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).

If we built it, can they use it?

- A major barrier to using digital media tools is poor user-tool interface.
- **User-centred design:** Focus on how users want to use the tool, instead of forcing users to change their behaviours to accommodate the tool.
- Usability test: To assess user-friendliness of a tool during the development.
- Little is known about what users pay attention to when they test the tool.

Methods

ANSWER: a decision aid for patients considering methotrexate

- ANSWER provides information on benefits and harms of 2 options:
  - Start methotrexate now.
  - Refuse methotrexate and talk to my doctor about other medical 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.

Purpose

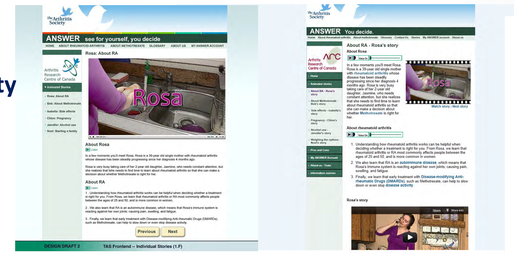
- To assess the usability of the ANSWER prototype.
- To identify important components of usability testing from the patient's perspective.

Results

Participant characteristics	N=15
Age 50 and over	8 (53.3%)
Women	13 (86.7%)
Disease duration	5.0 years (IRQ=0.83-10)
University / college graduates	8 (53.4%)
# of hours on Internet per day	2.1 hours (SD=1.76)
Time to complete ANSWER	56.1 minutes (SD=34.8)
System Usability Scale (0-100; higher=more user friendly)	81.2 (SD=13.5)

ANSWER: before and after usability testing

Before usability testing



After incorporating participants' feedback from usability testing

3 themes illustrating what participants focused on while using the ANSWER:

Theme 1: User engagement - While using the ANSWER, participants were engaged at 2 levels: 1) relevance of the life situation portrayed by the characters in the animated videos; 2) relevance of the information to the individual's situation.

"…I like the voice of the narrator. It's very clear…it just almost like he is very informed like he's not just a narrator like he actually knows what he is saying…He is not trying to sell you anything yet he is just trying to make you understand what the steps are, what is coming up, what you are supposed to be doing so I like that part. It's clear."
(Jamie, age group 35-49)

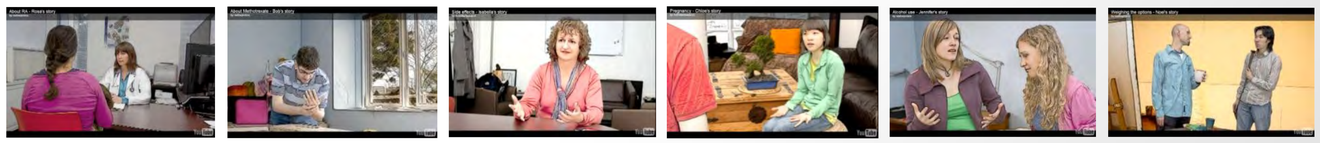
(On side effects video)
"That's a marriage headed for disaster, [laughs] Poor communication. Oh wait, we're talking about methotrexate… That's funny, that was the best one, that was… full of information about the actual medication itself. And the previous two (videos) I kind of – like that would have been very helpful when I was first diagnosed…"
(Emma, age group 50-64)

Theme 2: Trustworthiness of information - Although participants knew that ANSWER was hosted by a research centre, their confidence that the information was credible depended on how the information was presented.

(Navigating the homepage)
"…Well I'd be curious, so what I would do is I would probably click on, my first inclination is to click this because you know you've been programmed by YouTube to do that. Then I saw the narration button later (that looks unfamiliar) *and that's why I was like, oh, okay, now what do I do? "*
(Bob, age group 35-49)

Theme 3: User-tool interaction – Participants constantly compared the design and navigation of ANSWER with those of other popular websites.

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 demonstrates 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.



ANSWER. You decide.
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