HAQ (=Health Assessment Questionnaire) Scores of Out-Patients in a Clinic for Physical Medicine

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Introduction
Most of out patients who ask for physiotherapy present with some pain problems located on the locomotor system. However, not only the impairment, also the grade of disability of these patients is often poorly defined.

The Health Assessment Questionnaire (HAQ), originally developed for the assessment of patients suffering from rheumatoid arthritis in 1980, is a well evaluated instrument for the assessment of personal activity (1). This self-administered questionnaire was evaluated in several languages including American (2) and British English (3), Dutch (4), Swedish (5), Spanish (5), Portuguese (7) and German in Switzerland (8), Austria (9) and Germany (10). Modifications of this questionnaire have been reported for the use in patients suffering from psoriatic arthritis (11) or ankylosing spondylitis (12) and for rheumatic children (13).

The HAQ score is thought to be a disease specific tool for the assessment of inflammatory joint disorders. Although mostly used in rheumatoid arthritis (9,14,15,16), this score was applied in patients with systemic lupus erythematosus (17), ankylosing spondylitis, fibromyalgia (18,19), neck pain (19), low back pain (19), osteoarthritis of the knee (19) or of the hand (19). High correlations between the HAQ and non disease specific instruments like the Sickness Impairment Profile (SIP) (20) might recommend the HAQ to be used for the assessment of the disability in patients with poorly defined pain problems or non rheumatic movement disorders.

Disability and impairment of the locomotor system show a strong relationship with age (21,22). Mobility has a great influence on the activities of daily living. Loss of mobility leads to dependency meaning that subjects who cannot perform basic activities of daily living become dependent on other subjects (23). When...
most activities of daily living have to be supported, the patient become dependent on support. A study performed in Berlin in the early eighties found a high proportion of multiple movement impairment in dependent and support dependent elderly subjects, with increasing numbers in the age class of 80 to 89. In 1979 a health survey in Vienna, a city with similar age structure of its citizens as Berlin, found no functional impairment of the lower extremities in 53% of 80 year old Viennese citizens (23). 31% had mild disability in walking and 15% showed a high degree of functional loss of the legs. A functional deficit of the upper extremity was only seen in 14% at the age of 80.

The results of the first National Health and Nutrition Examination Survey (NHANES I) in US found an continuous increase of disability in subjects of the 6th decade to subjects older than 70 years, with higher levels of loss in activity both in female and in non white civilians (24). This study identified also some risk factors for the development of disability such as age at baseline, non recreational activity, arthritis history, body mass index at age 40 and education. The occurrence of chronic disorders such as history of stroke, hip or spine fracture, polo, heart failure or rheumatic fever which all affect mobility, were also partly predictive for a higher loss of activity.

A study from Hong Kong found pain on the locomotor system in more than 50% of a representative sample of 70 to 90 years old Chinese (25). However, only 25% of these subjects showed a pain induced decrease of activities. Knees, ankle/foot and the thoracic region of the back were the most frequent localisations of pain. In a Swedish sample of 537 people at age 79 (26) symptomatic osteoarthritis of the wrist and fingers was found only in 1.3%. The percentage for osteo arthritis of the knees was 7.3 and 5.7 for symptomatic hip osteoarthritis.

A study was performed to assess the grade of disability in out patients attending the clinic for physical medicine at the Hanuschspital in Vienna. Aim of the investigation was to find out patients with high grade of disability and to correlate HAQ scores with impairment, gender, age and localisation of symptoms. Special focus was put on the comparison of results of patients younger or older than 60 years.

Method

All out patients attending the clinic for physical medicine between November 2nd and December 30th 1994 were included in the study. 280 patients attended for treatment and 54 patients were referred for diagnosis, mainly for electrophysiological testing. All subjects presented with at least slight pain on the locomotor system. The patients were either referred by a general practitioner, orthopaedist, internist or neurologist. About 40% of the patients were self referred and can be regarded as representative patients with rheumatic complaints on the primary care level (27).

The German version of HAQ, evaluated by Brühlmann and coworkers (8), was filled out by each patient. The HAQ consists of 20 questions, which cover 8 categories of daily live activities (table 1). Questions can be answered with “possible without any difficulty (0 point)”, “possible with some difficulty (1 point)”, “possible with much difficulty (2 points)” and “unable to do (3 points)”. Use of any aids increases the score by 1 point. The worst score of each category is accepted as representative value for this activity. The total HAQ score is equal to the mean value of all subscores.

Age, gender and the localisation of symptoms on the locomotor system were recorded.

<table>
<thead>
<tr>
<th>Question: Are you able</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dress yourself, including tying shoelaces and doing buttons</td>
<td>Dressing</td>
</tr>
<tr>
<td>Shampoo your hair</td>
<td></td>
</tr>
<tr>
<td>Stand up from an armless straight chair?</td>
<td>Arising</td>
</tr>
<tr>
<td>Get in and out of bed?</td>
<td></td>
</tr>
<tr>
<td>Cut your meat?</td>
<td>Eating</td>
</tr>
<tr>
<td>Lift a full cup or glass to your mouth?</td>
<td></td>
</tr>
<tr>
<td>Open an new milk carton?</td>
<td></td>
</tr>
<tr>
<td>Walk outdoors on flat ground?</td>
<td>Walking</td>
</tr>
<tr>
<td>Climb up five steps?</td>
<td></td>
</tr>
<tr>
<td>Wash and dry your entire body?</td>
<td>Hygiene</td>
</tr>
<tr>
<td>Take a tub bath?</td>
<td></td>
</tr>
<tr>
<td>Get on and of the toilet?</td>
<td>Reaching</td>
</tr>
<tr>
<td>Reach and get down a 5 pound object (such as a bag of sugar)</td>
<td></td>
</tr>
<tr>
<td>Bend down to pick up clothing from the floor?</td>
<td></td>
</tr>
<tr>
<td>Open car doors?</td>
<td></td>
</tr>
<tr>
<td>Open jars which have been previously open?</td>
<td>Gripping</td>
</tr>
<tr>
<td>Turn faucets on and off?</td>
<td></td>
</tr>
<tr>
<td>Run errands and shop?</td>
<td>Activities</td>
</tr>
<tr>
<td>Get in and out of a car?</td>
<td></td>
</tr>
<tr>
<td>Do chores such as vacuuming or yardwork?</td>
<td></td>
</tr>
</tbody>
</table>
The acute impairment of the locomotor system was taken as the main diagnosis. Additional diseases like diabetes, haematological disorders, cardiovascular problems and also additional impairments of the locomotor system, which contributed less than the main impairment to the pain symptoms, were recorded as side diagnosis. Main and side diagnosis were computed and 35 classes of diagnoses were created.

Symptoms were localized in the following regions: shoulder, elbow, hands, hip, knee, feet, low back, neck and other. When the pain was diffusely spread over one extremity or the whole back or the thorax, the localisation was classified as extremity or trunk.

A descriptive statistic was performed including mean, median, standard deviation, minimum and maximum value and the 5th, 25th, 75th and 95th percentile (28). Mann Whitney U Test was used post hoc for the comparison of results of patients younger or older than 60 years.

Results

HAQ-score

Mean HAQ score was 0.56 (25th percentile = 0.0, median = 0.375, 75th percentile 0.75, 95th percentile = 1.875). The score in 8 age classes increased from 21 to 30 years old patients to older subjects than 80 years.

![Figure 1](image.png)

Mean HAQ Scores ± 95% confidence interval of age classes

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Scores of categories (mean ± standard deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>All (n = 334)</td>
</tr>
<tr>
<td>dressing</td>
<td>0.50 ± 0.75</td>
</tr>
<tr>
<td>arising</td>
<td>0.40 ± 0.68</td>
</tr>
<tr>
<td>walking</td>
<td>0.51 ± 0.71</td>
</tr>
<tr>
<td>reaching</td>
<td>0.98 ± 0.99</td>
</tr>
<tr>
<td>eating</td>
<td>0.37 ± 0.73</td>
</tr>
<tr>
<td>hygiene</td>
<td>0.44 ± 0.84</td>
</tr>
<tr>
<td>activities</td>
<td>0.92 ± 0.93</td>
</tr>
<tr>
<td>gripping</td>
<td>0.36 ± 0.72</td>
</tr>
<tr>
<td>HAQ</td>
<td>0.56 ± 0.58</td>
</tr>
</tbody>
</table>
years from 0.31 to 0.73, although a second peak was found in 41 to 50 years old subjects with a value of 0.57 (figure 1).

Scores of categories
Table 2 shows the category scores of the whole sample. „Grip“ was the least affected function and „Reaching“ the most restricted activity of daily life.

Localisation of symptoms
Figure 2 shows the 25th, 50th, 75th and 95th percentile of the total score for all localisations of symptoms. 68 subjects presented with symptoms in the extremities, 67 had signs located at the trunk. 56 showed the shoulder disorders. 41 patients had problems with the hands, 33 with knees and 23 presented with symptoms related to the hip. 20 subjects showed problems with the feet and 17 disorders of the neck. In case that the sample size of subgroups was bigger than 30, 95th percentiles were calculated with highest scores in patients with shoulder problems.

Diagnosis
Figure 3 shows the score of patients with different diagnoses. Subjects with disease of the central ner
vous system like hemiparesis after stroke or M.Parkinson, and patients after amputation ranked highest. Patients after joint surgery, after fractures or contusion and also patients with tendovaginitis follow them in the score rank.

Comparison of results of patients younger or older than 60 years.

The HAQ score of the older group was significantly higher (mean: 0.64 ± 0.64; range: 0 to 2.655) than the score of the younger group (mean:0.50 ± 0.52; range: 0 to 2.25). The older group scored also significantly higher in the subscores „Walking“ (Mann Whitney 2 tailed p=0.0006) and „Hygiene“ (Mann Whitney 2 tailed p=0.004). If the sample was divided by the localization of symptoms into 11 subgroups, the subgroup „knee“ (2 tailed p=0.055) and the subgroup „foot“ (2 tailed p=0.086) showed close to significance higher HAQ scores in the group older than 60 years. These elderly patients with knee or foot problems scored also higher than younger patients in categories not related with walking such as „Eating“, „Reaching“ and „Grip“.

Discussion

As reported by others (21,22, 29,30) impairment of walking is related with age and only in patients with extreme changes of the joints correlated with morphological failures. The fact, that older patients with knee or foot problems score also high in other categories not related with walking might be explained by psychological variables (31). In patients with hip and/or knee pain, pain intensity was on a higher level in subjects with chronic than sporadic pain (29). Patients with severe pain showed significantly more restrictions in activity than patients with sporadic pain, patients with episodic pain or healthy controls. Walking and performing heavy household tasks were the most restricted activities of daily living.

Disability in elderly subjects was more related to restriction in the range of shoulder motion than to shoulder pain in one study (32). Patients after poly trauma and gross reduction of shoulder motion showed the highest disability scores in our study.

Ranking the restrictions in activities of daily living found the categories “reaching” and “activities” most affected and “eating” and “gripping” at least disturbed in our patients. A similar profile of decreased activities was reported by Scudds and Robertson (33) in a sample of 887 citizens from London, Ontario, Canada, aged between 65 and 90, in which “chores such as vacuuming or yardwork” could be performed without difficulty only by 46.7% of all participants, but 93.2% of these elderly Canadians were able to “lift a full cup or glass to the mouth”. This study found also a higher odds ratio for disability in subjects reporting musculoskeletal pain than in subjects without pain. Higher restrictions in activity were seen in older patients than in younger subjects. However, in our study significant differences in HAQ scoring were only found between subjects younger than 40 years and subjects older than 70 years. This finding is in accordance with the fact that the number of rheumatic pains and aches show a regular plateau between 40 and 70 years (34). Furthermore, low prevalence of symptomatic rheumatic diseases was reported in subjects older than 80 years (25,26).

As all subjects presented with symptoms, mostly pain, and the 25th percentile of HAQ scores was equal to zero, this might be interpreted as “floor” effect of the questionnaire. The “floor” effect indicates poor sensitivity in detecting patients with only slight symptoms (35). Rasch analysis of the HAQ supports the floor effect of this instrument which cannot reliably detect differences in patients below a HAQ score of 0.24 (36). It was shown that the relationship between pain and disability varies in different rheumatic diseases (19). Patients suffering from rheumatoid arthritis presented with high HAQ scores, but only moderate pain scores, while patients with neck pain, low back pain or fibromyalgia showed a high pain level at low grades of disability.

We did not quantify pain in our study, but pain severity was at low level in most of the investigated patients. This can explain the lack of finding any restrictions in 25 percent of investigated subjects. A study from India (37) found in 746 subjects rheumatic musculoskeletal symptoms, which presented with mild, moderate and severe pain in 9, 56 and 25 percent of cases. 5 percent of these subjects scored zero in the HAQ, 74 percent scored between 0 and 1, 15 percent between 1 and 1.5 and only 6 percent more than 1.5. These different rates of musculoskeletal pain and disability indicate a loose relationship between pain and restricted activity.

In conclusion, our study indicates that impairments of the locomotor systems do not always lead to disability despite the fact that the chosen instrument for the assessment of activity levels is not perfect. Age, impaired range of motion and psycho social features contribute at least in the same quantity as pain to loss of activity.
References


33. Scudds RJ, Robertson JMcD: Empirical evidence of the association between the presence of musculoskeletal pain and physical disability in community dwelling senior citizens. Pain 1998; 75 (3): 229 236


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