

Development and Usability Testing of the Arthritis Health Journal: An online tool to promote self-monitoring in people with rheumatoid arthritis

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Background

Patient passports have been used in chronic diseases to promote the active involvement of patients in their care, and have led to better treatment and health outcomes. In rheumatoid arthritis (RA), the 'Treat to Target' approach emphasizes the importance of regular assessment and modifying therapy until the target (remission or low disease activity) is reached.

Active involvement of RA patients in monitoring their own disease activity could facilitate this approach by providing early warning when targets are not being met. The Arthritis Health Journal (AHJ) is a patient-centered online tool that helps patients track symptoms, monitor disease activity and develop action plans.

Objectives

- To develop an online patient passport that promotes active involvement of people with RA in their own care
- Specifically, the journal will allow RA patients to track symptoms, monitor disease activity, keep a record of medical information, and develop action plans to help them better manage their disease.
- To evaluate user satisfaction and identify usability issues for tool refinement.

How much arthritis pain did you feel over the last 24 hours?

0 1 2 3 4 5 6 7 8 9 10

Were your joints stiff when you woke up today?

YES NO

How long did this stiffness last?

0-15 MINUTES 16-30 MINUTES 31-60 MINUTES

1-2 HOURS 2-3 HOURS MORE THAN 3 HOURS

Figure 1: Screenshot from AHJ Symptom Tracker

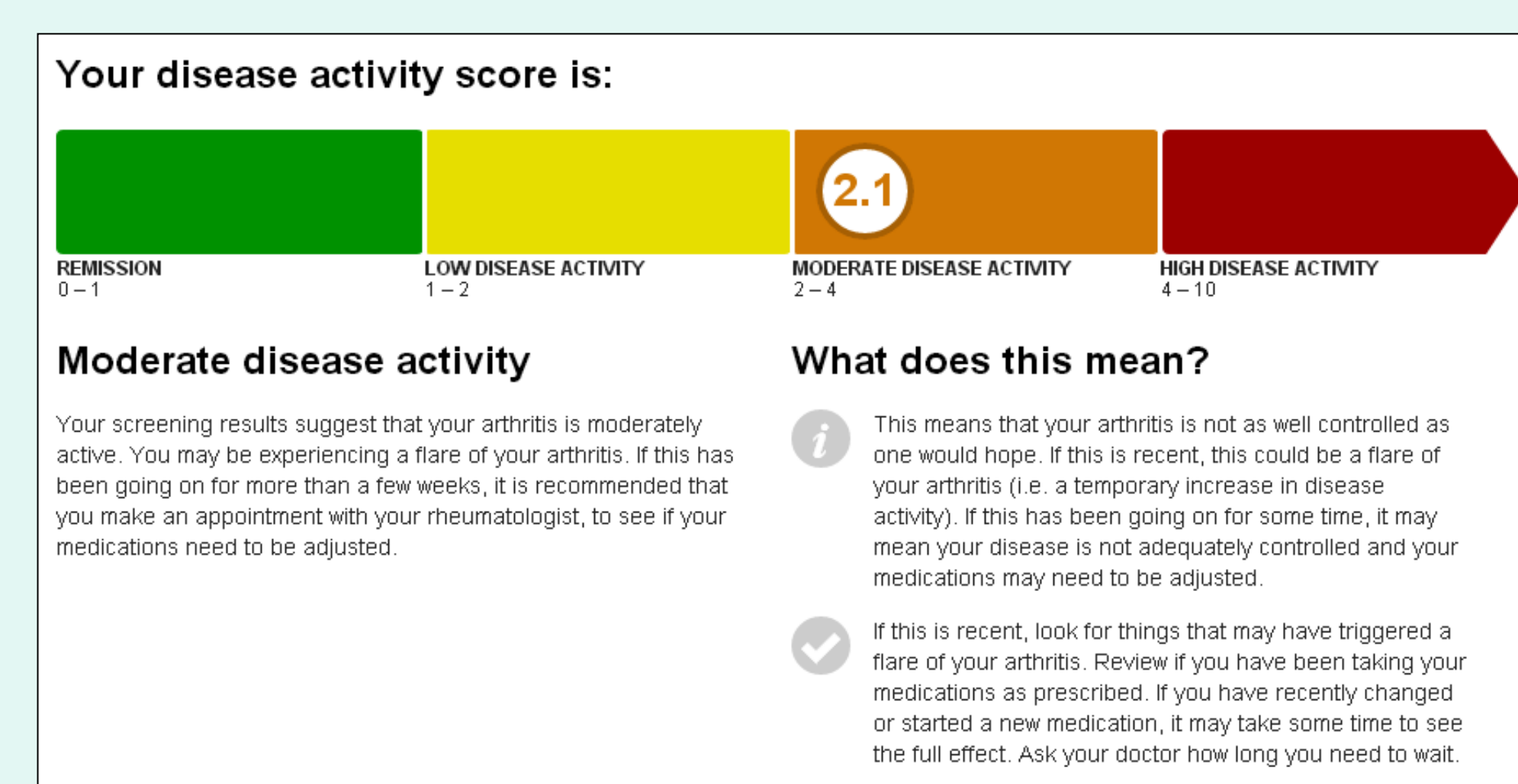


Figure 2: Screenshot from AHJ Disease Activity Assessment

Methods

Phase 1: Development of AHJ

- Structured interviews were conducted with adults with RA and rheumatologists to identify desired components and attributes of the tool.
 - Patients were asked how the journal could assist with self-management
 - Rheumatologists were asked how information could support clinical care
- Interviews were taped, transcribed and analyzed using a thematic approach.

Phase 2: Post-development Usability Testing of AHJ

- Two iterative cycles of usability tests were conducted with people with RA, using the concurrent think-aloud protocol, where thoughts are verbalized while performing tasks.
- Sessions were audio-taped and field notes taken.
- The System Usability Scale (SUS) was used to evaluate usability of the tool (0-100; higher=more user friendly), and simple content analysis was performed to identify issues and refine the tool.

I will walk 3 days a week for 20 minutes before work in my neighbourhood over the next 4 weeks

What? (required) walk How often? 3 days a week

How much or how long? 20 minutes When? before work

Where? in my neighbourhood When to check in? 4 weeks

How confident (sure) are you that you will be able to complete this action?

0 1 2 3 4 5 6 7 8 9 10

That's great! Having a high level of confidence increases your chance of being successful.

Figure 3: Screenshot from AHJ Goals and Action Plan

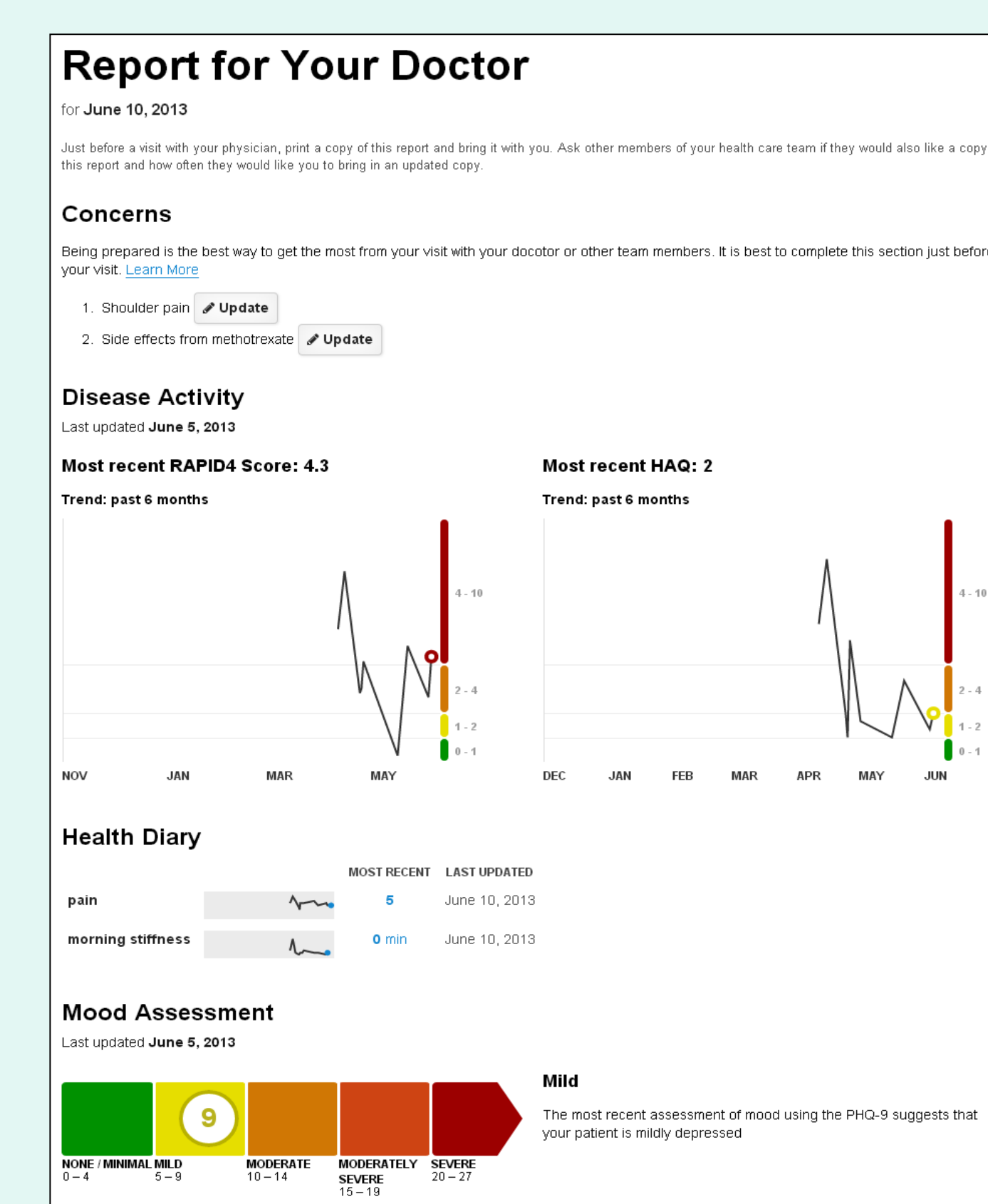


Figure 4: Screenshot from AHJ Physician's Report

Results

Sample Characteristics			
Phase 1: Development of AHJ		Phase 2: Usability Testing of AHJ	
# of patient participants	9	# of participants	9
# of rheumatologist participants	5	Mean (SD) RA duration, y	11 (12.6)
		Mean (SD) age, y	51.6 (10.2)
		Gender, female, %	100
		Education, college/university, %	89
		Mean (SD) daily internet use, h	4 (2.2)

Phase 1: Development of AHJ

Pre-development interviews revealed that people with RA desired a tool that would increase self-awareness, improve self-management and cue the need for rheumatologist visits. Rheumatologists identified that a tool such as the AHJ could improve RA patients' involvement in their own care and that succinct patient data and concerns could focus care. However, they feared it could heighten patient anxiety and might not adequately discern poor disease control. Based on these results, the AHJ was developed. The tool consists of six sections: symptom and exercise log (fig. 1); disease activity assessment (fig. 2); mood assessment; medical information; goals and action plans (fig. 3); and health reports (fig. 4).

Phase 2: Post-development Usability Testing of AHJ

The tool's overall usability was good, with a mean (SD) SUS score of 84.7 (7.7). Participants responded positively to the content and design of the AHJ, reporting particular satisfaction with the ability to view patterns over time and relationships between symptoms and other aspects of their disease or management. Graphical representation of results was viewed as an effective method of displaying these patterns.

Aspects of the interface that were modified after the first iteration led to improved satisfaction in the second iteration. Ensuring font types, sizes and colours were easy to read was essential to user satisfaction. Participants rarely read text or instructions, so long blocks of text were replaced with simple, concise instructions, and key points were emphasized to ensure important details were noticed. For example, the time frame in analog scale questions (e.g. in the past week) were reformatted in the second iteration to more clearly emphasize the time frame.

Conclusion

Based on patient and rheumatologist input we developed a patient passport to promote patient self-monitoring and involvement in their care. Usability testing provided valuable insight into how people with RA use online tools. While general satisfaction was high, important issues were revealed leading to refinement of the prototype. Pilot testing of the tool to assess impact on care is currently underway.