

Virtual Journal club

Identifying the Factors Influencing Patients' Telehealth Visit Satisfaction: Survey Validation Through a Structural Equation Modeling

April 14th, 2022 12p ET



From the Abigail Wexner Research Institute Nationwide Children's Hospital



Mounika Guntu, PharmD, MHI Data scientist



Deborah Lin, PhD Project Scientist



Emre Sezgin, PhD Project Scientist



Yungui Huang, PhD Director



Moderator: Jen Goldsack CEO DiMe



But first, housekeeping

- Please note today's session is being recorded
- To ask a question for discussion during Q&A, please:
 - Either 'raise your hand' in the participant window and moderator will unmute you to ask your question live, or
 - Type your question into the chat box
- Slides and recording will be available after today's session



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Rapid Development of a Telehealth Patient Satisfaction Survey Using a Multi-Stakeholder Approach

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When your child needs a hospital, everything matters.



Agenda

- 1. Introduction
- 2. Aims of the study
- 3. Study setting
- 4. Methods
- 5. Results
- 6. Principal findings and takeaways
- 7. QnA

NCH Telehealth Rollout (first 6 weeks since mid March)



2020 Telehealth Visits by Month





Timeline for Survey Development



Patient Satisfaction Survey Design



Survey Implementation





Survey Response Rate



~ 6 months	• 7 July, 2020 to 4 Jan, 2021				
163,477	• Total telehealth visits				
36,360	• Total unique patients				
72,311	Number of survey links sent out				
6,189	Number of survey opened				
5,013	Number of completed survey				
3977	Unique patients completed survey				
8.6%	• Survey response rate				

Survey participant demographics





•*N* = 3,977 patients

Exploratory Factor Analysis – Methods and cutoffs

- To extract relevant dimensions as factors we used exploratory factor analysis (EFA)
- A high KMO index (0.94) and a significant Bartlett's statistic (Bartlett's K-squared = 3279, p-value = <0.05) suitability for factor analysis.
- Scree plot and parallel analysis indicated that our items correspond to 3 unobserved factors (constructs).
- Minimal Residuals (MINRES) with Direct Oblimin rotation approach was used for factor extraction.
- Items with factor loadings greater than 0.30 and Cronbach's alpha > 0.6 were considered acceptable.
- Removed one item ("Informed of long wait time") as the factor loading was below cutoff.

Exploratory Factor Analysis - Results

Factors	Loading	Cronbach alpha
Factor 1 - Perceived quality of service		0.93
Q4: My or my child's needs were met promptly.	0.65	
Q5: The provider was able to diagnose problems and treat my or my child's condition	0.71	
Q6: I understand the plan of care which includes why tests and procedures are needed.	0.90	
Q7: I feel that I was included in the health care decisions.	0.86	
Q8: I was given home care instructions and able to ask questions.	0.84	
Q9: I know my care and/or my child's care is important to the staff.	0.80	
Q10: The staff was polite and kind.	0.64	
Q15: Overall my needs were met. I would recommend others to Nationwide Children's Hospital	0.60	

Exploratory Factor Analysis contd..

Factors	Loading	Cronbac h alpha
Factor 2 - Telehealth satisfaction		0.83
Q11: I was satisfied with the quality of the video connection during the visit.	0.35	
Q12: Telehealth improves my access to healthcare services.	0.89	
Q13: My overall experience with NCH telehealth was good.	0.56	
Q14: If given the option, I would use video visits for future appointments.	0.76	
Factor 3 - Admission process		0.67
Q1: It was easy to schedule my appointment.	0.58	
Q2: I was happy with the check-in process for my appointment.	0.76	

Definitions of Factors

- Admission Process: The subjective experience of the admission process that precedes receiving healthcare.
- **Perceived Quality of Service:** Patient/family's assessment of the overall excellence of the service.
- **Telehealth Satisfaction:** Positive attitudes towards the use and value of telehealth.

Hypothesis Development

- HP1: Admission Process positively influences Perceived Quality of Service.
- HP2: Admission Process positively influences Telehealth Satisfaction.
- HP3: Perceived Quality of Service positively influences Telehealth Satisfaction.



Confirmatory Factor Analysis

- To confirm dimensionality of the EFA results and provide evidence of construct validity by facilitating assessment of item loadings and overall model fit.
- Items that have standardized loadings at or above .30 in the CFA are suggested to be retained.
- The results of the CFA indicated that the model fit well.



Structural Equation Modeling – Partial Least Squares Path Modeling (PLSPM)

- Partial Least Squares Path Modeling (PLS-PM) method to understand the interplay between our defined factors and to test our hypotheses.
- **Measurement model:** To describe the relationship between the factors/ constructs and their block of items.
- **Structural model:** To identify relationships between the constructs and focused on estimating the path coefficients.
- We implemented the Path model with a 500-bootstrap sampling and obtained path coefficients and t-statistics values to evaluate the relationships between variables

Partial Least Squares Path Model



Hypothesis tests

Hypothesis	Relation	Direct Effect	Indirect Effect	Total Effect	T value	Status
HP1	Admission process — Perceived quality of service	0.67	0.00	0.67	36.1	Supported
HP2	Admission process — Telehealth Satisfaction	0.16	0.45	0.61	7.46	Supported
НРЗ	Perceived quality of service — Telehealth Satisfaction	0.67	0.00	0.67	31.8	Supported

Study Insights

- Admission process, as the first step of telehealth visit, influences the remainder of the experience of the telehealth visit, including the quality and eventual satisfaction of telehealth visits.
- This finding indicates the importance of user interface and human-computer interaction, as it may influence healthcare delivery and satisfaction.
- Therefore, patient-provider engagement should be assessed with patient system engagement to better understand telehealth satisfaction.
- Clear guidance for virtual visits and an intuitive interface can help to streamline this process.

Limitations

- Some questions kept from previous internal surveys were double-barreled, which introduced ambiguity.
- The trade-off for a generalizable survey is that the questions may not be tailored for certain clinical service lines.
- we used a single telehealth platform which makes it easier. Organizations using multiple platforms may need additional software specific considerations.
- Not on diverse population and specialties.
- The retention of most of the items from the in-person patient satisfaction survey for historical comparison, and the need to keep the questionnaire short, also limited our ability to use items in validated instruments



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For further questions and comments, please contact: Mounika.Guntu@nationwidechildrens.org



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