

PERCEIVED USEFULNESS AND USER SATISFACTION OF ELECTRONIC AND PAPER-AND-PENCIL SYMPTOM TRACKING DIARIES FOR YOUNG CHILDREN WITH CANCER: PARENT PERSPECTIVES


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SPEAKER DISCLOSURE STATEMENT

- None of the authors has any industry relationships to disclose




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BACKGROUND

- Children's cancer-related symptoms persist between outpatient clinic visits (Duran, et al., 2020)
- Parents are tasked with the responsibility of identifying and responding to the child's symptoms at home
- Daily symptom trackers may support parents in recalling the presence and characteristics of symptoms (Baggott et al., 2012; Blondin et al., 2010; Gaertner et al., 2004; Rodgers et al., 2014)
- Ensuring usability of symptom tracking tools is key to adoption




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PURPOSE

- **Usability** is ..."the quality of a user's experience when interacting with products or systems..." (usability.gov, n.d.)
 - **User satisfaction** whether or not an individual likes, or is satisfied, with a given tool
 - **Perceived usefulness** the extent to which users perceive a given tool to be useful for a given purpose
- **Study purpose**
 - Explore aspects of usability, specifically user satisfaction and perceived usefulness, and user preference of two daily symptom tracking diaries from the perspective of parents of children with cancer 6 years of age and younger




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METHODS


- Mixed-methods, crossover design
- 20 parents (90% mothers) and 20 children ages 0-6 with cancer
- Data collected over two, 7-day periods across three outpatient clinic visits
 - Time periods for data collection correlate to the outpatient clinic visits for specific child



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METHODS

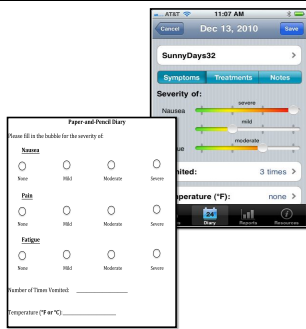
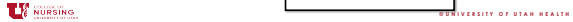
- Clinic Visit #1
 - Consent & Demographic data
- Data Collection 1 (7 days)
 - iChemo Diary (n=10)
 - Paper-and-Pencil Diary (n=10)
- Clinic Visit #2
 - Parent Interview
- Data Collection 2 (7 days)
 - Paper-and-Pencil Diary (n=10)
 - iChemo Diary (n=10)
- Clinic Visit #3
 - Parent Interview



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SYMPTOM MEASURES


- Symptom diaries
 - Electronic (iChemo app)
 - Touch screen app
 - 10 physical symptoms and free-text
 - Graphic representation of data
 - Paper-and-pencil
 - Booklet of daily diary data
 - Same items as iChemo diary and free-text
- Parent Interviews
 - Semi-structured, audio recorded

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USABILITY MEASURES

- Questionnaire for User Interface Satisfaction (QUIS) 7.0
 - Part 3 – overall user reaction/satisfaction
 - 5 items
- Technology Acceptance Model-adapted questions
 - Perceived usefulness
 - 5 items
- Parent Interviews
 - Semi-structured, audio recorded



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PARTICIPANT DEMOGRAPHICS

Parent			Child		
	N	%	N	%	
Gender					
Male	2	10%	Male	7	35%
Female	18	90%	Female	13	65%
Age					
18-25	3	15%	<1 year	2	10%
26-35	14	70%	2 years	6	30%
36-45	3	15%	3 years	6	30%
			4 years	3	15%
			5 years	1	5%
			6 years	2	10%
Marital Status					
Married	20	100%	Diagnosis		
ALL					
Race/ethnicity					
White, non-Hispanic	20	100%	Willms Tumor	7	35%
			Race/ethnicity		
			White, non-Hispanic	20	100%

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RESULTS – QUESTIONNAIRES

Wilcoxon Signed-Rank Test Results Comparing TAM and QUIS 7.0 Responses Between Diaries

Survey	Diary Type	M	SD	z	p
TAM (perceived usefulness)	Electronic	2.02	1.55	-3.061	.002
	Paper	3.52	1.19		
QUIS 7.0 (user satisfaction)	Electronic	8.1	.75	-3.45	.001
	Paper	5.39	2.15		

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RESULTS – PARENT INTERVIEWS

Using the Symptom Diary

Category	Electronic Diary Frequency	Paper-and-Pencil Diary Frequency
How did you decide to use the symptom diary?		
Routine/as directed	19	13
Symptom Tracking & Identification	5	9
Other – showed ER provider	1	0
When did you fill out/enter information into the diary?		
Evenings/before bed	19	20
After reminder	3	3
At home together	1	0
What did you do with the information you filled in/entered into the symptom diary?		
Symptom trends & review	14	12
Used as directed	4	7
Shared	4	2
Other	1	1

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RESULTS – PARENT INTERVIEWS

Usefulness of Diary

Category	Electronic Diary Frequency	Paper-and-Pencil Diary Frequency
Do you think this diary could be useful in reporting symptoms to your child's provider?		
Yes	20	20
No	0	0
Why or why not?		
Reminder	9	9
Trends	3	6
Symptom Frequency	2	2
Timing	2	1
Useful, no reason	6	6
Was information shared with oncology provider?		
Yes	0	1
Used as a reminder	0	1
No, used as directed	20	19

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RESULTS – DIARY PREFERENCE & RATIONALE

Categories and Sub-Categories	N
Diary Preference	
Electronic	19
Paper and pencil	0
Both	1
Rationale	
Usability	18
Features	8
Familiarity	5
Paper diary more intuitive	1
Other Comments	
Choice should be given for type of diary	1

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RESULTS – DIARY TYPE

Wilcoxon-Signed Ranks Comparing Symptom Identification Responses by Diary

Categories	Diary	Mean	SD	Median	z	p
Activity	Electronic	1.45	.82	1	-1.31	.19
	Paper	1.2	.7	1		
Verbal	Electronic	.55	.69	0	-.31	.75
	Paper	.60	.94	0		
Other	Electronic	.05	.22	0	-.58	.56
	Paper	.10	.31	0		
Total	Electronic	2.05	.89	2	-.52	.6
	Paper	1.9	.91	2		

Parents' self-reported approaches for identifying symptoms did not differ based on diary type

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- ### IMPLICATIONS FOR FUTURE RESEARCH
- Exploring how parents describe and respond to symptoms at home
 - Parents reporting their child's symptoms to the clinical team
 - Between and at outpatient visits
 - Nurses should anticipate symptoms in children receiving outpatient care
 - More scales/instruments developed for young children

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- ### LIMITATIONS
- Single site
 - Homogenous sample (race/ethnicity)
 - Parents not asked to intervene in response to child's symptom report
 - Proxy-reporting
 - Psychometric properties of the iChemo diary not established

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CONCLUSION

- Parents were satisfied with both symptom diaries and perceived each as useful
 - Preferred the electronic diary
- Proving parents with a resource to track young children's symptoms may support earlier identification of trends and potential need for intervention between visits
- Additional research is necessary to evaluate the benefit of symptom tracking tools to improve patient outcomes



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