Pragmatic and Scientific Advantages of MDHAQ/RAPID3 Completion by All Patients at All Visits in Routine Clinical Care

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Abstract

The patient history often provides the most important information in diagnosis and management of rheumatoid arthritis (RA) and other rheumatic diseases. A multidimensional health assessment questionnaire (MDHAQ)—with templates to score RAPID3 (routine assessment the patient index data), an index of three patient self-report measures, physical function, pain, and patient global estimate—provides a “scientific” patient history. MDHAQ/RAPID3 scores meet criteria for the scientific method seen for laboratory tests: standard format, quantitative data, protocol for collection, and recognition of prognostic implications of levels for management decisions. Extensive evidence supports a scientific rationale for MDHAQ/RAPID3 scores, which are as efficient as joint counts, laboratory tests, DAS28, and CDAI to distinguish active from control treatments in clinical trials and correlated significantly with DAS28 and CDAI scores in clinical trials and usual clinical care, including categories for high, moderate, low severity, and remission. Pragmatic advantages of MDHAQ/RAPID3 include that the patient does almost all the work and prepares for the encounter to focus on concerns to discuss with the doctor. MDHAQ/RAPID3 improves doctor-patient communication and saves time for the doctor with a 10 to 15 second overview of medical history data that otherwise would require 10 to 15 minutes of conversation. RAPID3 is scored in 5 seconds, compared to almost 2 minutes for a CDAI or DAS28, and can be used effectively for treat-to-target in RA. MDHAQ/RAPID3 is informative in all rheumatic diseases, including systemic lupus erythematosus, osteoarthritis, ankylosing spondylitis, psoriatic arthritis, fibromyalgia, gout, and others. All rheumatologists may include MDHAQ/RAPID3 in all patients in the infrastructure of clinical care.

A traditional perspective in clinical medicine is that information from a patient history is “subjective,” in contrast to “objective” information from the laboratory, imaging studies, biopsies, and other high-technology sources. The literal meaning of the term “subjective” is that the source of information is the person herself or himself, in contrast to “objective” information from the source outside of the self. However, the term “subjective” applied to medical information usually is interpreted to imply “poorly reliable” and “unscientific,” in contrast to “scientific,” “objective” data from laboratory tests and imaging studies. This is somewhat ironic, as several studies suggest that the patient history is often the most important information in diagnosis and management.

The patient history is more prominent in the diagnosis and management of rheumatoid arthritis (RA) than in seven other chronic diseases, including hypertension and diabetes. The importance of the patient history may result in large part from the absence of an “objective,” “gold standard” measure from a laboratory test or imaging study to apply to all individual patients. Therefore, an index of 3 to 5 measures from an RA core data set, such as a DAS28 (disease activity score with 28 joint count) or CDAI, is used to assess and monitor patient status.

A multidimensional health assessment questionnaire (MDHAQ) (Fig. 1) includes the three patient self-report measures of physical function, pain, and patient global estimate from the RA Core Data Set. RAPID3 (routine assessment the patient index data), an index of these measures, can be scored using a template on the MDHAQ in 5 seconds.
Figure 1 Multidimensional health assessment questionnaire (MDHAQ). The front page (A) includes 10 activities for function and two visual analog scales (VAS) for pain and patient global estimate of status, and a self-report joint count from a rheumatoid arthritis disease activity index (RADAII). Scoring templates for these measures are available on the right-hand edge of the page. An index of the three patient-reported measures, routine assessment of patient index data (RAPID3), can be calculated from an MDHAQ in approximately 5 seconds.
5. Please check (✓) if you have experienced any of the following over the last month:

- Fever
- Weight gain (>10 lbs)
- Weight loss (>10 lbs)
- Feeling sickly
- Headaches
- Unusual fatigue
- Swollen glands
- Loss of appetite
- Skin rash or hives
- Unusual bruising or bleeding
- Other skin problems
- Loss of hair
- Dry eyes
- Other eye problems
- Problems with hearing
- Ringing in the ears
- Stuffy nose
- Sore in the mouth
- Dry mouth
- Problems with smell or taste
- Lump in your throat
- Cough
- Shortness of breath
- Wheezing
- Pain in the chest
- Heart pounding (palpitations)
- Trouble swallowing
- Heartburn or stomach gas
- Stomach pain or cramps
- Nausea
- Vomiting
- Constipation
- Diarrhea
- Dark or bloody stools
- Problems with urination
- Gynecological (female) problems
- Problems with memory
- Dizziness
- Losing your balance
- Muscle pain, aches, or cramps
- Muscle weakness
- Paralysis of arms or legs
- Numbness or tingling of arms or legs
- Fainting spells
- Swelling of hands
- Swelling of ankles
- Swelling in other joints
- Joint pain
- Back pain
- Use of drugs not sold in stores
- Smoking cigarettes
- More than 2 alcoholic drinks per day
- Depression - feeling blue
- Anxiety - feeling nervous
- Problems with thinking
- Problems with memory
- Problems with sleeping
- Sexual problems
- Burning in sex organs
- Problems with social activities

Please check (✓) here if you have had any of the above over the last month: ___

6. When you awakened in the morning OVER THE LAST WEEK, did you feel stiff? □ No □ Yes
   If "No," please go to Item 7. If "Yes," please indicate the number of minutes ______, or hours ______
   until you are as limber as you will be for the day.

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. How often do you exercise aerobically (sweating, increased heart rate, shortness of breath) for at least
   one-half hour (30 minutes)? Please check (✓) only one.
   □ 3 or more times a week (3) □ 1-2 times per month (1)
   □ 1-2 times per week (2) □ Do not exercise regularly (0) □ Cannot exercise due to disability/handicap (9)

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

Figure 1 Multidimensional health assessment questionnaire (MDHAQ). The reverse side (B) includes a review of systems, fatigue VAS, queries regarding morning stiffness, change in status, exercise, recent medical history, and demographic data (not included in scoring, but providing useful data in clinical care).
seconds. The MDHAQ also includes on 2 sides of one sheet of paper a visual analog scale (VAS) for fatigue, self-report rheumatoid arthritis disease activity index (RADAI) joint count,16 and number of symptoms on a review of systems, as well as a recent medical history.

An MDHAQ/RAPID3 (or other valid and reliable patient self-report questionnaire) may be regarded as providing a “scientific” patient history. The questionnaire meets the same criteria of the scientific method seen for laboratory tests: quantitative data in a standard format, a protocol for collection and management of the day, identification of levels indicating a poor prognosis, and criteria for interpretation of quantitative data for management decisions. Data from patient self-report questionnaires appear to be as “scientific” to assess and manage patients with RA as traditional “objective” formal joint counts, radiographs, or laboratory tests.17

**Scientific Foundation of MDHAQ/RAPID3**

The “scientific” value of MDHAQ/RAPID3 scores is supported by extensive evidence:

1. Individual patient self-report measures of physical function, pain, and patient global estimate of status, as well as RAPID3, are as efficient as joint counts, laboratory tests, DAS28, or CDAI to distinguish active from control treatments in clinical trials involving methotrexate,18 leflunomide,18 anakinra,19 adalimumab,20 abatacept,21 and infliximab.22

2. RAPID3 scores are correlated significantly with DAS28 and CDAI scores in clinical trials14,20,23,24 and usual clinical care15,25 (Fig. 2), including categories for high, moderate, low severity, and remission.

3. Physical function scores on MDHAQ and other questionnaires are far more significant than radiographs or laboratory tests in the prognosis of severe outcomes in RA, including functional status, work disability,26-30 costs,31 joint replacement surgery,32 and premature death.26,33-39

4. Patient questionnaire scores are more reproducible than formal joint counts40-46 and radiographic scores by physicians, in large part because a single observer (in this case the patient) is more likely consistent than two observers (a joint count has input from both doctor and patient).45

**Pragmatic Advantages of MDHAQ/RAPID3**

MDHAQ/RAPID3 presents many pragmatic advantages for rheumatology care, including:

1. The patient does almost all the work.

2. MDHAQ/RAPID3 also does not disrupt office flow or require any time and effort from the doctor, when presented to each patient for completion at each visit as part of the infrastructure of care.

3. The patient prepares for encounter by focusing on concerns to discuss with the doctor.

4. Doctor-patient communication is improved with an “agenda” or “road map” available before encounter for both the patient and the doctor.

5. MDHAQ/RAPID3 provides the doctor with a 10 to 15 second overview of medical history data that would otherwise require about 10 to 15 minutes of conversation, saving time for the doctor, not only for RAPID3 but also for self-report joint count, review of systems, and recent medical history.

6. Unlike a formal joint count, MDHAQ/RAPID3 does not require same examiner at each assessment, as a single observer (the patient) is more reproducible than a joint count, which requires interaction of patient and doctor.

7. Collection of an MDHAQ/RAPID3 assures that some quantitative data concerning patient status is recorded at every visit, even if joint count or MD global is not preformed and a lab test is not available.

8. RAPID3 is scored in 5 seconds, compared to 40 seconds for a HAQ, 90 to 95 seconds for a formal joint count, 104 seconds for a CDAI, and 116 seconds for a DAS28.25

9. RAPID3 levels for high, moderate, low severity, and remission can be used effectively for treat-to-target in RA.

10. MDHAQ/RAPID3 is informative in all rheumatic diseases, including systemic lupus erythematosus, osteoarthritis, ankylosing spondylitis, psoriatic arthritis, fibromyalgia, gout, and others.47

**Conclusion**

Some settings have incorporated MDHAQ/RAPID3 into the infrastructure of care but include only the RAPID3 components. This practice appears undesirable as the entire MDHAQ requires only 5 to 10 minutes of the patient’s time, and the self-report joint count, review of systems, and recent medical history add valuable information, improve doctor-patient communication,48 and save time for the doctor, as discussed in detail elsewhere.49,50 Completion of an MDHAQ by a patient does not prevent performance of a formal joint count, scoring a DAS28, CDAI, or SDAI, obtaining an ultrasound, or collecting any other measure that is regarded as desirable for clinical care. Indeed, there is more time for a joint count or other activity as a result of saving time using the MDHAQ. Furthermore, a patient global estimate is required for DAS28, CDAI, and SDAI, so the patient is already given a sheet of paper to provide information—MDHAQ/ RAPID3 provides far more information on one sheet of paper. It is suggested that all rheumatologists should consider having each patient complete an MDHAQ/RAPID3 at each visit in the infrastructure of usual care.

**Disclosure Statement**

Dr. Pincus/Health Report Services, Inc., owns the copyright for the MDHAQ/RAPID3. No license is needed for clinicians who may freely use MDHAQ/RAPID3 to monitor
patient status in usual clinical care. Royalties and license fee are received from for-profit pharmaceutical and electronic medical record companies for the use of MDHAQ/RAPID3. The other authors have no financial or proprietary interest in the subject matter or materials discussed, including, but not limited to, employment, consultancies, stock ownership, honoraria, and paid expert testimony.

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