



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. Usability testing is a process used to test user-friendliness of a tool during its development.

Figure 1. Goals and Action Plans - Data Input Screen

OBJECTIVE

This study aims to evaluate user satisfaction with the AHJ and to identify usability issues that will help refine the tool.

METHODS

Development of the AHJ was guided by a series of semi-structured interviews with patients and rheumatologists. The tool consists of six sections:

- 1) symptom and exercise log;
- 2) disease activity assessment;
- 3) mood assessment;
- 4) medical information;
- 5) goals and action plans;
- 6) health reports.

Two iterative cycles of usability testing were conducted with people with RA using the concurrent think-aloud protocol, in which participants are asked to verbalize their thoughts while performing a set of tasks. Sessions were audio-recorded and field notes were taken. The System Usability Scale (SUS) was used to evaluate the usability of the tool (min-max=0-100; higher=more user friendly) and simple content analysis was performed to identify issues and refine the tool.

Figure 2. Disease Activity Assessment - Data Input Screen

RESULTS

Number of participants	9
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)

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.

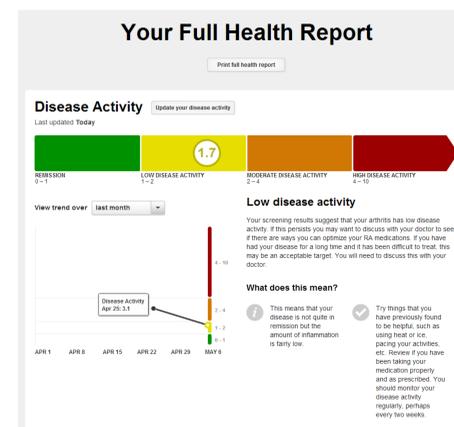


Figure 3. Disease Activity Report - Output Screen



Figure 4. Symptom and Exercise Report - Output Screen

Figure 5. Symptom and Exercise Log - Data Input Screen

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 and succinct instructions, and key points were emphasized to ensure important details were understood. Particularly, instructions regarding time frame in analog scale questions (e.g. in the past week) tended to be ignored or go unnoticed, until questions were reformatted in the second iteration to more clearly emphasize the time frame.

CONCLUSION

Direct observation methods provided valuable insight into the use of online tools to promote active involvement of patients in their care. While general satisfaction was high, usability testing revealed important issues that warranted improvement to refine the prototype.

Acknowledgements: This research was funded by the Canadian Initiative for Outcomes in Rheumatology Care