

Children and Adapted Biking

Focusing on Outcomes that Matter

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Children with neurodevelopmental conditions may experience challenges when participating in social activities, yet physical activity can play an important role in supporting their social skill development, overall health, and emotional well-being. Ensuring access to meaningful leisure activities is also a fundamental human right. When standard bicycles are not suitable for a child's needs, adapted bikes—offering added stability, supportive seating, and assisted steering—can provide a more accessible and enabling way for children to engage in physical and social participation.

Evidence shows:

- Cycling improves physical function for children with CP.
- Dynamic cycling enables farther travel with less pain and effort.
- Supports independence, emotional well-being, and social participation.
- Enhances enjoyment, activity levels, and overall fitness.

While existing measures such as the **Children's Assessment of Participation and Enjoyment** and the **Pediatric Evaluation of Disability Inventory**, offer partial insights into the impact of adapted biking, a more integrated and specific framework for assessing adapted biking is not yet available.

Aims and Methods

Examine therapists' perspectives on the key domains that they consider important when recommending adapted biking for children

Identify impacts of adapted biking from the perspective of children and their parents

Assess barriers and facilitators to adapted biking across different contexts

Therapists

Focus groups (5) with 12 occupational and physical therapists experienced in working with adapted bikes

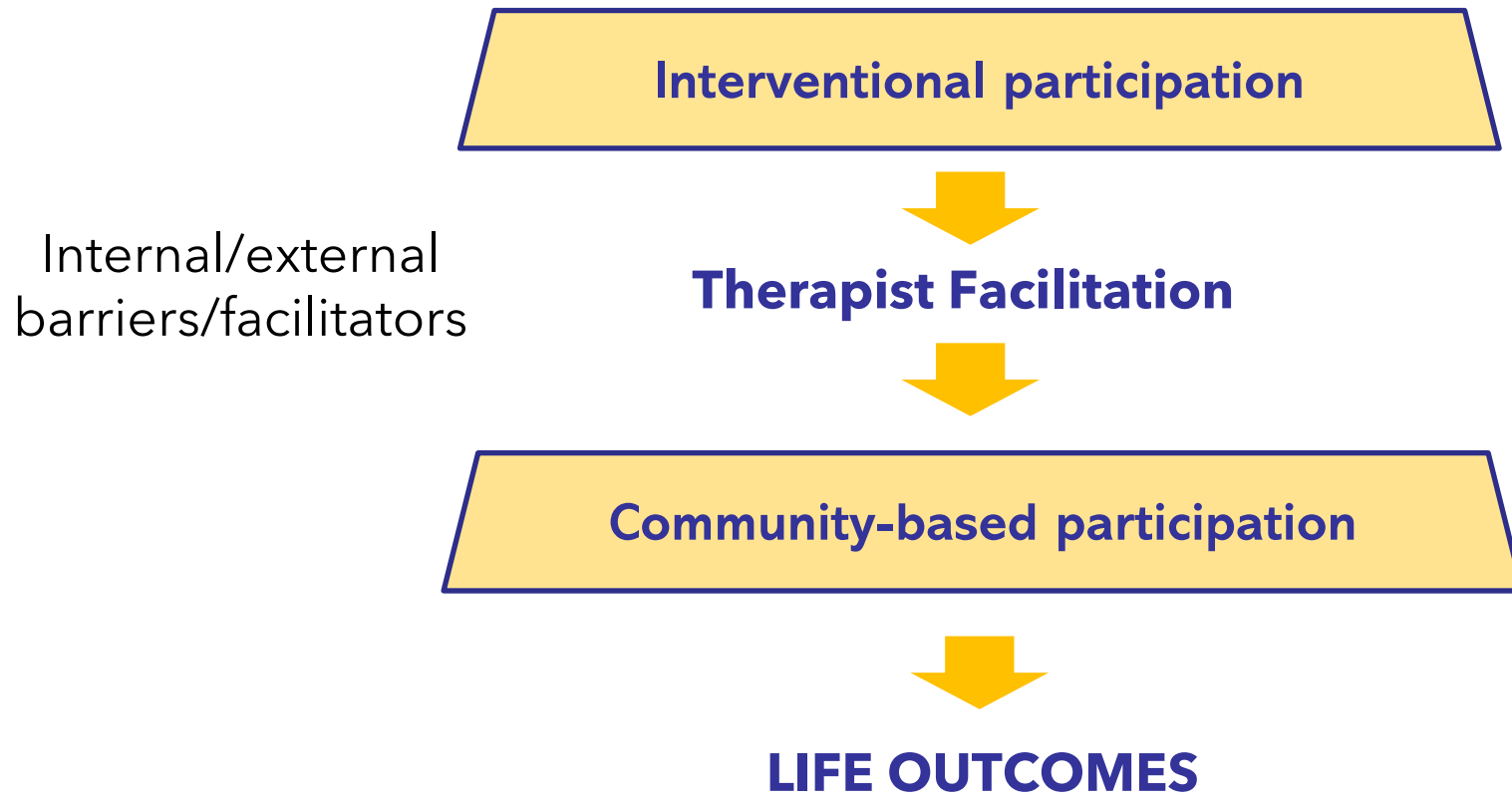
Child and Parent

Semi-structured dyad interviews with 7 children (ages 6-14) with neurodevelopmental conditions and their parent(s)



Deductive Content Analysis

Cogan and Carlson (2018) Participation Framework



Results

Intervention-based participation	Community-based participation
Performance	
Physical strength, coordination, endurance	Essential skills and gains from biking
Cognitive skills, attention, problem-solving	Peer and family engagement opportunities
Subjective Experiences	
Psychosocial <ul style="list-style-type: none"> • motivation • self-regulation 	<ul style="list-style-type: none"> • Sense of inclusion • Joy & confidence in biking
Interpersonal Connections	
Communication skills and engagement	Social opportunities

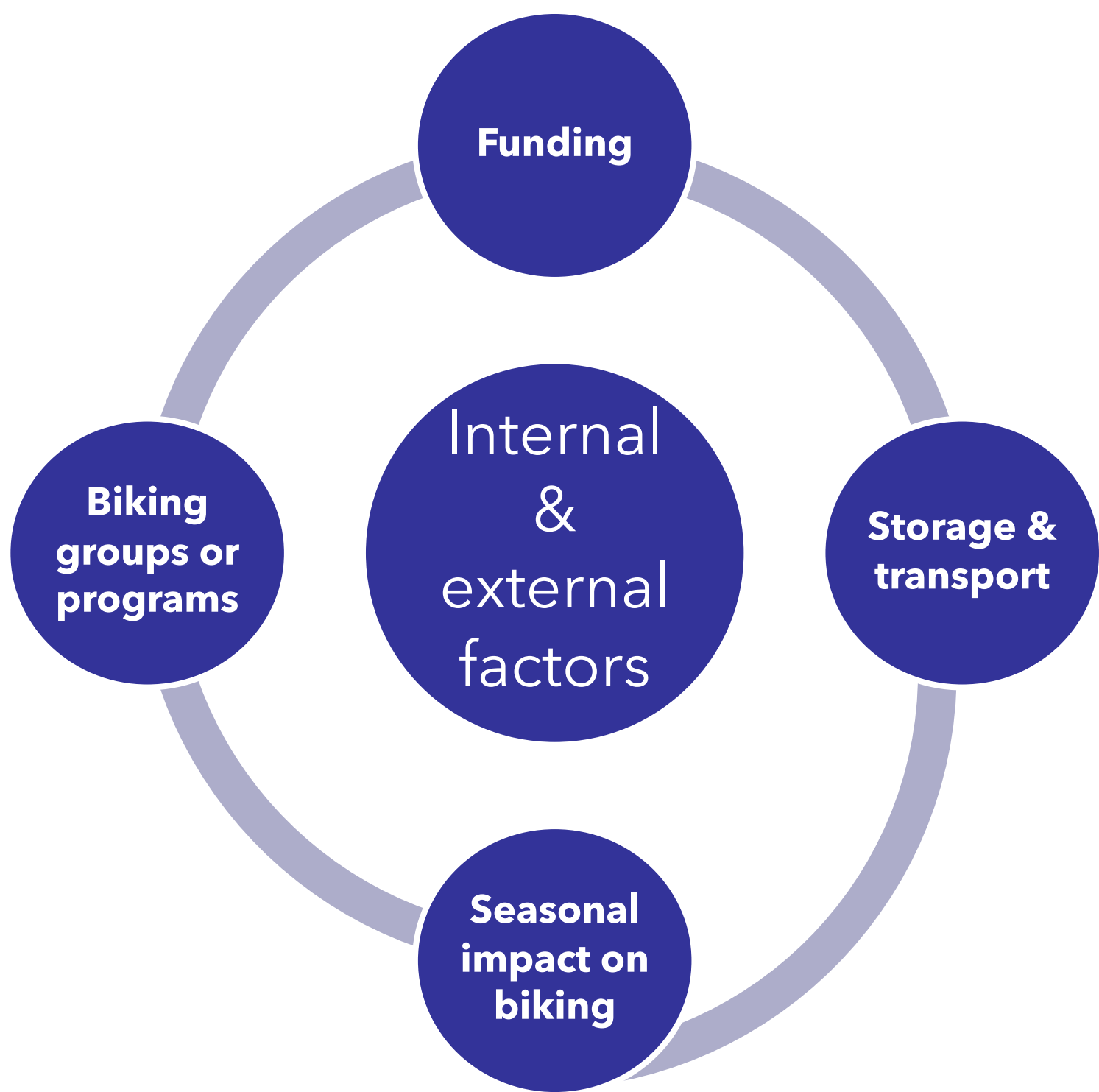
*I just had a student who can't get up off the floor, and it's hard to motivate her to do certain exercises. I said, let's get an adapted bike because then she'll be working on that quad **strength***

It's a great feeling that he can create that movement himself - he was happy

If multiple students are biking in the school at the same time and they see each other in the hallway, they do a lap. They do a high five.

When they got the bike... It was the first time people in their community came up and talked to them because there was interesting commonality in having the bikes... it allowed them to make connections in their communities.





Discussion

- Adapted biking is a valuable intervention that can enhance mobility, cognitive skills, social participation and inclusion for children with neurodevelopmental conditions.
- Occupational and physical therapists noted that adapted biking can serve as both an intervention-based activity (within therapeutic or school settings) and a tool for broader community participation.
- Therapists emphasized the need for standardized tools to evaluate biking outcomes, including physical improvements, cognitive and psychosocial changes, and participation gains.

Recommendations

Develop **outcome measure** for adapted biking, focused on interventional and community-based participation

Increase **accessibility** through **funding** and **infrastructure improvements**

Support the transition from biking as an **intervention-based** to **community-based participation**.

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