients with many rheumatic diseases, including systemic lupus erythematosus,[11] gout,[11] ankylosing spondylitis[11 42–45] and vasculitis,[46] as well as OA.[11 47] RAPID3 was reported in 2012 to be used by 29% of 335 respondents to a survey of American College of Rheumatology, more than other RA indices (see online supplementary information in ref 48).

Different disease-specific questionnaires may provide greater capacity to analyse mechanisms in individual diseases than more 'generic' questionnaires such as a HAQ or MDHAQ/RAPID3. However, the challenge to workflow in busy clinical settings is far greater to collect multiple different questionnaires from different patients than the same generic questionnaire from all patients. It has been suggested that it may be 'better to have 80% of the information in 100% of patients [than] 100% of the information in 5% of patients.'[49]

In conclusion, the burden of disease experienced by patients with OA and RA appears far more similar than different in four tertiary referral settings, from the patients' perspective, expressed as MDHAQ scores for physical function, pain, RAPID3, fatigue and joint involvement. Furthermore, physician global estimates for patients with OA or RA are in a similar range. The data are consistent with reports of hip and knee OA having a high disease burden,[28–32] with costs of 1% of the US gross domestic product,[27] and evidence of premature mortality.[33–36] Adjustment of the current approach to OA from both clinical and public policy perspectives may be indicated, including directing resources to improved therapies and outcomes in OA.

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Table 5 Physician global estimate in patients with RA and OA at four clinical sites: Liverpool Hospital, Rush University Medical Center, NYU Hospital for Joint Diseases and Ridley Park

	Liverpool Hospital			Rush University Medical Center*			NYU Hospital for Joint Diseases*			Ridley Park		
	RA (n=64)	OA (n=55)	p	RA (n=173)	OA (n=199)	p	RA (n=145)	OA (n=173)	p	RA (n=149)	OA (n=202)	p Value
RheuMetric: Physician global estimate												
DOCGL	4 (2–5)	5 (3–6)	0.039	3.7 (2–5)	4 (3.5–5)	0.036	2.5 (1.5–3.5)	2.5 (2–3.5)	0.14	1 (0–2)	2 (1–3)	<0.001

Values are median and IQR . p Values are by multivariate analysis of variance, adjusted for age, education level and disease duration (when available).
*Disease duration not available.
DOCGL, physician global estimate; OA, osteoarthritis; RA, rheumatoid arthritis.

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Contributors All authors contributed to data collection. IC performed the analyses. All authors participated in preparation of the manuscript.

Competing interests None declared.

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