

Saving Time and Improving Care with a Multidimensional Health Assessment Questionnaire: 10 Practical Considerations

Most rheumatologists suggest they can recognize the extent of a patient's functional disability and pain without a formal questionnaire to provide quantitative data. They are correct: just as most physicians can recognize a fever without formally measuring temperature or tachycardia without formally measuring heart rate. But wouldn't any conscientious physician feel more comfortable saying that "the fever is down" or "the pulse is slower" with quantitative information, even though a few more seconds are needed?

Imagine further a physician who does not measure blood pressure in a person with hypertension or hemoglobin A1C in a person with diabetes, citing that she or he "did not have time" or the "staff would not cooperate." Yet these are the reasons cited by rheumatologists for not measuring physical function and pain on a patient questionnaire (Table 1), the simplest and most effective measure to assess and monitor the status of a person with rheumatic disease.

Most rheumatologists' impressions concerning patient questionnaires are derived from lengthy questionnaires designed for clinical research. Research questionnaires may require 15–30 minutes for a patient to complete and generally cannot be reviewed or scored easily during standard clinical care, adding a burden without adding to care. Even the most widely available questionnaire, the Health Assessment Questionnaire (HAQ), while easily completed by patients in 5–10 minutes, involves 2 sides of a page, and is difficult to review and score in standard care by most rheumatologists, with a few notable exceptions¹.

Patient questionnaires designed for standard care and with the following features can save time for the clinician and improve the quality of patient visits²⁻⁴: (1) completed by most patients in 5–10 minutes; (2) scanned ("eyeballed") by a clinician in 5–10 seconds; (3) designed to facilitate scoring, often with scoring templates on the questionnaire; (4) scored and available to enter into a flow sheet in 10–20 seconds; and (5) informative for patients with all rheumatic diseases. Such questionnaires are easy to include in a regular clinic visit. Almost all the work is done by the patient, not the physician or staff. The physician spends only a few valuable seconds reviewing the data²⁻⁴, which can save time and improve the quality of patient visits.

These considerations have led to the development of a one-page multidimensional HAQ (MDHAQ)^{5,6}. One side (Figure 1) includes 10 activities of daily living, 3 items to assess psy-

chological distress, visual analog scales (VAS) for pain, global status and fatigue, and scores for change in status and morning stiffness. The other side (Figure 2) may include a review of systems, the Rheumatoid Arthritis Disease Activity Index (RADAI), self-report joint count⁷, recent medical events, and demographic data. This essay summarizes practical considerations in use of the MDHAQ.

1. Use a questionnaire designed for standard care, not for research (although the information is often quite useful for research). Substantial differences exist between questionnaires for research versus clinical care²⁻⁴ as noted above, just as differences may exist between measurement of rheumatoid factor or antibodies to cyclic citrullinated peptides in a research versus clinical setting. There is no need for a patient in standard care to complete a lengthy questionnaire designed for clinical research or clinical trials, which may require 10–30 minutes to complete, and is not amenable to rapid "eyeball" review and/or scoring by the clinician.

2. Orient the staff regarding the importance of patient questionnaires in patient care, and mean it. Patient questionnaires streamline the flow of information from patient to physician with quantitative data concerning the primary concerns of patients: functional disability, pain, fatigue, psychological distress, and global status. If office staff members are made aware of the importance to the physician of a questionnaire that can recognize whether a patient is better, worse, or the same over time, they respond positively. However, if a rationale is presented that questionnaires are being used for research, documentation, reimbursement, collaboration with

Table 1. What are the 3 most important resistance points when implementing patient questionnaires in standard clinical care? Responses of about 600 rheumatologists on keypads at a meeting to introduce adalimumab to the European market. Data concerning 3 responses normalized to 100%.

Response Option	%
Takes too much time	87
Staff will not cooperate	63
Patient will not cooperate	39
No experience—never tried	36
Don't know how to interpret results	33
Measures do not change enough to be helpful	24
Patient results are not valid data	18

Multi-Dimensional Health Assessment Questionnaire (R729-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.

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

	Without ANY <u>Difficulty</u>	With SOME <u>Difficulty</u>	With MUCH <u>Difficulty</u>	UNABLE <u>To Do</u>
OVER THE LAST WEEK , were you able to:				
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 2 miles or 3 kilometers, if you wish to ?	_____0	_____1	_____2	_____3
j. Participate in recreational activities and sports as you would like, if you wish to?	_____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

FOR OFFICE
USE ONLY

FN

1=0.0 16=2.2
2=0.0 17=2.3
3=0.0 18=2.3
4=0.4 19=2.4
5=0.7 20=2.5
6=0.9 21=2.6
7=1.1 22=2.6
8=1.2 23=2.7
9=1.4 24=2.7
10=1.5 25=2.8
11=1.6 26=2.8
12=1.8 27=2.9
13=1.9 28=2.9
14=2.0 29=2.9
15=2.1 30=3.0

PSY

PN

0=0-1
1=1.5-3
2=3.5-6
3=6.5-10

GL

0=0-1
1=1.5-2.5
2=3-5
3=5.5-7.5
4=8-10

RAPID
(=FN+PN+GL)

FATIG

TEN

2. How much pain have you had because of your condition OVER THE PAST WEEK? Please indicate below how severe your pain has been:

NO PAIN	0	0.0	0.0	0.5	0.9	1.2	1.4	1.6	1.8	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.9	3.0	PAIN AS BAD AS IT COULD BE
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10	

3. Considering all the ways in which illness and health conditions may affect you at this time, please indicate below how you are doing:

VERY WELL	0	0.0	0.0	0.7	1.2	1.6	1.9	2.2	2.4	2.6	2.8	3.0	3.1	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	VERY POORLY
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10	

4. Which of the following best describes you TODAY in your every day life? Check (✓) only one:

- ___1: I can do **everything** I want to do.
- ___2: I can do **most** of the things I want to do, but have **some** limitations.
- ___3: I can do **some**, but not all, of the things I want to do, and I have **many** limitations.
- ___4: I can do **hardly any** of the things I want to do.

5. When you awakened in the morning OVER THE LAST WEEK, did you feel stiff? No Yes

If "No," please go to Item 9. If "Yes," please indicate the number of minutes _____, or hours _____ until you are as limber as you will be for the day.

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

FATIGUE IS NO PROBLEM	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10	FATIGUE IS A MAJOR PROBLEM
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

7. 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

8. In terms of joint tenderness (i.e. joint pain associated with light touch) and joint swelling (joint enlargement due to inflammation), how active would you say your rheumatic condition is TODAY?

NOT AT ALL ACTIVE	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10	EXTREMELY ACTIVE
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

R729-NP2

PLEASE TURN TO THE OTHER SIDE

Page 1 of 2

Figure 1. A version of a multidimensional health assessment questionnaire (MDHAQ) designed for use in standard medical care, including scores for physical function, psychological distress, pain, morning stiffness, global status, self-report functional class, change in status, fatigue, and disease activity from the RA Disease Activity Index (RADAI) self-report joint count. Side 2 of the MDHAQ (opposite) includes a review of systems, RADAI self-report joint count, recent medical events, and demographic data. Questionnaire available at: www.mdhaq.org. © Health Report Services, Nashville, TN, USA.

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colleagues, any reason other than better and more efficient care, staff members (and patients) lose interest and resent the apparent extra work.

3. The questionnaire should be part of the office infrastructure and should be completed by every patient (with any diagnosis)

at every visit (the only efficient distribution system). Many rheumatologists suggest that patient questionnaires be used only for certain patients, such as those with rheumatoid arthritis, or periodically, say, every 6 months. This approach generally fails in standard care: (a) it is virtually impossible to

PT Name **61 YOM** DX ICD9 **714.0**, Onset(mo/yr) **01/1996** Record# _____
 Rheumatologist _____, 1st Visit(mo/yr) **11/4/03**, RF: Pos / Neg If+,titer _____, ANA: Pos / Neg If+,titer _____
 Address _____ City, ST ZIP _____ Home tel _____
 SSN# _____, DOB _____, Sex M / F, Marital st: _____
 Race: _____ Work st: _____, Occ: _____ #Yrs Educ **8**, Consent given: Y / N, 1° MD _____ MD _____
 Tel _____

	DATE	11/4/03	1/13/04	4/20/04	7/20/04	9/28/04	12/28/04	2/8/05
M D H A Q	FUNCTIONAL STATUS (FN) [0-3]	0.8	0	0.1	0	0	0	0
	PSYCHOLOGICAL STATUS (PS) [0-10]	1.10	0	2.20	1.10	0	0	0
	PAIN (PN) [0-10]	9.6	0.3	0.2	3.2	0.6	6	0.2
	MINUTES AM STIFF (AM) [0-300]	60	30	301	5	0	60	0
	FATIGUE (FT) [0-10]	9.6	0.7	2.9	6.8	0.7	4.9	0.1
	CHANGE OVER TWO WEEKS (CH)	M Worse	Same	Same	Same	Same	Same	Same
	GLOBAL STATUS (GL) [0-10]	8.9	0.3	0.3	2.1	1	5.5	0.1
	SYMPTOMS (SY) [0-60]	19	4	14	8	5	13	3
V I T A L L A B O R A T O R Y	WEIGHT (lbs)	167	167	170	164	159	168	166
	BLOOD PRESSURE (mm/Hg)	114/70	131/81	110/70	116/76	128/80	111/71	120/72
	ESR (mm/hr) [M:0-20 / F:0-30]	43	8	13	11	10	14	14
	CRP (mg/L) [0-10]	30	3	5		7	6	8
	WBC (thou/uL) [4-11]	6.3	7.9	8.1	7.1	8.1	9.1	9.6
	HGB(g/dL-M:14/F:12)	16.8	17	16.7	15.9	16.1	16.6	17
	PLATELETS (thou/uL) [150-400]	179	207	181	184	203	207	177
	ALBUMIN (g/dL) [3.5-5.0]	3.9	4.1	4.1	4.4	4	4.4	4.6
	SGOT (U/L) [4-40]	18	17	25	22	18	20	32
	CREATININE (mg/dL) [0.7-1.5]	1.1	0.8	1.1	0.9	0.9	0.9	1.1
MEDICATIONS								
MED CODES: N=new drug, O=on at visit, X=toxicity, C=change dose, D=discontinue, T=taper, R=resume, I=injection, V=only today's visit								
Prednisone	N-3 QD	1 BID	1 BID	4 BID	C-3 BID	3 BID	T-2 BID	
Methotrexate	N-10 QW	C-20 QW	20 QW	C-15 QW	15 QW	C-25 QW	C-15 QW	
Folic Acid	N-1 QD	1 QD	1 QD	1 QD	1 QD	1 QD	1 QD	
Tylenol with Codeine	O-30 TID	30 TID	30 TID	D-30 TID				
Aleve	880 Q6H	440 BID	440 BID	440 BID	440 BID	440 BID	D-440 BID	
Depo-Medrol						80		
Humira						N-40 QOW		

Figure 2. The course of a 61-year-old man with RA first seen 11/4/03. At presentation, his score for functional status was 0.8, pain 9.6, and global status 8.9. Initial therapy with methotrexate 10 mg/wk and prednisone 3 mg/day resulted in a dramatic decrement in these scores over 2 months, with a score for functional status 0, pain 0.3, and global status 0.3. The patient was quite stable for 6 months from 1/3/04 to 9/28/04. When seen on 12/28/04, he had experienced a substantial flare over a month, with an increase in pain score from 0.6 to 6.0 and global status from 1 to 5.5. At that point, adalimumab was added and he was given a Depo-Medrol injection. When he returned 2 months later on 2/8/05, his scores had once again reverted to near remission status. His erythrocyte sedimentation rate (ESR) was 43 and C-reactive protein (CRP) was 30. On 1/13/04, his ESR and CRP normalized to 8 and 3, respectively.

organize distribution of questionnaires selectively and inevitably, certain patients will be missed; (b) a simple MDHAQ is useful for all people with all rheumatic diseases^{8,9}, as functional disability, pain, fatigue, and/or psychological distress are common to all rheumatic diseases; (c) questionnaire data only at periodic intervals may miss important changes in patient status that should be recognized for better care. If there is a reason for a visit, there is a reason for a questionnaire.

4. *The questionnaire should ideally be completed in the waiting room, not the examination room.* Most patients spend at least 10 minutes in the waiting room before seeing a rheumatologist and often much longer. This is the time when it is most desirable for the patient to complete a questionnaire, although the questionnaire may, of course, be completed in the examination room. Completion before the encounter helps focus concerns for patients, and provides information to the physician at the time of care. An office that functions efficiently can schedule patients 10 minutes earlier to include time for completion of a patient questionnaire.

5. *Let the patient do the work: the office staff should do as little as possible.* Some data, such as diagnosis, are ascertained more accurately by health professionals than by patients¹⁰. However, most data concerning physical function, pain, fatigue, and global status are ascertained more accurately by patient self-report than by health professionals¹¹. When a patient completes a questionnaire, there is only a single observer. If a health professional is introduced into the process, a second observer is included, and reproducibility of the information is reduced, rather than enhanced. About 20% of patients need help from office staff or a family member to complete a questionnaire which is provided willingly^{12,13}. Nonetheless, the more of the questionnaire completed by the patient, the more accurate and reproducible it is likely to be, and the less staff time involved in ascertaining the information.

6. *The questionnaire should include a "constant" region of physical function, pain, and global status and may also include "variable" region measures within a one-page format.* All versions of the MDHAQ (available at website www.mdhaq.org) include a constant region, analogous to immunoglobulins, of physical function, pain, and global status, the 3 patient self-report measures from the American College of Rheumatology (ACR) core data set¹⁴, as well as highly recommended and optional variable regions (Table 2). Highly recommended variable regions include scales for psychological distress, fatigue, change in status, morning stiffness, and a RADAI self-report joint count (Table 2). Optional variable regions include a review of systems, list of medications used, recent medical events, demographic data, and physician assessment of global status (Table 2, Figures 1 and 2). One of the authors (YY) includes a physician note on a one-page, 2-sided form and physician-administered joint counts on a different page. All MDHAQ formats allow ascer-

Table 2. Three types of components of the MDHAQ for standard clinical care: required, strongly encouraged, and optional.

"Constant" (Required)	Variable (Strongly Encouraged)	Variable (Optional)
Physical function	Psychological distress	Review of systems
Pain	Fatigue	Medications used
Patient global	Change in status	Recent medical events
	Morning stiffness	Physician global
	RADAI self-report joint count	Physician note on 2 page form
		Assessor joint count

tainment of most factual information, which may occupy up to 50% of a usual visit, within a few seconds at a glance by the clinician.

7. *The clinician should review the questionnaire with the patient.* Improvement of the quality and efficiency of a patient visit through a patient questionnaire depends on an "eyeball" review by the physician, generally with the patient. The 5 seconds for such a review gains information that would often involve 5 minutes of query, and greater efficiency is inevitable.

8. *Scoring templates are useful on the questionnaire.* Questionnaires without formal scoring can be helpful to recognize functional disability, pain, and other problems. However, formal quantitative information enhances care, analogous to measurement of vital signs. All current MDHAQ versions have scoring templates to allow a health professional to formally depict a quantitative number for each scale within 15 seconds, directly on the questionnaire. The 10 activities of daily living can be quickly totaled without a calculator; the total is divided by 10 as a 0–3 score, with scores comparable to the HAQ. The VAS are presented as 21 circles, rather than a traditional 10 cm scale, to facilitate scoring without a ruler. One version of the MDHAQ includes an arithmetic scale of 0–10 below the circles, and a logarithmic scale above the circles, as the logarithmic scale has been found to be more sensitive to distinguish active from control treatment in certain clinical trials (Koch and Pincus, unpublished data). Although the format of labeling each circle may appear quite busy, the inclusion of only a few numbers along the visual analog scale tends to lead patients to cluster responses primarily in labeled circles.

9. *Flow sheets can be very helpful, although not necessary.* Convenient entry onto a flow sheet along with selected laboratory tests and medications (Figure 3) organizes information to track scores serially on one page. This information provides an overview at a glance of the patient's course, a cost-effective procedure. Flow sheets and scoring are not a requirement: obviously, different physicians organize information differently.

10. *It is not necessary to use a computer to record the data: do not overuse technology.* Computers, hand-held devices,

scanners, etc., may be incorporated in collection of patient questionnaires in standard care. However, the advantages may be specious, with costs generally considerably greater than pencil and paper. Technology should be used only to the comfort level of the rheumatologist. There is no need for a clinician to computerize the data. Most clinicians do not computerize laboratory or medication data, and paper and pencil flow sheets are easily managed.

We use an electronic format (different for each of us) requiring a minute or less per patient to enter patient questionnaire data, and saving at least this amount of time by organizing the data. This practice has been implemented successfully in 2 busy private practices with minimal hassle over more than one (MB) and 4 (YY) years, respectively.

DISCUSSION

One concern raised by rheumatologists is that self-report quantitative data may be influenced by nonspecific factors beyond a patient's rheumatic disease, reducing specificity of scores for pathophysiological processes. That is true, but many measures in rheumatology are influenced by nonspecific variables. For example, a rise in an erythrocyte sedimentation rate (ESR) may be due to infection rather than a disease flare, just as a rise in pain score may be due to acute back pain or a fracture, rather than disease flare. The MDHAQ (or any measure) never replaces a careful history and physical examination. The clinician must always interpret any quantitative data, whether from a laboratory, questionnaire, or any source, on the basis of all relevant information when formulating clinical decisions.

Clinicians may ask how one can recognize a clinically meaningful change in an individual patient from information on the HAQ or MDHAQ. Published data suggest that changes of about 10% (0.25 units on a 0–3 HAQ or MDHAQ¹⁵ or 1–1.5 units on a 0–10 VAS¹⁶) are clinically meaningful. However, clinically meaningful changes may vary in different patients and different settings. Again, analogy to an ESR appears relevant. If a baseline ESR is 50, does a clinically meaningful change require reduction to 40, 30, or 20? A 0.25 unit change in a 0–3 HAQ or MDHAQ score in a 75-year-old patient from 1.0 to 0.75 might be quite clinically meaningful, while a similar reduction in a 35-year-old athletic individual may not be clinically meaningful. Experience with questionnaires, as with any clinical measurement, enhances capacity to interpret the information.

Patient questionnaire scores for physical function remain the most informative quantitative data for patient status from one visit to the next. Patient questionnaires, not a joint count, radiographic score, or laboratory test, also provide the most significant predictors of all severe longterm outcomes in patients with RA, including functional status^{17,18}, work disability¹⁹⁻²¹, costs²², joint replacement surgery²³, and premature death^{1,17,24-29}. If quantitative data are recorded, an opportunity for documentation and more rational monitoring is

gained, along with enhanced efficiency of patient care. If no data are recorded, this opportunity is lost and can never be replaced. We suggest that all rheumatologists would find it valuable to ask all patients to complete a questionnaire, such as the MDHAQ, our personal preference, at all standard clinical care visits.

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