MATTERS ARISING

Should the MHAQ ever be used?

We read with interest the article by Stucki and colleagues,[1] and would like to make some comments in relation to similar work performed in our hospital.

In 1994 we gave a questionnaire to 122 rheumatoid ambulatory patients, including the disability section of the Health Assessment Questionnaire (HAQ) and questions regarding pain, global health, and functional status. When we compared the results using the 20 items of the original HAQ versus the eight extracted items corresponding to the modified HAQ (MHAQ), we observed significant differences in scores between both tests. The MHAQ total scores were on average 31·5% lower than those of the full HAQ (1·49 (SD 0·74) for the HAQ and 1·02 (1·00) for the MHAQ; $p < 0.001$ by paired t test). In addition, significant differences were found between all the subscales.

Internal consistency was high for both tests ($\alpha > 0.9$) and there was a good correlation between them, both for total scores (Pearson's $r = 0.88$) and for each of the subscales ($0.59 < r < 0.87$), that was highly significant ($p < 0.0001$). Correlations of HAQ and MHAQ with functional status, pain, and global health (measured using both visual analogue and Likert scales) were almost identical for both tests.

What conclusions can we draw from these data and previous work? First, the HAQ and the MHAQ score significantly differently, so we cannot merge patients or compare directly either studies or populations studied using these different tests. Though this effect was already present in the data of the original work by Pincus *et al*,[2] those authors (unlike others[1 3]) did not mention it specifically. We disagree with the assumption made by Stucki and colleagues that the difference found 'indicates that the HAQ contains more difficult items than the MHAQ', but we believe, rather, that this is the result of the specific scoring system used here. Both in the HAQ and in the MHAQ, each subscale is rated taking the highest value of the items composing the subscale. As the HAQ has several items in each subscale and the MHAQ only one, this means two to four opportunities more for the HAQ to score worse for each subscale compared with the MHAQ. In other words, the greater number of items in the HAQ gives it more chances to score higher than the MHAQ, and this is the most likely explanation for the differences found. This same reason serves to explain why the HAQ is more sensitive to change than the MHAQ.

An additional point, usually overlooked, is that the original HAQ has several complementary questions regarding the use of instruments or other people's aid to help in performing the activities that form the eight subscales. In the event that any one of the questions receives a positive response, the corresponding subscale is automatically scored at least as 2 or 'very difficult' to perform, even if the values of its particular items are lower; if they are higher, then the scale is scored as 3 or 'impossible' to perform. These complementary questions were not included in the MHAQ, which may also help to explain its lower scores compared with the HAQ. Furthermore, the use of these additional questions is not always made clear in the methods section of work published on this subject, and we feel that many researchers are obviating them. It would be interesting to study the effect on the final score of the HAQ of suppressing these questions, as this test would be easier to fill in and score without them.

After all these considerations, few arguments remain in support of the use of the MHAQ to assess functional capacity. Despite of the simplicity of the MHAQ, the HAQ can be completed by >80% of patients in about three minutes and scored in less than half that time,[4] which is not long, even in the busiest clinics. The MHAQ is reliable and consistent, but the HAQ has the advantage of a greater sensitivity, better powers of discrimination, and much lower ceiling effects. In addition, a failure to respond to any of the questions of the MHAQ will lead to the relevant subscale being missing, while the HAQ has alternative items for each subscale. Moreover, the original purpose of the MHAQ was not as an alternative or 'short form' of the HAQ, but to allow for additional questions assessing patient satisfaction while keeping the questionnaire of a manageable size. We conclude that there is no reason at present to favour the use of the MHAQ for measuring functional capacity in clinical settings, and that the HAQ should be the preferred tool for this purpose in those rheumatic diseases with which it has proved useful.

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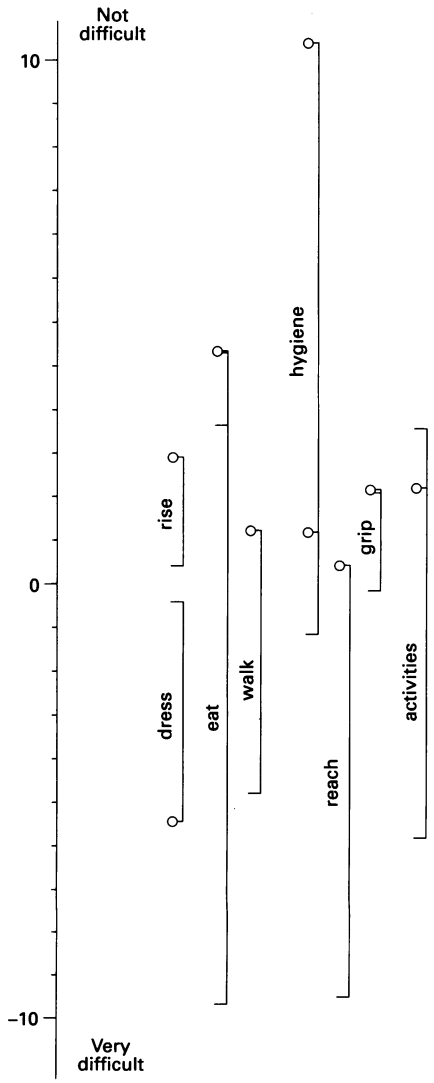
AUTHORS' REPLY:

The data presented by Drs Belmonte Serrano and Fabregat emphasise again two important aspects of the use of health status instruments. First, the MHAQ score is lower than the HAQ score, and thus HAQ and MHAQ scores are not interchangeable. Second, cross-sectional analysis is not sufficient when testing the metric properties of a short form compared with a full version. In cross-sectional analysis, the internal consistency of the short instrument may be as good as that of the long instrument, the correlation between the short and long version may be high, and the correlation with external parameters may be similar. However, as we showed in our study and as is emphasised by the data in the preceding letter, a short version may not discriminate patients as well, and may fail to document clinically meaningful change as a result of a floor or ceiling effect.

There are indeed different reasons why the MHAQ score may be lower than the HAQ score and we agree that chance and grading may contribute to this difference. However, we disagree that item difficulty does not play a part. The figure shows a Rasch analysis which ranks items along a continuum according to item difficulty from very difficult to not difficult.[1] From this analysis it becomes clear that the MHAQ includes the less (or least) difficult item in five of the eight scales (rise, eat, walk, grip, reach). Only for one scale (dress) did the MHAQ use the more difficult item. In two other scales with three questions (hygiene, activities), the MHAQ used the item of intermediate difficulty. Because the MHAQ includes less difficult items, its score is systematically lower than the HAQ score.

We agree that, at present, there is no reason to favour the use of the MHAQ. Nevertheless, we believe that it would be worthwhile to develop a short version to encompass the full spectrum of item difficulty. This new version should, ideally, have interval-like characteristics.[2] A shorter version may increase patient compliance, and interval characteristics[2 3] would require fewer



HAQ and MHAQ item difficulty. Brackets indicate HAQ scales. Horizontal markers indicate HAQ items and circles indicate MHAQ items.

assumptions with respect to scale interpretation and statistical analyses.

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Epidemiology of adult Still's disease

We read with interest the study by Magadur-Joly and colleagues about the epidemiology of adult Still's disease (ASD) published recently in *Annals*.[1] We would like to describe a patient who was significantly older than the age incidence mentioned in their study and posed considerable diagnostic difficulty.

A 66 year woman was referred urgently by her general practitioner with a two week history of sore throat, fever, weight loss, arthralgia/myalgia, and a rash. Apart from a history of hypertension she had previously been well.

When examined, she had a non-suppurative pharyngitis, a generalised polyarthritis with bilateral knee joint effusions and wrist and ankle joint synovitis bilaterally. She had an erythematous macular rash affecting her arms, legs, and trunk. She was pyrexial, with a temperature of 40°C. There was no obvious site of infection. Examination of the abdomen was normal; in particular, there was no hepatosplenomegaly. Investigation revealed erythrocyte sedimentation rate 123 mm/1st h, haemoglobin 12·5g/%, leucocyte count $28{\cdot}6 \times 10^9$/l (differential count, 94% polymorphs), mildly increased concentrations of urea and creatinine (16·6 mmol/l and 169 μmol/l, respectively), and normal liver function. Throat swab, blood cultures, and midstream urine were negative. Antistreptolysin O was normal. Echocardiography, electrocardiogram, and chest radiograph were normal. She was negative for rheumatoid factor, antinuclear factor and antineutrophil cytoplasmic antibodies on two occasions. Serum ferritin concentration was 17 952 μg/l (normal range 15–200).

Over the next two weeks, the patient remained pyrexial, with her temperature peaking consistently in the evenings with recrudescence of her rash. Her joint symptoms initially responded to non-steroidal anti-inflammatory agents, but she continued to be pyrexial. Her temperature persisted despite administration of aspirin, and she was prescribed prednisolone enteric 60 mg/day, with resolution of the rash and pyrexia.

A diagnosis of ASD was made on the basis of the clinical features and exclusion of other pathology. She was discharged home, taking steroids and aspirin, and on subsequent review in clinic was greatly improved, with almost complete resolution of her rash and fever.

This patient illustrates several important clinical points, not stressed in the article published by Magadur-Joly and colleagues, but important for any future prospective studies on incidence. First, the diagnosis of ASD is often very difficult to make. Second, it is a diagnosis of exclusion. Third, given the rarity of the condition, diagnosis may be further delayed in patients of this age, though there are reports of ASD in this age group.[2 3]

Furthermore, the study by Magadur-Joly's group gave an approximation of the incidence of this disease in a French population obtained by written survey. We suspect that many cases of ASD are mild and go undiagnosed. Identification of such cases would therefore be difficult in any prospective study on ASD. Clearly, what is required is greater awareness of the disease and further research into its pathogenesis, in addition to prospective studies on incidence.

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AUTHORS' REPLY:

Drs Dunne and Davies reported a case of adult Still's disease in an elderly patient and emphasised the difficulties of diagnosis, particularly in this age group. We share their opinion as to the difficulty of making a diagnosis of ASD, which is the reason why we used the criteria of Ohta *et al* (sensitivity 96%; specificity 92%[1]) in all but one case. Nevertheless, in our experience diagnosis does not seem any more difficult in elderly patients: in our sudy we identified two patients who were 61 and 62 years old.

Drs Dunne and Davies suspect many cases of ASD to be mild. In our study we did not distinguish between mild ASD or full ASD, but required the symptoms to fit with the criteria of Ohta *et al.*

In conclusion, we agree that what is required is greater awareness of this disease, and we believe that making studies of its incidence is one approach to achieving progress towards that aim.

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LETTER TO THE EDITOR

Racial variation in rheumatoid arthritis

MacGregor and colleagues[1] reported a lower prevalence of rheumatoid arthritis in black Caribbeans than in white subjects in Manchester. There are grounds for supposing that one cause of RA is low testosterone levels.[2] It has been reported that in the USA, black males have significantly higher testosterone levels than white males.[3–5] A similar difference has been reported in the USA between (pregnant) black and white females.[6] It seems likely that part of this racial variation of testosterone levels is not genetic.[7] Meanwhile, it would be interesting to know whether there is racial variation in testosterone level in this country.

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Correction

Association of hand and knee osteoarthritis: evidence for a polyarticular disease subset

Hirsch *et al* (*Ann Rheum Dis* 1996; **55:** 25–29)

The publishers and typesetters apologise to the authors for errors that led to publication of a version of figure 3 that omitted point estimates shown in the orginal (below).