

Preferences for telehealth physical activity participation among a cohort of children and youth with chronic conditions: rapid survey study

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Abstract

Background: Children and youth with chronic conditions encounter numerous challenges in participating in physical activity within their community. Telehealth has emerged as an ideal method for promoting physical health and wellness, but there is a need to identify optimal implementation strategies.

Objective: Describe telehealth physical activity preferences for active children and youth with chronic conditions, to rapidly inform the development of a pilot telehealth program that could be delivered nationally.

Methods: A 3-month survey study was conducted among a convenient sample of pediatric participants who were members of an in-person community program that offered wellness classes. Questions probed preferences for the following areas: delivery method (in-person or virtual), programming frequency, intensity, time, and type, desired outcomes, technology proficiency and resources, and additional needed supports. Outcomes were descriptively analyzed.

Results: A total of 56 responses were gathered from 392 members (15% response rate). The mean age of respondents was 13 ± 8 years. Respondents generally reported an ideal exercise dose of 1-2 times per week of 30-45 minutes of exercise, with novice or beginner level difficulty classes. The Winter season was the ideal period for participation. The two most common modes of delivery were live video coaching and pre-recorded videos. Programming should aim to improve strength, physical and mental health, seeking new hobbies or fun activities, and fostering social relationships with others. Additional interests were identified that could inform implementation.

Conclusions: Study findings demonstrate that optimal telehealth programs should be brief in duration, set at a low difficulty, and offered seasonally to enhance virtual engagement among children and youth with chronic conditions. Nevertheless, these findings will only apply to active children and youth who are already engaged in onsite physical activity programs. Further research is necessary to obtain more generalizable telehealth preferences among both active and non-active young people with chronic conditions.

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Short Paper

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Keywords: pediatric rehabilitation; children/youth; special health care needs, disability; adapted physical activity; telehealth; teleexercise;

Introduction

Children and youth with chronic conditions (CYwCC) face a high risk of health decline as they age into middle adulthood, largely due to the emergence of secondary health conditions, such as obesity and cardiovascular disease [1-4]. This is believed to be caused by persistently low rates of participation in physical activity [5]. Until recent years, opportunities for physical activity have been largely provided at onsite facilities, parks, and recreation centers. Onsite participation, while beneficial, has been found to have numerous barriers (e.g., transportation, cost, accommodation of special needs) that make regular participation difficult for CYwCC [6]. Telehealth has emerged as a viable option for delivering physical activity programs that promote physical health and wellness [7-9]. CYwCC are a large and highly diverse group that require numerous strategies to accommodate

preferences, and accordingly, a more comprehensive understanding of telehealth delivery models is warranted.

The purpose of this study was to rapidly describe telehealth physical activity preferences of a cohort of CYwCC to inform the development of telehealth physical activity programming.

Methods

Design & Setting

This study was a time-limited survey of children receiving pediatric rehabilitation from a single midwestern Children's hospital. All survey respondents had previously participated in "be.well", a community-based wellness program that provides local adapted physical activity opportunities for children with chronic or complex medical conditions. Recruitment occurred over two quarters (September 2024 – February 2025) using a convenience sampling approach; no minimum survey response rate was set a priori. The rapid, time-limited design intended to generate timely insights to support the co-development of a pilot community program in partnership between the hospital and the National Center on Health, Physical Activity and Disability (NCHPAD) and be.well. The be.well program offers approximately two dozen programs that include 40 community partners and 80 volunteers, delivering programming during more than 75% of weeks throughout a calendar year. NCHPAD provides a large variety of no-cost, online health promotion programs to thousands of adults across the United States.

Participants

Study invitations were distributed via the be.well listserv. Emails included a public survey link, which automatically captured responses in a secure web platform, Research Electronic Data Capture (REDCap). The eligibility criteria were: 1) child or youth age of <25 years; 2) presence of a disability or chronic health condition (e.g., physical, cognitive, visual, developmental delay, etc.), and 3) previous participation in at least one be.well program.

Ethics

This evaluation was approved by the institutional review board of the university IRB-300008580. The study was determined as an opt out protocol by the institutional review board at the data collection site. Written informed consent and assent were not required for participation in the study, as long as prospective participants were informed about the study and given a clear opportunity to decline participation. Study data were de-identified using alpha-numeric codes, and participation was confidential. No compensation was provided for participation. No AI was used in any portion of the manuscript.

Survey Design

The survey was developed collaboratively by the NCHPAD and be.well team, which included five clinical rehabilitation specialists. Respondents were recommended to complete the survey jointly (family member + child), although responses submitted by either the child or their family member were eligible for inclusion. The survey included two sections: participant information and preferences for telehealth exercise participation. Participant information included participant demographics (age, sex, and race) and characteristics (disability type, mobility limitation, assistive device use, barriers to exercise participation, physical function, communication style, vision function, and hearing function). Questions probed preferences for the following areas: delivery method (in-person or virtual), programming frequency, intensity, time, and type, desired outcomes,

technology proficiency and resources, and additional needed supports.

Analysis

Participant demographics and characteristics as well as survey responses were summarized using descriptive analyses. No inferential statistical comparisons were established a priori.

Results

Respondents and Characteristics

A total of 56 respondents were obtained from emails to 392 be.well participants, resulting in a response rate of 14.3% (56/392). Respondent characteristics are displayed in Table 1. Most survey responses were completed by a caregiver, health provider, or family member. The mean age of the respondents was 13 ± 8 years, with ages ranging from 5 to 24 years. Respondents were predominantly male (62.5%) and White/Caucasian (66.1%), with 42.9% reporting an autism spectrum disorder. The majority lived in urban environments (92.9%). A total of 22 people (39.3%) had a mobility limitation, and half of them used at least one assistive device. Most respondents (>50%) reported social and psychological barriers as the most frequent challenges to participation. Physical, financial, and institutional barriers were reported by 28-32% of participants, while informational barriers were the least notable at 24%.

Table 1. Respondents' characteristics (n=56)

Category	
Survey respondents	
Caregiver or Health provider	23 (41.1)
Family member	30 (53.6)
Self	3 (5.4)
Age, years [mean (SD), range]	11 (4), 5-25
Sex	n (%)
Male	35 (62.5)
Female	21 (37.5)
Ethnicity (Hispanic, Latino, or of Spanish origin)	
Yes	3 (5.4)
No	50 (89.3)
Prefer not to answer	3 (5.4)
*Race	
White / Caucasian	37 (66.1)
Black / African American	5 (8.9)
Asian	4 (7.1)
Multi	7 (12.5)
Prefer not to answer	3 (5.4)
*Living area	
Urban	52 (92.9)
Suburban	3 (5.4)
Isolated rural	1 (1.8)
*Disability type (Most common Top 5)	
Autism spectrum	24 (42.9)

Developmental disability	22 (39.3)
Cerebral palsy	16 (28.6)
Speech impairment	5 (8.9)
Sensory processing disorder	4 (7.1)
Having a twin sibling with a disability	
Yes	2 (3.6)
No	54 (96.4)
Functional Profile	
Presence of mobility limitations	
Yes	22 (39.3)
No	34 (60.7)
Uses assistive device(s) (among those with mobility limitations, n=22)	
Yes	11 (50.0)
No	11 (50.0)
*Type of assistive device (among those with assistive device use, n=11)	
Orthotics (AFOs)	7 (63.6)
Manual wheelchair – participant propels	4 (36.4)
Manual wheelchair – participant is transported	3 (27.3)
Walker	2 (18.2)
Gait trainer	1 (9.1)
Manual ability	
Handles objects easily and successfully	21 (37.5)
Handles most objects but with reduced quality	28 (50.0)
Handles objects with difficulty; needs help	6 (10.7)
Handles limited objects in adapted situations	1 (1.8)
Does not handle objects	0 (0)
Speech communication ability	
Effective sender/receiver with everyone	24 (42.9)
Effective but slower paced sender/receiver	13 (23.2)
Effective sender/receiver with known individual	7 (12.5)
Inconsistent sender/receiver with known individual	9 (16.1)
Seldom effective sender/receiver	3 (5.4)
Vision function	
Uses visual function easily and successfully	44 (78.6)
Uses visual function successfully with help	1 (1.8)
Uses visual function, but needs adaptations	6 (10.7)
Uses visual function partly with adaptations	3 (5.4)
Does not use visual function	2 (3.6)
Hearing function	
Uses hearing easily and successfully	46 (82.1)
Uses hearing successfully with help	3 (5.4)
Uses hearing, but needs adaptations	1 (1.8)
Uses hearing function partly with adaptations	0 (0)
Does not use hearing function	6 (10.7)
*Perceived barriers to exercise participation	
Social barriers (lack of inclusive programs, social stigma or attitudes, exclusion by others, lack of understanding of coaches, teachers, and staff)	38 (67.9)
Psychological barriers (low self-esteem, anxiety regarding socialization,	28 (50.0)

fear of failure)	
Sensory barriers (vision- or hearing-related challenges)	21 (37.5)
Access barriers (transportation, facility access, nearby specialists and programs)	18 (32.1)
Physical barriers (limited mobility, need for specialized equipment, pain, fatigue, or other health-related issues)	18 (32.1)
Financial barriers (high cost of adaptive equipment or additional support)	16 (28.6)
Institutional barriers (lack of trained staff, inadequate policies for inclusion, limited funding for inclusive recreation)	16 (28.6)
Informational barriers (limited knowledge about inclusive programs, inadequate caregiver-provider communication)	13 (23.2)
¹ Other	3 (5.4)

Caption. Values are *n* (%) unless otherwise noted. * indicates multiple-answer questions; respondents could select more than one response option. ¹Residential location was classified using the Rural-Urban Commuting Area (RUCA) codes based on participants' ZIP codes, reflecting population density, urbanization, and commuting patterns. ¹Other reasons for perceived barriers to exercise: time constraints due to caregiving demands, easily distracted, making it hard to participate consistently, and a lack of mask-wearing or other measures to ensure safety in shared spaces.

Preference Summary

Table 2 presents telehealth programming preferences and barriers to virtual participation. Of the 56 respondents, 35 (62.5%) reported interested in participating in virtual programming. The remaining 21 (37.5%) preferred in-person sessions and indicated they would likely lose interest if the program was delivered virtually. Among those favoring the in-person format, four individuals (*n*=4/21, 19%) noted a need for hands-on support from volunteers or staff for suitable participation.

A total of 50 respondents (89.3%) reported having sufficient supplies at home to support telehealth communications. Two respondents (3.6%) reported that they did not have sufficient supplies at home for telehealth communications, another two (3.6%) reported sufficient supplies but limited skill to operate the technology, and another two (3.6%) reported both insufficient supplies and operational skill.

Table 2. Telehealth programming preference and barriers to participation (*n*=56)

Interested in virtual programming	Yes (<i>n</i> =35)	No (<i>n</i> =21)	Total (<i>n</i> =56)
*Reasons for not being interested			
Prefer in person	-	19 (90.5)	19 (90.5)
Lose interest in video/virtual programming	-	13 (61.9)	13 (61.9)
Need hands-on support from volunteers and staff	-	4 (19.0)	4 (19.0)
Do not have the proper home set-up (e.g., internet, computer)	-	0 (0)	0 (0)
Lack of technological knowledge/familiarity	-	0 (0)	0 (0)
Current tech set-up and necessary tech skill			
Sufficient for both (Yes/Yes)	32 (91.4)	18 (85.7)	50 (89.3)
Sufficient tech set-up, but limited skill (Yes/No)	1 (2.9)	1 (4.8)	2 (3.6)
Limited tech set-up, but have sufficient skill (No/Yes)	1 (2.9)	1 (4.8)	2 (3.6)

Limited for both (No/No)	1 (2.9)	1 (4.8)	2 (3.6)
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Caption. Values are *n* (%) unless otherwise noted. * indicates multiple-answer questions; respondents could select more than one response option.

Desired Program Characteristics

Desired programming characteristics for the 35 interested respondents are displayed in **Table 3**. Twenty-nine (82.9%) respondents expressed a desire for an exercise and fitness class. Most respondents were interested in participating in a virtual martial arts, yoga, or dance program. These were the only three modalities to respond to in the survey, because these three modalities were the most popular programs offered by be.well. Notably, respondents desired virtual programming in the Winter or Summer season. Based on survey responses, an ideal program is likely one that improves physical strength, provides new experiences and hobbies, improves how a person feels and thinks, and provides a sense of belonging or friendship. Notable but less reported desirable benefits were the improvement of energy and health conditions. Sleep quality was also a notable issue, based on 28.6% of the sample.

Respondents who were interested in virtual exercise reported an ideal dose of 1-2 times per week of 30-45 minutes of exercise. Respondents who were not interested largely preferred one day per week of exercise of roughly 15-60 minutes. Both types of respondents preferred novice or beginner classes to be conducted through telehealth. The two most desired delivery modalities were supervised videoconference (synchronous training) with one or more people and exercising independently (asynchronous training) using pre-recorded videos.

Table 3. Desired Programming (n=56)

Interested in virtual programming	Yes (n=35)	No (n=21)	Total (n=56)
*Type of preferred "virtual" programming			
Exercise and Fitness	29 (82.9)	-	29 (82.9)
Martial Arts	28 (80.0)	-	28 (80.0)
Yoga	25 (71.4)	-	25 (71.4)
Dance	21 (60.0)	-	21 (60.0)
*Preferred season for "virtual" programming			
Winter	37 (100)	17 (81.0)	54 (96.4)
Summer	24 (68.6)	6 (28.6)	30 (53.6)
Spring	16 (45.7)	3 (14.3)	19 (33.9)
Fall	11 (31.4)	4 (19.0)	15 (26.8)
*What would you like to get from the program?			
I want to improve my strength	27 (77.1)	8 (38.1)	44 (78.6)
I want to find new hobbies or fun things to do	24 (68.6)	14 (66.7)	39 (69.6)
I want to improve how I feel and think (e.g., less depressed, anxious, and nervous, or feel better about yourself)	22 (62.9)	9 (42.9)	34 (60.7)
I am looking for a sense of belonging/friendship	21 (60.0)	15 (71.4)	33 (58.9)
I want to improve how much energy I have	13 (37.1)	3 (14.3)	22 (39.3)
I want to help a health condition (e.g., spasticity, diabetes, blood pressure, asthma, pain)	13 (37.1)	9 (42.9)	22 (39.3)
I want to improve how I sleep	10 (28.6)	6 (28.6)	16 (28.6)
I want to improve my ability to walk	2 (5.7)	0 (0)	2 (3.6)
I want to do everyday tasks better	0 (0)	0 (0)	0 (0)

*Preferred “virtual” programming delivery format			
Videoconferencing group classes with one or more people over the internet (e.g., Zoom, Skype)	29 (82.9)	11 (52.4)	40 (71.4)
Pre-recorded videos to do independently without another person	21 (60.0)	6 (28.6)	27 (48.2)
Mobile phone text message	3 (8.6)	0 (0)	7 (12.5)
Mobile phone call	3 (8.6)	4 (19.0)	3 (5.4)
None of the above (virtual option does not work for me at all)	0 (0)	5 (23.8)	5 (8.9)
Session frequency per week			
2	15 (42.9)	0 (0.0)	22 (39.3)
1	14 (40.0)	19 (90.5)	21 (37.5)
3	4 (11.4)	2 (9.5)	9 (16.1)
≥ 5	2 (5.7)	0 (0.0)	4 (7.1)
Session duration			
30 minutes	18 (51.4)	9 (42.9)	30 (53.6)
45 minutes	13 (37.1)	1 (4.8)	20 (35.7)
60 minutes	3 (8.6)	6 (28.6)	5 (8.9)
15 minutes	1 (2.9)	4 (19.0)	1 (1.8)
90 minutes	0 (0.0)	1 (4.8)	0 (0)
Difficulties			
Novice / Beginner	27 (77.1)	16 (76.2)	43 (76.8)
Intermediate	8 (22.9)	5 (23.8)	13 (23.2)
Advance	0 (0)	0 (0)	0 (0)

Caption. Values are *n* (%) unless otherwise noted. * indicates multiple-answer questions; respondents could select more than one response option.

Discussion

This study identified virtual preferences for home-based exercise participation among a cohort of CYwCC who are engaged members of a community physical activity program. Overall, the study describes program design preferences that could inform the development of future pediatric telehealth programming, specifically related to implementation strategies and exercise dosage. For active children and youth in the be.well program, the ideal virtual exercise program would likely be conducted in the Winter and Summer months. These seasonal preferences likely coincide with holiday periods for schools. The preferred dose of virtual program (session frequency, intensity, and time) was seemingly modest: one to two 30-45 minute sessions per week. This window will be a challenge for health professionals when designing health-enhancing exercise interventions for children and youth with disabilities, particularly considering that national guidelines for children recommend achieving 60 minutes per day of moderate-to-vigorous physical activity (150 minutes per week for adults) to improve health [10].

This study had limitations. First, the small sample size and narrow context (active and engaged members), the study findings have limited generalizability. Second, the participants were all located in the Midwest United States, which may affect desired programming (e.g., seasonal preferences). Third, the survey exercise modalities were limited to those pre-selected by the study team, which restricted options for desired physical activity modalities. Fourth, survey responses were largely reported by a caregiver, which may or may not reflect the true desire of the children.

Conflicts of Interest

None declared.

Abbreviations

CYwCC: Children and youth with chronic conditions

NCHPAD: National Center on Health, Physical Activity and Disability

REDCap: Research Electronic Data Capture

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Data Availability Statement

All data generated or analyzed during this study are included in this published article.

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