Pandemic-Associated Patient Experiences and Attitudes Toward Telemedicine in an Adult Congenital Heart Disease Clinic

Mia Shiue²; Annique Nyman, MS^{1,2}; Robert Karvell, RN²; Sara L. Partington, MD^{1,2}; Tamar Preminger, MD¹; Christian Reda, RN²; Emily Ruckdeschel, MD^{1,2}; Kathleen Sullivan, CRNP, MSN²; Lynda Tobin, CRNP, MSN²; Sumeet Vaikunth, MD^{1,2}; Joshua Saef, MD^{1,2}; Yuli Y. Kim, MD^{1,2}

¹Children's Hospital of Philadelphia, Philadelphia, PA; ²Hospital of University of Pennsylvania, Philadelphia, PA

Background

- Adults with congenital heart disease (ACHD) comprise a growing population of patients who utilize outpatient resources at a disproportionate rate.¹
- The COVID-19 pandemic has driven a broader adoption of telemedicine (TM) across all domains of outpatient care.
- There is limited data on ACHD patients' attitudes towards outpatient care during the pandemic.
- Examining attitudes regarding TM can inform healthcare providers and hospital systems to optimize the delivery of care for this population.

Objectives

- Describe ACHD patients' experiences and attitudes toward TM during the pandemic.
- Characterize those who have had TM visits with their ACHD provider.
- Explore factors associated with a positive attitude toward having TM visits in the future with their ACHD provider.

Methods

Study Population

Measures

Statistical Analysis

Results

Patients age \geq 18 years with a history of congenital heart disease (CHD) were approached in the outpatient clinic of the Philadelphia Adult Congenital Heart Center from February to June 2022.

Clinical and demographic data were collected through patient survey and retrospective chart review.

The *Fear of COVID-19 Scale* (FCV-19S)² is a validated seven-item measure each on a 5-point scale developed to access fear of COVID-19 among individuals. Scores range from 7-35, with a score of 7-22 considered "low fear" and 23-35 considered "high fear" of COVID-19.

Categorical variables are presented as count (percentage) and continuous variables are presented as median and interquartile range (IQR).

Patients were stratified according to their history of prior TM visit with their ACHD provider. Between-group comparisons were made using Wilcoxon-Rank Sum, Chi-Square, or Fisher-Exact testing.

Patients were categorized according to their interest in TM for future visits (positive, neutral, or negative). Univariate logistic regression was performed for variables of interest that could correlate with a "positive" response.

Significance was determined using an alpha level of 0.05.

Of 262 patients, 115 (44%) had at least one prior TM visit with their ACHD provider, 110 (96%) of whom reported an overall positive experience (Table 1).

Of the total cohort, 64 (24%), 119 (45%), and 76 (29%) patients had a positive, neutral, and negative attitude towards future TM visits, respectively.

Table 2 shows variables associated with positive attitude.

Age (M Gender Fema Male Non-

CHD Co Simp Mod Grea

Geogra Rura Subu Urba

Travel 1 < 1 ≥1

Education Colle No C

Employ Ful Not

Have Ch

Income < \$50 ≥ \$50

Frequer Visits Ever At le Fear of High Low

Table 1. Patient Characteristics Grouped by History of TM Visit

	Total (%) n = 262	No Prior TM Visit (%) n = 147	Prior TM Visit (%) n = 115	P-Value	Associated with Positive Attitude Towards Future ACHD TM Visit				
						Odds Ratio	95% Confidence	P-Value	
edian [IQR])	33 [27, 41]	33 [27, 44]	34 [27, 40]	0.75		Natio	Interval		
	1/5/55 2)	72 (10 7)	77 (67 6)	0.02	Male	0.53	0.99 – 1.03	0.04	
e Binary	143 (33.3) 112 (42.7) 4 (1.5)	73(49.7) 73(49.7) 1 (0.7)	72 (02.0) 39 (33.9) 3 (2.6)		Cardiology Visits Every 3 or 6 months	2.44	1.33 – 4.48	<0.01	
mplexity ole erate	30 (12.0) 129 (51.6)	19 (13.6) 81 (57.9)	11 (10.0) 48 (43.6)	0.02	High Fear of COVID	4.11	1.15 – 15.31	0.03	
t	91 (36.4)	40 (28.6)	51 (46.4)		Prior TM Visit	1.89	1.07 – 3.36	0.03	
phic Area	30 (11 7)	15 (10 6)	15 (13 2)	0.77					
irban Area In Area	178 (69.5) 48 (18.8)	101 (71.1) 26 (18.3)	77 (67.5) 22 (19.3)		 Conclusions Patients who had prior TM visits with their ACHD provider were more often 				
ime to Clinic	140 (53 4)	85 (57 8)	55 (47 8)	0 1 4					
our	122 (46.6)	62 (42.2)	60 (52.2)		female, earr have great C	t CHD disease complexity. They			
on Level				0.23	 report a high rate of satisfaction with their experiences. However, only ~1/4 of ACHD patients indicated a definite interest in using TM 				
ege Degree Sollege Degree	161 (61.9) 99 (38.1)	95 (65.5) 50 (34.5)	66 (57.4) 49 (42.6)						
ment				0.12					
Fime Full Time	161 (61.5) 101 (38.5)	97 (66.0) 50 (34.0)	64 (55.7) 51 (44.3)		in the futureFrequent car	 In the future with their ACHD provider. Frequent cardiology visits fear of COVID 			
nildren	104 (40.3)	64 (44.1)	40 (35.4)	0.20	and prior experience with TM were				
				0.001	associated with increased odds of a	a			
ЭК ЭК	122 (49.0) 127 (51.0)	53 (38.7) 84 (61.3)	69 (61.6) 43 (38.4)		 Further research examining the potential reasons for the discrepancy between experience with and attitudes towards TM can help ACHD providers understand the role of TM in their clinics. 				
ncy of Clinic				0.26					
y 3 or 6 months ast annually	76 (31.0) 169 (69.0)	37 (27.6) 97 (72.4)	39 (35.1) 72 (64.9)						
COVID				0.45					
	12 (4.6) 250 (95.4)	8 (5.4) 139 (94.6)	4 (3.5) 111 (96.5)		1. Mackie, A. S. et a 2. Ahorsu, D. K. et a	al. Am. J. C al. Int. J. M	ardiol. 2007; 99(6): 83 ent. Health Addict. 20	9–843. 20; 20(3):	

Philadelphia Adult Congenital Heart Center A joint program of

Penn Medicine

Children's Hospital of Philadelphia

 Table 2. Univariate Analysis of Variables

- 153/-1545.