

Further Development of a Physical Function Scale on a Multidimensional Health Assessment Questionnaire for Standard Care of Patients with Rheumatic Diseases

THEODORE PINCUS, TUULIKKI SOKKA, and HANNU KAUTIAINEN

ABSTRACT. Objective. To analyze a further version of the Multidimensional Health Assessment Questionnaire (MDHAQ) with 10 activities of daily living (ADL), which is more easily completed by patients and scored by health professionals than a 14-ADL MDHAQ; and to determine if the 10-ADL MDHAQ would be as informative as the 14-ADL MDHAQ, the 20-ADL HAQ, and the 8-ADL modified HAQ (MHAQ), which is more easily reviewed and scored than the HAQ, but scores are routinely 0.3–0.5 units lower than HAQ scores.

Methods. In standard care, 144 consecutive patients completed a HAQ, which includes a MHAQ, and 14-ADL MDHAQ, which includes a 10-ADL MDHAQ subscale, all scored 0–3. These scales were analyzed for mean and median scores, Cronbach's alpha to estimate internal consistency, factor analysis to estimate construct validity, and cumulative percentile scores.

Results. Mean (median) scores for the HAQ, MHAQ, 14-ADL MDHAQ, and 10-ADL MDHAQ physical function scales were 0.80 (0.75), 0.48 (0.38), 0.83 (0.79), and 0.73 (0.70), respectively. Internal consistency of each scale was very good. The lowest 25 percentile score was 0.16 on the HAQ, 0.0 on the MHAQ, 0.36 on the 14-ADL MDHAQ, and 0.20 on the 10-ADL MDHAQ.

Conclusion. The MDHAQ physical function scale of 10 ADL is more easily completed and scored than the 14-ADL MDHAQ or 20-ADL HAQ, while providing similar information. (J Rheumatol 2005;32:1432–9)

Key Indexing Terms:

MULTIDIMENSIONAL HEALTH ASSESSMENT QUESTIONNAIRE ASSESSMENT
VALIDITY RELIABILITY RHEUMATOID ARTHRITIS ACTIVITIES OF DAILY LIVING

The Health Assessment Questionnaire (HAQ)¹ physical function scale queries 20 activities of daily living (ADL), classified into 8 categories, scored 0–3 (0 = without any difficulty, 1 = with some difficulty, 2 = with much difficulty, 3 = unable to do), as well as 21 aids and devices. The overall physical function score is the mean of the highest score within each category, raised by 1 or to 2 if aids or devices are used¹. The HAQ generally is easily completed by most patients in 5 minutes or less².

The HAQ has been a major advance in clinical trials and clinical research^{1–4}. It is included in the American College of Rheumatology (ACR) Core Data Set measures for rheuma-

toid arthritis (RA)^{5,6}, and has been used to compare physical function in patients with RA and healthy populations, including recognition that functional disability predicts premature mortality in the general population^{7,8}. However, the HAQ is limited in standard clinical care by a format involving 2 sides of one page and a complex scoring system, so that it cannot be quickly reviewed or scored formally by a health professional.

Several 8 to 14-ADL adaptations have been made to facilitate use of the “patient-friendly” HAQ format in standard clinical care. A modified HAQ (MHAQ) physical function scale has been reported with 8 ADL⁹, one from each of the 8 categories in the HAQ on one side of one page. MHAQ scores are correlated with HAQ scores, but scores are routinely 0.3–0.5 units lower than those on the HAQ on a 0–3 scale, with a higher likelihood of “floor effects,” i.e., normal scores in patients with limitations of functional status, than the HAQ¹⁰. Therefore, a multidimensional HAQ (MDHAQ) physical function scale was developed to include 6 complex ADL¹⁰, which reflects improved status of patients currently seen by rheumatologists compared to the 1970s, when the HAQ was developed¹¹, and reduced the percentage of patients with physical function scores of “0” from 23% on the MHAQ and 16% on the HAQ to less than 3%¹⁰. More recently, a HAQII questionnaire has been devel-

From the Division of Rheumatology and Immunology, Vanderbilt University School of Medicine, Nashville, Tennessee, USA; Jyväskylä Central Hospital, Jyväskylä, Finland; and the Rheumatism Foundation Hospital, Heinola, Finland.

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T. Pincus, MD, Vanderbilt University; T. Sokka, MD, PhD, Vanderbilt University and Jyväskylä Central Hospital; H. Kautiainen, BA, Rheumatism Foundation Hospital.

Address reprint requests to Dr. T. Pincus, Division of Rheumatology and Immunology, Vanderbilt University School of Medicine, 203 Oxford House, Box 5, Nashville, TN 37232-4500.

E-mail: t.pincus@vanderbilt.edu

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Multi-Dimensional Health Assessment Questionnaire (R699-NP2)

This questionnaire includes information not available from blood tests, X-rays, or any source other than you. Please try to answer each question, even if you do not think it is related to you at this time. There are no right or wrong answers. Please answer exactly as you think or feel. Thank you.

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1. Please check (✓) the ONE best answer for your abilities at this time:

OVER THE LAST WEEK, were you able to:

	Without ANY Difficulty	With SOME Difficulty	With MUCH Difficulty	UNABLE To Do
a. Dress yourself, including tying shoelaces and doing buttons?	_____0	_____1	_____2	_____3
b. Get in and out of bed?	_____0	_____1	_____2	_____3
c. Lift a full cup or glass to your mouth?	_____0	_____1	_____2	_____3
d. Walk outdoors on flat ground?	_____0	_____1	_____2	_____3
e. Wash and dry your entire body?	_____0	_____1	_____2	_____3
f. Bend down to pick up clothing from the floor?	_____0	_____1	_____2	_____3
g. Turn regular faucets on and off?	_____0	_____1	_____2	_____3
h. Get in and out of a car, bus, train, or airplane?	_____0	_____1	_____2	_____3
i. Walk two miles or three kilometers?	_____0	_____1	_____2	_____3
j. Participate in sports and games as you would like?	_____0	_____1	_____2	_____3
k. Get a good night's sleep?	_____0	_____1.1	_____2.2	_____3.3
l. Deal with feelings of anxiety or being nervous?	_____0	_____1.1	_____2.2	_____3.3
m. Deal with feelings of depression or feeling blue?	_____0	_____1.1	_____2.2	_____3.3

2. How much pain have you had because of your condition OVER THE PAST WEEK?

Please fill in the circle or box below to indicate how severe your pain has been:

NO PAIN PAIN AS BAD AS IT COULD BE

3. How would you rate your general health?

Excellent___(1), Very good___(2), Good___(3), Fair___(4), Poor___(5)

4. How much of a problem has UNUSUAL fatigue or tiredness been for you OVER THE PAST WEEK?

Please fill in the circle or box below to indicate how severe your fatigue has been:

FATIGUE IS NO PROBLEM FATIGUE IS A MAJOR PROBLEM

5. How do you feel TODAY compared to ONE WEEK AGO? Please check (✓) only one.

Much Better___(1), Better___(2), the Same___(3), Worse___(4), Much Worse___(5) than one week ago

6. Considering all the ways in which illness and health conditions may affect you at this time, please fill in the circle or box below to show how you are doing:

VERY WELL VERY POORLY

7. What is the reason that you are seeing a doctor today? Please check and write anything you would like.

Check-up A new illness or problem, Managing an illness, Other, Please write below any further information which you think will help in your care - you don't need to write anything - and turn to the other side:

Your Name _____ Today's Date _____

R699NP2

PLEASE TURN TO THE OTHER SIDE

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oped with more even spacing in scores of 10 ADL than seen for the HAQ or MDHAQ¹², so that an increase in score from, e.g., 0.5 to 1.0 would be more similar to an increase from, e.g., 1.5 to 2.0 than seen on the HAQ, MHAQ, or MDHAQ.

The MHAQ, MDHAQ, and HAQII require less than half of one side of one page. These questionnaires can be rapid-

ly reviewed by a clinician to give an overview of patient status in about 5 seconds, and formally scored in 20 seconds or less, using scoring templates included on the questionnaire (Figure 1). Their compact design allows additional scales on the same side of the page to assess pain, global status, psychological status, change in status, fatigue, or other variables (Figure 1).

Table 1. Items included on the HAQ, 8-ADL MHAQ, 14-ADL MDHAQ, 10-ADL MDHAQ, and HAQII (the codes of the items are the same as used in other tables). Note that items k, l, m, n, and p in the 14-item MDHAQ are not included in the 10-item MDHAQ. Items o, q, and r from the 14-item MDHAQ are renamed k, l, m in the 10-item MDHAQ, as in Figure 1.

	HAQ	8 ADL MHAQ	14 ADL MDHAQ	10 ADL MDHAQ	HAQII
DRESSING & GROOMING:					
Dress yourself, including tying shoelaces and doing buttons?	1a	a	a	a	
Shampoo your hair?	1b	-	-	-	
ARISING:					
Stand up from a straight chair?	2a	-	-	-	√
Get in and out of bed?	2b	b	b	b	
EATING:					
Cut your meat?	3a	-	-	-	
Lift a full cup or glass to your mouth?	3b	c	c	c	
Open a new milk carton?	3c	-	-	-	
WALKING:					
Walk outdoors on flat ground?	4a	d	d	d	√
Climb up 5 steps?	4b	-	-	-	
Walk 2 miles or 3 kilometers?	-	-	i	i	
HYGIENE:					
Wash and dry your entire body?	5a	e	e	e	
Take a tub bath?	5b	-	-	-	
Get on and off the toilet?	5c	-	-	-	√
REACH:					
Reach and get down a 5 pound object from above your head?	6a	-	-	-	√
Bend down to pick up clothing from the floor?	6b	f	f	f	
GRIP:					
Open car doors?	7a	-	-	-	√
Open previously opened jars?	7b	-	-	-	
Turn regular faucets on and off?	7c	g	g	g	
OTHER ACTIVITIES:					
Run errands and shop?	8a	-	k	-	
Get in and out of a car, bus, train, or airplane?	8b	h	h	h	
Do chores such as vacuuming or yard work?	8c	-	-	-	
Participate in sports and games as you would like?	-	-	j	j	
Climb up a flight of stairs	-	-	l	-	
Run or jog two miles?	-	-	m	-	
Drive a car 5 miles from your home?	-	-	n	-	
PSYCHOLOGICAL STATUS:					
Get a good night's sleep?	-	-	o	k	
Deal with the usual stresses of daily life?	-	-	p	-	
Deal with feelings of anxiety or being nervous?	-	-	q	l	
Deal with feelings of depression or feeling blue?	-	-	r	m	
HAQII ITEMS NOT LISTED ABOVE					
Go up two or more flights of stairs?					√
Lift heavy objects?					√
Move heavy objects?					√
Wait in line for 15 minutes?					√
Do outside work (such as yard work)?					√

A physical function scale of 10, rather than 14, ADL reduces the number of items completed by the patient and facilitates simplified scoring, as a mean of 10 items is more rapidly calculated than a mean of 14 items. The 10 ADL of the HAQII include “move a heavy object” and “lift a heavy object,”¹² which may be of lesser interest to a clinician than “walk 2 miles or 3 kilometers” or “participate in sports and games,” which are included on the MDHAQ¹⁰.

We analyze whether a 10-ADL MDHAQ physical function subscale with these 2 additional queries is as informative as 6 additional ADL on the MHAQ in the 14-item MDHAQ concerning patient physical function.

MATERIALS AND METHODS

Patients. All consecutive patients seen at a weekly academic clinic at the Division of Rheumatology and Immunology, Vanderbilt University School of Medicine, Nashville, Tennessee, complete a version of the HAQ, MHAQ, or MDHAQ at each visit. Over a 6-week period in June-August, 1997, 144 patients routinely completed an 8-ADL MHAQ distributed at registration for the visit, and also completed an additional 4-page questionnaire at the conclusion of the visit. The additional questionnaire included the standard HAQ¹, the 14-ADL MDHAQ¹⁰ with 6 additional ADL and 4 psychological items, the Beck Depression Inventory (BDI), and the Centers for Epidemiologic Studies Depression Inventory (CES-D)^{13,14}.

Questionnaires. Activities on the physical function scales of the HAQ, MHAQ, MDHAQ, and HAQII are shown in Table 1. Patients are given 4 response options for each activity: “without any difficulty” (= 0), “with some difficulty” (= 1), “with much difficulty” (= 2), and “unable to do” (= 3). In this study, we analyze the 14-ADL MDHAQ¹⁰, which includes 8 MHAQ ADL plus 6 complex activities for a total of 14 activities, termed the 14-ADL MDHAQ¹⁰, and a version that included only 2 of the 6 additional ADL for a total of 10, termed the 10-ADL MDHAQ. The 2 additional activities are “walk 2 miles or 3 kilometers” and “participate in sports and games as you would like.”

The total physical function score is the mean of the sum of the responses for the MHAQ, 14-ADL MDHAQ, and 10-ADL MDHAQ, divided by 8, 14, and 10, as the mean of the sums of responses, for a score ranging from 0 to 3. The 10 ADL may also be divided by 3 (rather than 10) to give a score of 0–10, identical to scores on the pain and patient global visual analog scales. In analyses of psychometric validity, reliability, and informativeness, MDHAQ scores are calculated using the traditional 0–3 scale. A flow

chart illustrates calculation of the MDHAQ on a 0–3 scale, although scoring on a 0–10 scale can be used.

The HAQ physical function score is calculated in the standard manner: the 20 items are scored 0–3, grouped into 8 categories, and 8 scores are calculated, based on the highest among 2 or 3 ADL in each category; if the patient uses aids and devices for a given category, the score is increased by 1 unit. The sum of the highest response in each category is divided by 8 to yield a total HAQ score of 0 to 3.

Statistical analyses. Scores on all versions including the HAQ, MHAQ, and MDHAQ were computed as the mean or median, with standard deviation (SD), interquartile range (IQR) and 95% confidence intervals (95% CI). Internal consistency was estimated by calculating Cronbach’s alpha coefficients with one-sided 95% CI. Construct validity was examined by the maximum likelihood factor analysis with the varimax rotation method. A chart showing cumulative percentages of the total scores of the HAQ, MHAQ, 14-ADL MDHAQ, and 10-ADL MDHAQ was constructed.

RESULTS

Patient population. The study included 144 patients, of whom 78% were female and 92% were Caucasian; 51% had RA, 14% fibromyalgia, and 35% other diagnoses. The mean (SD) age was 53 (12) years, and the median (IQR) duration of disease was 7 (3, 15) years.

Scores on 4 physical function scales. The mean total scores on the HAQ, MHAQ, 14-ADL MDHAQ, and 10-ADL MDHAQ were 0.80, 0.48, 0.83, and 0.73, respectively (Table 2). The 50th percentile scores were 0.75 for the HAQ, 0.38 for the MHAQ 8 ADL scale, 0.79 for the 14-ADL MDHAQ, and 0.70 for the 10-ADL MDHAQ physical function scales (Figure 2, Table 2). The 20th percentile scores were 0.13 for the HAQ, 0 for the MHAQ, 0.29 for the 14-ADL MDHAQ, and 0.20 for the 10-ADL MDHAQ physical function scales, while the 80th percentile scores were 1.25 for the HAQ, 1.00 for the MHAQ, 1.36 for 14-ADL MDHAQ, and 1.30 for 10-ADL MDHAQ physical function scales (Figure 2, Table 2).

Floor effects. Of 144 patients, 23 (16%) had normal scores of “0” on the HAQ, 45 (31%) on the MHAQ scale, 3 (2%) on the 14-ADL MDHAQ scale, and 14 (10%) on the 10-ADL MDHAQ scale (Figure 2). The distribution of the

Table 2. Mean levels and percentiles of the HAQ, 8-ADL MHAQ, 14-ADL MDHAQ, and 10-ADL MDHAQ.

	HAQ	8 ADL MHAQ	14 ADL MDHAQ	10 ADL MDHAQ
Mean levels	0.80 ± 0.62	0.48 ± 0.48	0.83 ± 0.54	0.73 ± 0.53
Percentiles				
10	0.00	0.00	0.14	0.05
20	0.13	0.00	0.29	0.20
25	0.16	0.00	0.36	0.20
30	0.38	0.00	0.43	0.30
40	0.63	0.25	0.64	0.60
50	0.75	0.38	0.79	0.70
60	1.00	0.63	1.00	0.90
70	1.13	0.75	1.11	1.05
75	1.25	0.88	1.21	1.10
80	1.25	1.00	1.36	1.30
90	1.56	1.13	1.50	1.40

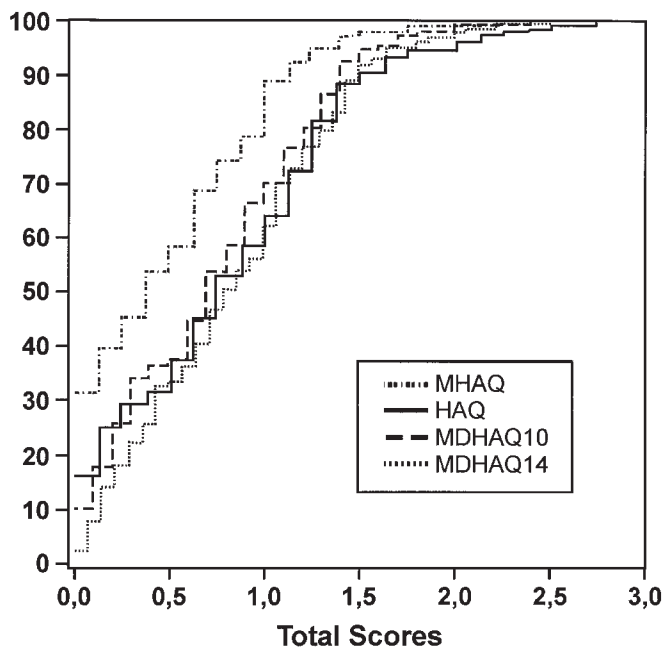


Figure 2. Comparison of percentile distributions of the HAQ, MHAQ, MDHAQ10, and MDHAQ14.

HAQ, 14-ADL MDHAQ, and 10-ADL MDHAQ scales was similar through the scoring range, while the distribution of the MHAQ differed from the other scales toward lower scores (Figure 2).

Internal consistency. The internal consistencies of the questionnaires were similar, with values for Cronbach's alpha ≥ 0.88 for all items in all scales (Table 3). No item in any questionnaire was inconsistent with the other items in the scale. For example, if the item m, "run or jog 2 miles," is deleted from the 14-ADL MDHAQ, Cronbach's alpha remains 0.92, which is the same as Cronbach's alpha for the entire 14-ADL MDHAQ.

Construct validity. The HAQ and MHAQ physical function scales formed one factor only (Table 4). The 14-ADL MDHAQ scale formed 3 factors — items a, e, c, g, and b "upper extremity"; items d, f, h, k, l, and n "lower and upper extremity"; and items j, i, and m "sports and activities" (Table 4). The 10-ADL MDHAQ scale formed 2 factors, including items a, e, c, g, and b, which appear related primarily to "upper extremity"; and items d, f, h, i, and j, which appear related primarily to "lower and upper extremity."

DISCUSSION

This report indicates that a 10-ADL MDHAQ appears to give results similar to those described in our previous report involving 14-ADL MDHAQ items¹⁰. A MDHAQ physical function scale with 10 or 14 ADL overcomes "floor effects" found using the 8-ADL MHAQ, and continues to allow inclusion of scores for pain, global status, psychological distress, fatigue, and morning stiffness on one side of one page (Figure 1). The MDHAQ can be reviewed easily by a clini-

Table 3. Internal consistency of the HAQ, 8-ADL MHAQ, 14-ADL MDHAQ, and 10-ADL MDHAQ questionnaire in 144 patients with rheumatic diseases.

Internal Consistency alpha (95% CI, lower limit)							
HAQ		8-ADL MHAQ		14-ADL MDHAQ		10-ADL MDHAQ	
0.90 (0.88)		0.90 (0.88)		0.92 (0.90)		0.89 (0.87)	
Alpha If Item Deleted							
HAQ Item	Alpha	8-ADL MHAQ Item	Alpha	14-ADL MDHAQ Item	Alpha	10-ADL MDHAQ Item	Alpha
1	0.89	a	0.88	a	0.92	a	0.88
2	0.89	b	0.89	b	0.92	b	0.88
3	0.90	c	0.90	c	0.92	c	0.89
4	0.90	d	0.89	d	0.91	d	0.88
5	0.89	e	0.88	e	0.92	e	0.88
6	0.88	f	0.90	f	0.92	f	0.88
7	0.90	g	0.90	g	0.92	g	0.89
8	0.89	h	0.89	h	0.91	h	0.88
				i	0.92	i	0.89
				j	0.92	j	0.89
				k	0.91		
				l	0.91		
				m	0.92		
				n	0.92		

See Table 1 for description of HAQ items 1–8 and MHAQ/MDHAQ items a–n.

Table 4. Factor analysis of the HAQ, 8-ADL MHAQ, 14-ADL MDHAQ, and 10-ADL MDHAQ questionnaires in 144 patients with rheumatic diseases. Coefficients with values below 0.5 are not shown.

Item	HAQ		8-ADL MHAQ		14-ADL MDHAQ			10-ADL MDHAQ			
	Factor 1		Item	Factor 1	Item	Factor 1	Factor 2	Factor 3	Item	Factor 1	Factor 2
6	0.84		a	0.86	d	0.70			a	0.82	
5	0.80		e	0.82	l	0.65			e	0.73	
8	0.79		b	0.77	k	0.64			c	0.66	
1	0.76		d	0.76	n	0.63			g	0.64	
2	0.75		h	0.76	h	0.60			b	0.60	
3	0.69		f	0.72	f	0.55			j		0.78
4	0.65		g	0.62	a		0.82		i		0.74
7	0.62		c	0.58	e		0.64		h		0.66
					c		0.63		f		0.58
					g		0.60		d		0.57
					b		0.55				
					j			0.86			
					m			0.76			
					i			0.61			

See Table 1 for description of HAQ items 1–8 and MHAQ/MDHAQ items a–n.

cian in 5 seconds for an overview of a patient’s situation, and all 7 scales can be scored formally in 20 seconds or less, using scoring templates included on the questionnaire. One advantage of 10 items is to facilitate scoring in the clinic, as division by 10 is simpler to perform rapidly than division by 8 or 14.

The 10-ADL MDHAQ also avoids some problems of the HAQ that are not of major consequence, but detract from optimal psychometric properties of the questionnaire. First, some of the activities in the HAQ, such as “shampoo your hair,” “take a tub bath,” and “do chores such as vacuuming or yard work,” are not performed by some patients, causing some complexity in completion in a routine clinical setting — this was part of the original rationale to adapt the HAQ to the MHAQ⁹. Second, a HAQ physical function score may be increased artefactually by a rheumatologist recommending a device to aid a patient’s function, although function may be improved. For example, if a patient responds that she walks, opens jars or performs another activity “with some difficulty,” is given a cane, jar opener or other device, and continues to respond “with some difficulty,” the score will be increased from 1 to 2, although the patient actually may have greater functional capacity. Third, different activities may determine HAQ scores at different completions, as only one of 2 or 3 activities within each category determines the score for the category. A patient may hypothetically improve in 1–12 of the 20 activities on the HAQ, but show no change in HAQ score. Fourth, in the rheumatology literature, the HAQ is scored differently in different publications, including raising the score for a category by 1 unit or to 2 if aids and devices are used, not including aids and devices and scoring only the 20 ADL, and scoring the mean of 20 activities rather than the highest number within each group. None of these issues results in substantial difficulties in assessing patient function, indicating the robust capacity

of the HAQ format and approach, but these problems do detract from optimal psychometric validity of the HAQ.

Limitations of the HAQ and MDHAQ also include an uneven distribution of items. The 2 new complex activities, “walk 2 miles or 3 kilometers” and “participate in sports and games as you would like,” are “outliers” in scoring in Rasch analysis, rather than indicating a similarly spaced transition from, e.g., 0 to 0.5 as from 1.0 to 1.5. This problem has been addressed in a HAQII questionnaire, which provides even spacing of scoring intervals according to item response theory in Rasch analysis¹². However, some of the queries on the HAQII, such as “move a heavy object” and “lift a heavy object,” appear to be of lesser interest to a patient or clinician than “walk 2 miles or 3 kilometers” or “participate in sports and games.”

Although the total score is reported in publications, the rheumatologist may find it useful to review responses to specific items in clinical care. All clinical measurements represent a tradeoff between pragmatic and fastidious considerations¹⁵. The absence of linearity may be offset in clinical care by the advantage of information concerning capacity to walk and participate in sports and games. Different questionnaires may be preferable in different settings.

Physical function scores on the MHAQ are correlated significantly with those on the HAQ, as would be expected⁹, and with traditional joint counts, radiographs, and laboratory indicators of inflammation¹⁶. The MHAQ physical function scale is as sensitive and informative as the HAQ to detect changes in status in clinical trials¹⁷, and to predict severe outcomes in RA, such as functional declines¹⁸, work disability¹⁹, and premature mortality^{18,20}. Indeed, the HAQ and MHAQ are superior to any joint count or radiographic or laboratory measure in the prognosis of these outcomes²¹. Similar properties would be expected of the 10-ADL MDHAQ, 80% of which is the 8-ADL MHAQ.

VISIT DATE	3/5/03	3/11/03	3/25/03	5/20/03	8/19/03	11/11/03	
PATIENT SELF-REPORT QUESTIONNAIRE DATA							
FUNCTIONAL STATUS (FN) [0-3]	1.9	0.6	0.8	0.5	0.3	0.2	
PSYCH STATUS (PS) [0-9.9]	7.70	3.30	1.10	3.30	3.3	3.3	
PAIN (PN) [0-10]	7.8	5.6	1.8	1.7	1.3	0.7	
AM STIFFNESS (AM) [0-300 min]	60	60	60	120	60	45	
FATIGUE (FT) [0-10]	8	4.4	5.7	0.6	0.9	1.1	
CHANGE OVER 2 WEEKS(CH) [1-5]	M Worse	Better	Better	Same	M Better	Same	
GLOBAL STATUS (GL) [0-10]	9.1	5.6	2.8	2.4	1.6	0.3	
SYMPTOMS (SY) [0-60]	25	27	16	9	18	6	
WEIGHT (lbs)		170.2	169	176	180.4	189.2	
BLOOD PRESSURE (mm/Hg)	NA	108/64	110/80	106/68	108/68	108/64	
LABORATORY DATA							
ESR (mm/hr) [M:0-20 / F:0-30]		17	11	30	16	20	
CRP (mg/dL) [0-10]		3	3	6	4	11	
WBC (thou/uL) [4-11]	10.2	10.8	7.1	12.1	12.7	4.1	
HGB (g/dL) [M:14-18/F:12-16]	13.6	11.8	12.5	13.0	13.0	13.0	
HCT (%) [M:42-50/F:37-44]	40.9	35	37	39	42	40	
PLATELETS (thou/uL) [150-400]	307	414	328	348	387	237	
ALBUMIN (g/dL) [3.5-5.0]	3.7	3.7	4.4	4.2	4.5	4.3	
ALK PHOS (U/L) [40-100]	108	66	67	69	66	67	
SGOT (U/L) [4-40]	26	14	14	30	19	22	
CREATININE (mg/dL) [0.7-1.5]	0.7	0.7	0.8	0.8	0.7	0.7	
DRUGS (C=Change Dose, D=D/C, N=New, O=On at visit, P=Parenteral, R=Resume, S=Short Term, T=Taper, X=Tox)							
Prednisone	N-10 QD	C-5 BID	T-5 QD	5 QD	C-4 QD	4 QD	
Methotrexate	N-15QW	C-15 QW	15 QW	C-20 QW	20 QW	20 QW	
Etanercept		N-25 BIW	25 BIW	25 BIW	25 BIW	25 BIW	
Folic Acid	N-1 QD	1 QD	1 QD	1 QD	1 QD	1 QD	
Ibuprofen	O-200PRN	200 PRN	200 PRN	200 PRN	200 PRN	200 PRN	
Hydrocodone-APAP 10/325	O-1 Q6H	1 Q6H	1 Q6H	D-1 Q6H			
% IMPROVEMENT							
% Improvement FN		68%	68%	73%	84%	89%	
% Improvement PN		28%	77%	78%	83%	91%	
% Improvement GL		38%	69%	74%	82%	97%	

Figure 3. Example of the capacity of the MDHAQ to document improvement in the course of an individual patient, a 38-year-old woman seen first in March 2003. Initial scores on presentation of 1.9 (scored 0–10 rather than 0–3) for the 10-ADL MDHAQ, 7.8 for pain, and 9.1 for global status, all on a 0–10 scale, declined over 8 months to 0.2–0.7, an improvement of > 90%, with early aggressive low dose prednisone, methotrexate, and etanercept treatment.

Rheumatologists may provide as much benefit for their patients as any other type of physician. However, most of these benefits remain undocumented, in part because they are largely assessed as patient-reported outcomes, such as improved functional status or lower pain and fatigue, for which data generally are not collected in standard clinical care. The capacity of the MDHAQ to document improvement in the course of an individual patient is documented in Figure 3. This patient was seen initially in March 2003. She had developed RA in the postpartum period in January 2003 and could not care for her 3-month-old baby because of functional disability, as well as pain and fatigue. All her metacarpophalangeal and proximal interphalangeal joints, wrists, and knees were tender and swollen. Her initial scores on presentation were 1.9 (scored 0–3) for the 10-ADL MDHAQ, 7.8 for pain (scored 0–10), and 9.1 for global status (scored 0–10). She was initially prescribed prednisone

(10 mg/day) and methotrexate (15 mg/week). One week later she showed substantial improvement, with her 10-ADL MDHAQ scale score declining to 0.6, pain to 5.6, and global status to 5.6. However, it was apparent that she had very aggressive disease, and etanercept was started. Over the next 8 months, her clinical improvement was documented with declines of scores for the 10-ADL MDHAQ to 0.2, pain to 0.7, and global status to 0.3, as well as improvements in other scores, an improvement of > 90% for all 3 scores.

The MDHAQ may be used in standard clinical care of patients with all rheumatic diseases. Patient questionnaires provide a permanent record of clinical status on a given day, with medical and medico-legal documentation that can never be available if not recorded at the time. We advocate that some version of the HAQ, HAQIL, or 10-ADL MDHAQ described here be completed at each visit of each patient to a rheumatologist.

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