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Psychometric Properties of a Theory-Based Assessment of mHealth Acceptability in a Faith-based COVID-19 SMS Intervention

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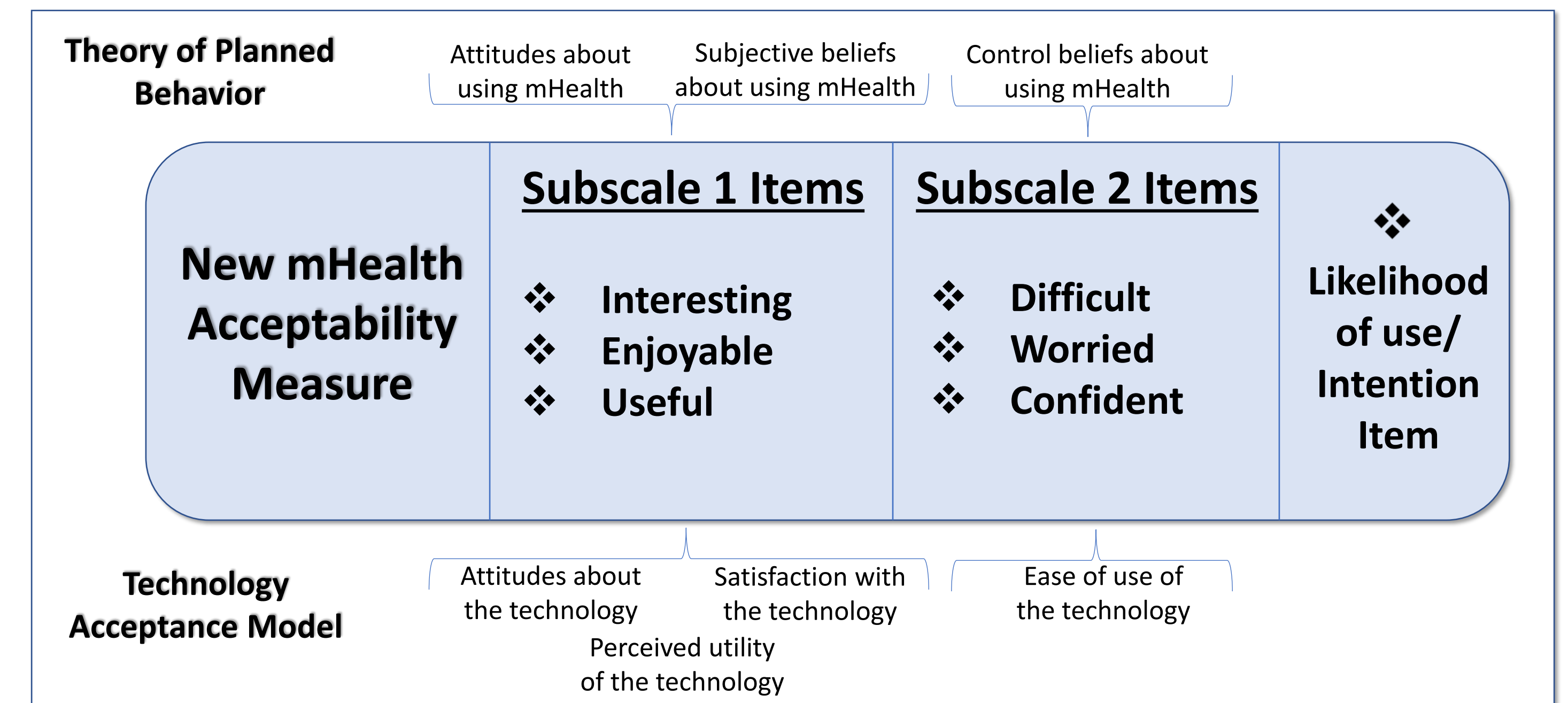
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Introduction

- User perspectives critical for design of mobile health (mHealth) interventions
- Acceptability inconsistently operationalized and few theory-based valid measures
- Technology Acceptance Model and Theory of Planned Behavior used to develop a novel measure
- <u>Objective</u>: Examine internal consistency of novel measure of mHealth acceptability

Methods

- 7 acceptability items
  - interest, difficulty, enjoyment, confidence, utility, worry, likelihood/intention of use
- 1-5 Likert-type scale (not → very)
- Measure completed at baseline of a religiously-tailored COVID-19 testing and linkage to care text messaging intervention

Theory of Planned Behavior — Attitudes about using mHealth | Subjective beliefs about using mHealth | Control beliefs about using mHealth

New mHealth Acceptability Measure	Subscale 1 Items	Subscale 2 Items	
	❖ Interesting ❖ Enjoyable ❖ Useful	❖ Difficult ❖ Worried ❖ Confident	❖ Likelihood of use/ Intention Item

Technology Acceptance Model — Attitudes about the technology | Satisfaction with the technology | Ease of use of the technology | Perceived utility of the technology

Key constructs from the TPB and TAM were integrated to form the seven items of the new mHealth acceptability measure.

Example item: "How INTERESTING will it be to read the text messages?" Not Interesting [1] [2] [3] [4] [5] Very Interesting

Results

Sample Characteristics	
N	1040
Sex	Female= 79% Male= 21%
Age	*M*= 50.5yrs Range: (18, 89)
Race	AA/Black: 96.8% Other: 3.2%
Education	Bachelor's: 26.1% Some college: 39.6% High school: 34.3%

Note: N= sample size; AA= African American

All 7 acceptability items: α=.76

	DIF	ENJ	CON	UTI	WOR	LIK
INT	-.075	.714	.501	.664	-.078	.627
DIF		-.163	.080	-.035	.561	.024
ENJ			.514	.697	-.164	.624
CON				.658	.083	.615
UTI					-.063	.689
WOR						-.016

Inter-item correlations

Removing "difficulty" and "worry" items: α=.89

	ENJ	CON	UTI	LIK
INT	.715	.501	.665	.628
ENJ		.515	.697	.625
CON			.658	.615
UTI				.689

Inter-item correlations

Baseline ratings of acceptability dimensions

1-5 scale	INT	DIF	ENJ	CON	UTI	WOR	LIK
Mean ± SD	3.27 ± 1.28	4.20 ± 1.18	3.05 ± 1.22	3.80 ± 1.29	3.43 ± 1.24	4.19 ± 1.20	3.60 ± 1.27

Discussion

- 7-item measure demonstrates good internal consistency
- Removing "difficulty" and "worry" items increased reliability; they may be mapping onto a construct other than acceptability or that acceptability is multidimensional
- Limitation: sample was mostly Black/ African American females
- Preliminary analysis suggests the novel measure is a promising theory-based option for measuring mHealth acceptability