Development and Usability Testing of ANSWER: A Web-based Methotrexate Decision Aid for Patients with Rheumatoid Arthritis

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**Background**
- For patients with rheumatoid arthritis (RA), early and consistent use of disease-modifying drugs, such as methotrexate can prevent joint damage, yet some patients delay/decline treatment.
- For those who are considering methotrexate, we have developed an interactive web-based patient decision aid called the ANSWER (Animated, Self-serve, Web-based Research tool).

**Methods**
- ANSWER provides information on benefits and harms of 2 options:
  - Start methotrexate now.
  - Refuse methotrexate and talk to my doctor about other treatment options.
- Features 6 animated patient stories.
- Interactive questionnaire for value clarification.
- 1-page report for patients to discuss with physicians.

**Usability test**
- 15 participants recruited from Vancouver, Canada in Aug-Oct 2010
- Eligibility: 1) Had physician-diagnosed RA; 2) Was using or had been prescribed methotrexate
- Participant completed:
  - Concurrent think-aloud session – audio recorded; field notes taken.
  - System Usability Scale (SUS; Brooke 1996; Bangor 2000).
  - We used rapid cycle iterative testing.
  - Content analysis to identify major themes to understand the user experience.

**Results**

<table>
<thead>
<tr>
<th>Participant characteristics</th>
<th>N=15</th>
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<tbody>
<tr>
<td>Age 50 and over</td>
<td>8 (53.3%)</td>
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<tr>
<td>Women</td>
<td>13 (86.7%)</td>
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<tr>
<td>Disease duration</td>
<td>5.0 years (IRQ=0.83-10)</td>
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<tr>
<td>University / college graduates</td>
<td>8 (53.3%)</td>
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<tr>
<td># of hours on Internet per day</td>
<td>2.1 hours (SD=1.76)</td>
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<tr>
<td>Time to complete ANSWER</td>
<td>56.1 minutes (SD=34.8)</td>
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<tr>
<td>System Usability Scale</td>
<td>81.2 (SD=13.5)</td>
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**Purpose**
- To assess the usability of the ANSWER prototype.
- To identify important components of usability testing from the patient’s perspective.

**Conclusion**
Although the SUS score indicated high usability, findings from the think-aloud sessions highlighted additional areas where further modifications could improve the online ANSWER decision aid. Our results demonstrate the importance of direct observation methods in usability testing. With an increasing number of online and mobile decision aids being developed, further research to advance the methodology of usability testing is warranted.