Effects of a Web-based Patient Decision Aid on Biologics for Rheumatoid Arthritis: A Proof-of-Concept Study

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Background

- Patient decision aids are designed to present benefits/harm of treatment options and clarify individuals' preferences.

- ANSWER-2 is a user-friendly decision aid for patients with rheumatoid arthritis (RA) who are considering biologic and small molecule agents.

- Main feature is a trade-off exercise which helps patients consider value-sensitive options.

Objective

To assess the effect of *ANSWER-2* on patients' perceived decision quality and self-management capacity.

Methods

- Study design: Pre-post study.

- Recruitment: Rheumatologists' clinics, patient groups and social media.

- Eligibility: 1) physician diagnosis of RA, 2) recommended to start/switch to a new biologic or small molecule agent, and 3) reliable access to the internet.

- Procedure: After completing a baseline survey, participants completed the ANSWER-2 program and a follow-up assessment within 2 days.

- Outcome measures: Decisional Conflict Scale (DCS; 0-100), 2) Partners in Health Scale (PIHS; 0-88, lower = better), and 3) Medication Education Impact Questionnaire (MeiQ; 6 subscales, higher score = better).

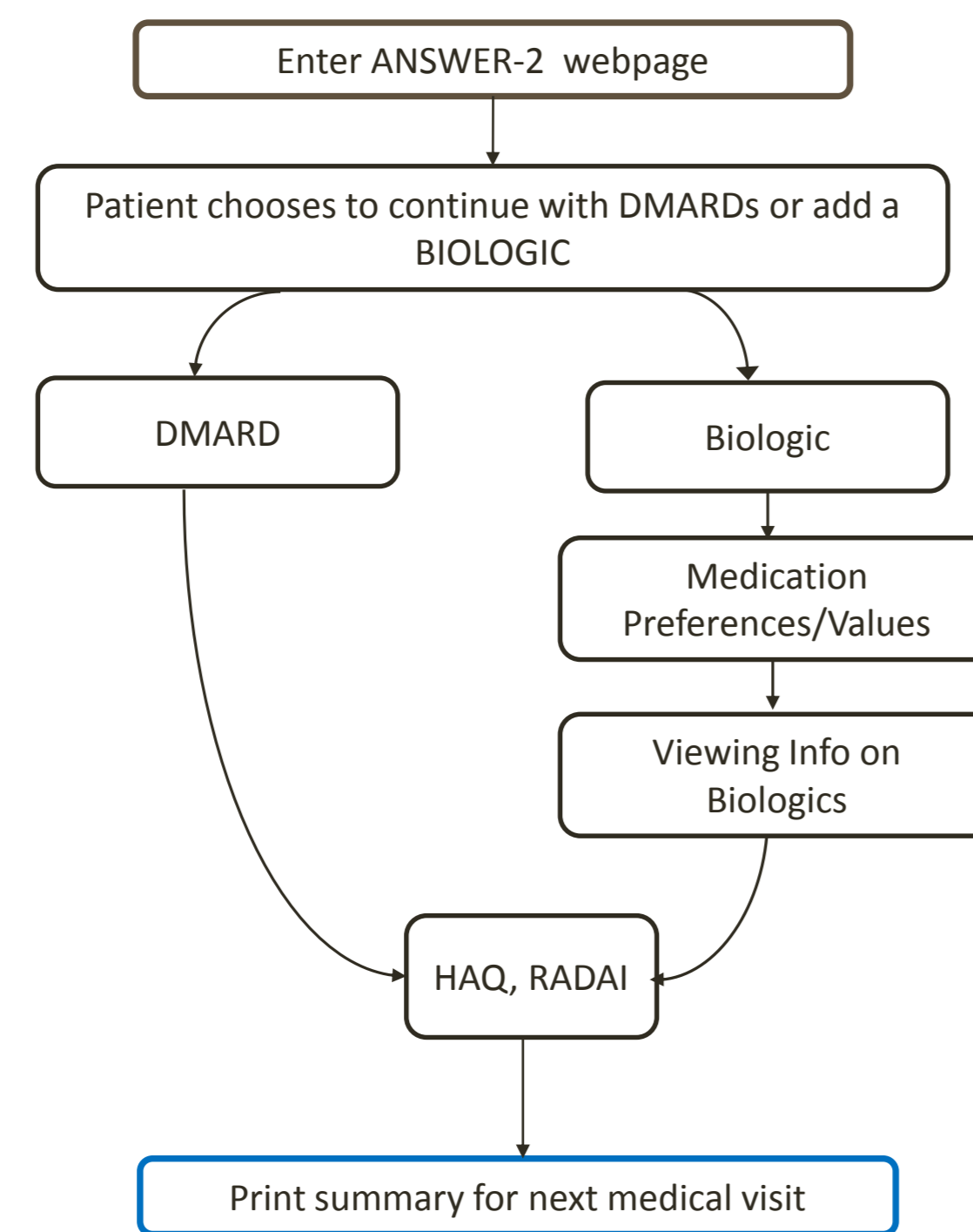- Statistical analysis: Paired t-test or Wilcoxon signed-rank test to assess differences pre and post intervention.
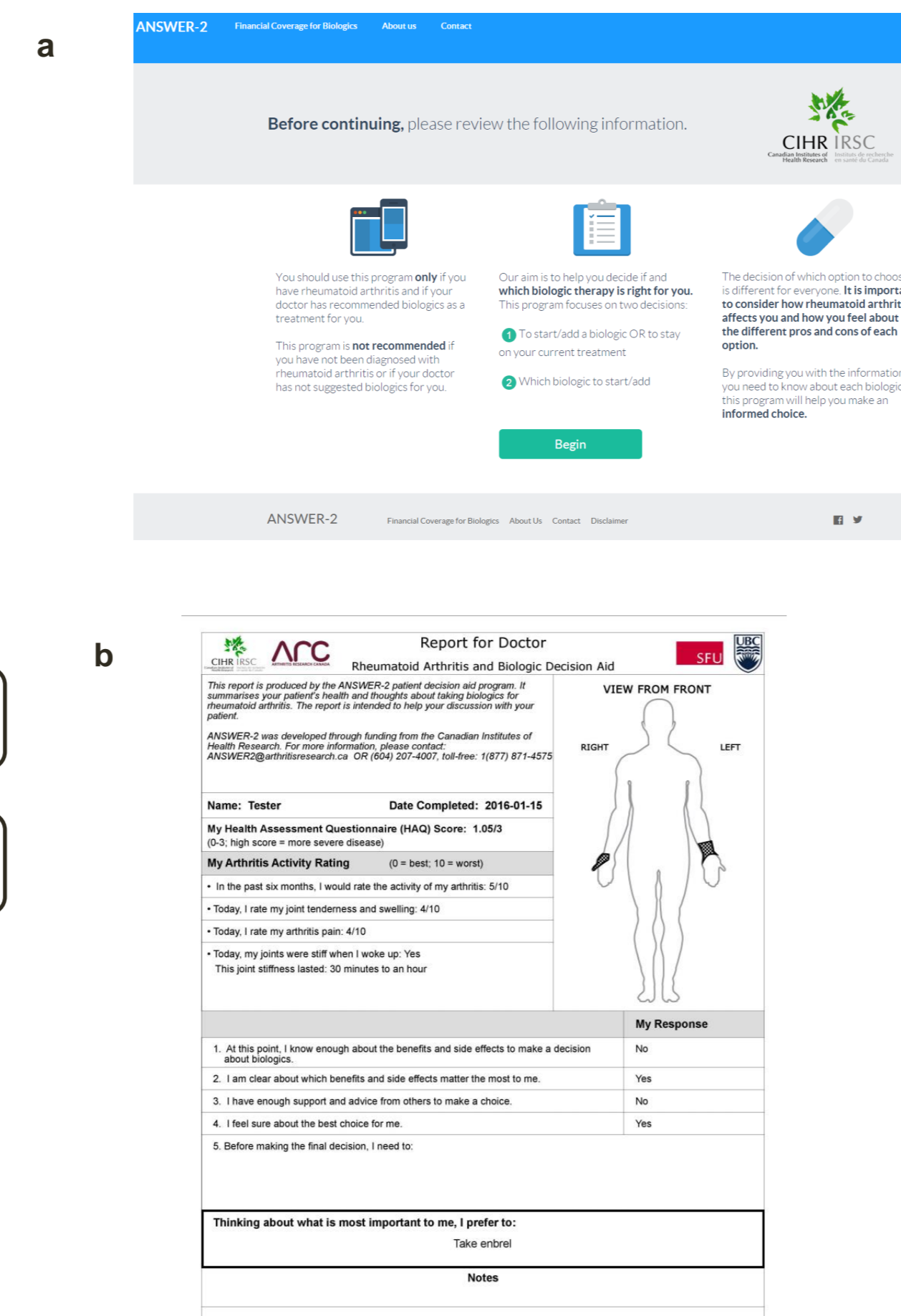

Figure 1: User Path

Figure 2: a) Home Page **b)** Report summary with selected responses about their decision as well as biologic preference they can take to their next appointment
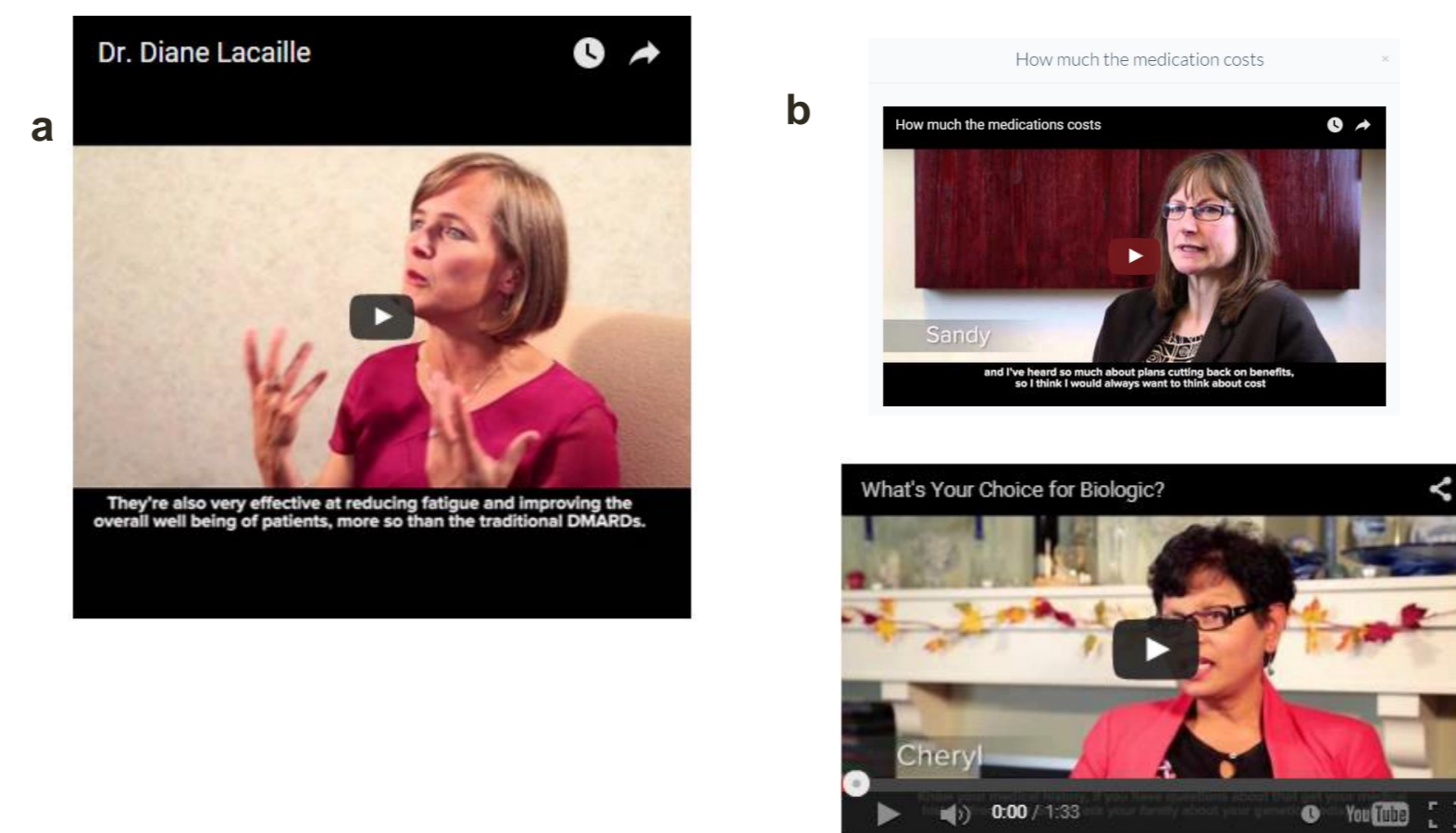

Figure 3-Video Modules a) Rheumatologist explaining differences between biologics and DMARDS; b) Patient videos about experiences with biologics

Results

Summary

- 50 participants were recruited across Canada

- **Decisional conflict** scores improved by an average of 21.2, 95% CI: -28.1, -14.4; *p* < 0.001). Before using *ANSWER-2*, 20% of participants scored < 25, compared to 52% after the intervention.

- **PIHS** scores improved by an average of 3.7, 95% CI: -6.3, -1.0; *p*=0.009]. **MeiQ** showed statistically significant improvement only in the self-management sub-scales (Table 2)

Table 1: Participant characteristics (n=50)	
Women, n (%)	40 (80)
Age (years), mean (SD)	49.6 (12.2)
Disease duration (years), median (Q1, Q3)	5 (2; 10)
Education level, n (%)	
University (attended/graduated)	32 (64)
Trade/non-university certification	10 (20)
High school or lower	7 (14)
No response	1 (2)
Married (%)	32 (64)
Annual family income* (%)	
<$40,000	14 (28)
$40,000-80,000	17 (34)
>$80,000	16 (32)
No answer	3 (6)
New to biologic and small molecule agents	39 (78)

SD = Standard deviation; Q1 = the first quartile; Q3 = the third quartile
*Annual family income is in Canadian dollars

Table 2: Pre-Post Study Results (n=50)	Before (SD)	After (SD)	Difference (95% CI)	Effect size	P
Decisional conflict scale (0-100, lower = less conflicted)	45.9 (25.1)	25.1 (21.8)	-21.2 (-28.1,-14.4)	0.84	<0.001
Uncertainty subscale	64.0 (36.5)	41.5 (34.5)	-22.5 (-32.7; -12.3)	0.62	<0.001
Informed subscale	43.0 (33.3)	19.3 (27.4)	-23.7 (-33.0; -14.3)	0.71	<0.001
Value clarity subscale	38.0 (34.3)	14.5 (26.3)	-23.5 (-31.9; -15.1)	0.69	<0.001
Support subscale	42.0 (30.9)	26.2 (29.1)	-16.3 (-24.4; -8.2)	0.53	<0.001
Medication Education Impact Questionnaire (higher = better)					
Information quality	21.9 (5.5)	22.4 (5.0)	0.3 (-0.6, 1.3)	0.05	0.490
Active communication	18.8 (4.6)	19.5 (3.7)	0.7 (-0.1, 1.4)	0.15	0.086
Coming to terms	19.4 (3.0)	19.7 (2.9)	0.3 (-0.3, 1.0)	0.10	0.299
Self-management ability	26.7 (5.3)	28.0 (4.9)	1.3 (0.0, 2.5)	0.25	0.048
Self-management role & responsibilities	31.8 (3.3)	32.6 (2.8)	0.9 (0.2, 1.6)	0.27	0.012
Self-management support	17.5 (4.4)	18.9 (3.2)	1.1 (0.2, 2.0)	0.25	0.019
Partners in Health Scale (0-88, lower = better)	25.3 (14.8)	20.4 (13.0)	-3.7 (-6.3, -1.0)	0.25	0.009
	Before (%)	After (%)	--	--	P
Decisional conflict scale score, n (%)					
< 25 (Linked to implementation)[1]	10 (20)	26 (52)	--	--	<0.001
25 – 37.5	10 (20)	12 (24)			
> 37.5	30 (60)	11 (22)			

[1] a Decision Conflict Scale score < 25 is associated with individuals implementing their decisions. A score > 37.5 is associated with decision delay or a feeling of reluctance about implementing it (O'Connor, A., 2010)

Reference: O'Connor AM. User Manual—Decisional Conflict Scale; 2010.

Conclusions

- Patients' perceived decision quality and self-management capacity improved after using *ANSWER-2*.

- Our results were similar to other studies evaluating patient decision aids in chronic diseases.

- Future research comparing *ANSWER-2* with other education material will provide further insight into the value of patient decision aids in RA management.

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