

# Wheelchair Training Self-efficacy Enhanced For Use (WheelSeeU): Peer-led Wheelchair Training for Older Adults



Krista L Best, William C Miller, Francois Routhier, Janice J Eng, Charles Goldsmith



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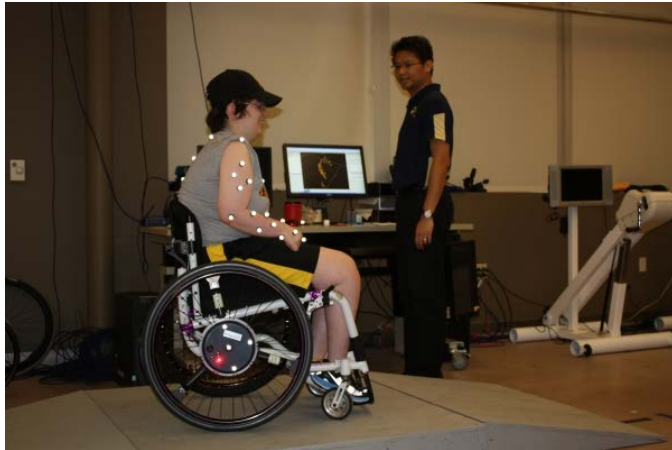
# Prevalence of wheelchair use

- World
  - ~65 M people need wheelchairs; ~ 20 M have access to them<sup>1</sup>
- US
  - 3.86M non-institutionalized wheelchair users<sup>2</sup>
- Canada
  - 200,000 community-dwelling manual wheelchair users<sup>3</sup>
  - ~100,000 adults 60 years + use a wheelchair<sup>4</sup>



<sup>1</sup> WHO 2008; <sup>2</sup> Flagg 2009; <sup>3</sup>Smith et al. 2016; <sup>4</sup>Best & Miller 2011.

# Wheelchair procurement does not guarantee safe or effective use



Akbar et al. 2010



Calder & Kirby 1990;  
Xiang et al 2006;  
Chen et al. 2011



Shields et al. 2004

# Wheelchair skills training is important for wheelchair service provision.

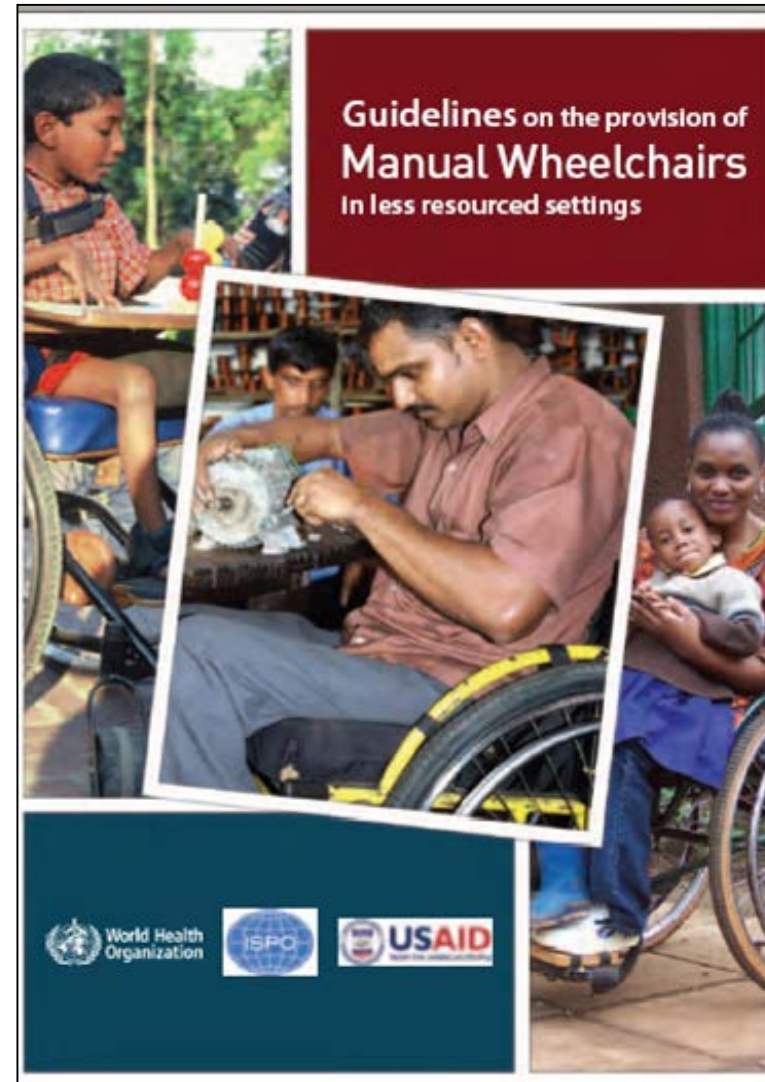
## WORLD REPORT ON DISABILITY



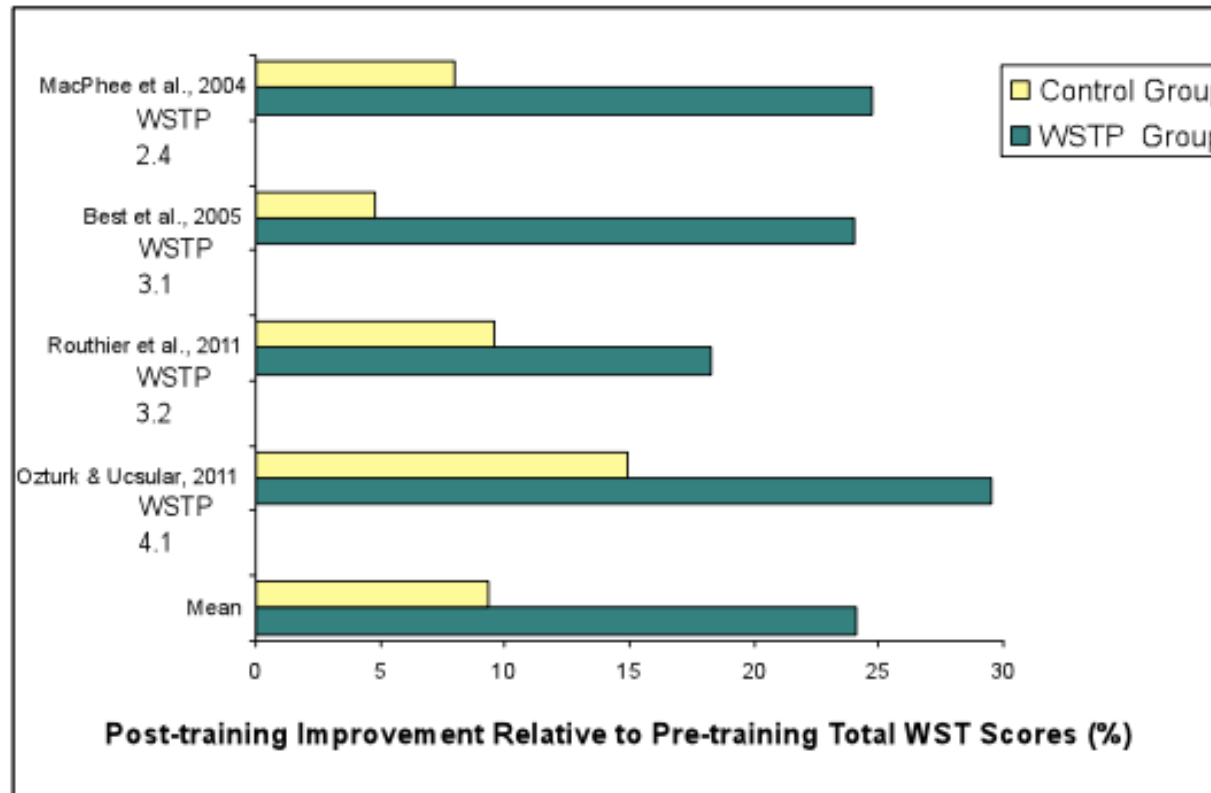
“To ensure that assistive devices are appropriate, the devices need to:

- Suit the environment.
- Be suitable for the user (assessment, selection, training)
- Include adequate follow-up to ensure safe and efficient use.”

(2008)



and an effective wheelchair skills training program exists



[www.wheelchairskillsprogram.ca](http://www.wheelchairskillsprogram.ca)

## But few receive any training...

- 17% in UK received any formalized training<sup>1</sup>
- 18% in US received any formalized training<sup>2</sup>
- 55% in CA received 5, 30 minute sessions<sup>3</sup>

<sup>1</sup>Whizz-Kidz 2004; <sup>2</sup>Karmarkar AM et al. 2009; <sup>3</sup>Kirby et al. 2015



# Time and resources are the most common perceived barriers.

Disability  
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RESEARCH PAPER

## A description of manual wheelchair skills training in Canadian rehabilitation centers

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**Abstract**  
Purpose: To describe current practices for manual wheelchair (MWC) skills training in Canadian rehabilitation centers. Methods: An online survey was sent to practice leaders in occupational (OT) and physical therapy (PT) at 87 Canadian rehabilitation centers. Responses were solicited from individuals who could report about wheelchair skills training at facilities with at least 10 beds designated for rehabilitation. Thirty-four questions asked about: (1) demographics, (2) components of MWC training, (3) amount of MWC skills training, (4) use of validated programs and (5) perceived barriers to using validated programs. Data were analyzed using summary statistics. Results: About 68/87 responses were received primarily from OTs (42/68). Basic MWC skills training (eg, wheel-bricks) was consistently part of clinical practice (45/68), while advanced skills training (eg, curb-curt) was rare (8/68). On an average, 1-4 h of training was done (23/68). Validated training programs were used by 16/68, most of whom used them "rarely" (7/16). Common barriers to using validated programs were lack of time (43/68) and resources (39/68). Conclusions: Learning to use a wheelchair is important for those with ambulation impairments because the wheelchair enables mobility and social participation. Providing opportunities for advanced wheelchair skills training may enhance mobility and social participation in a safe manner.

**► Implications for Rehabilitation**

- There is evidence confirming the benefits of a validated wheelchair skills program, yet most clinicians do not use them. A variety of perceived barriers may help to explain the limited use of existing programs, such as time, resources and knowledge.
- Effective knowledge translation efforts may help alleviate some of these barriers, and novel wheelchair training approaches may alleviate some burden on clinicians to help accommodate the increasing number of older wheelchair users.

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RESEARCH PAPER

## A description of manual wheelchair skills training curriculum in entry-to-practice occupational and physical therapy programs in Canada

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**Abstract**  
Purpose: To describe the curriculum for manual wheelchair (MWC) skills training in entry-to-practice occupational (OT) and physical therapy (PT) programs in Canada. Methods: An online survey was sent to 28 directors of entry-to-practice OT and PT programs in Canadian universities. Responses were solicited from individuals who could report about wheelchair skills training. Fourteen survey questions asked about: (1) demographic information, (2) specific curriculum content for MWC skills training, (3) teaching methods used, (4) instructional methods and estimated time used to teach MWC skills and (5) whether validated wheelchair skills training programs were used in curriculum development. Results: Responses received from 21/28 programs, (OT-11/14; PT-10/14). About 16 of 21 programs included curriculum for MWC skills training. Informal hands-on instruction was the most common method used for teaching wheelchair skills (13/21), while multiple lectures were used the least (5/21). Only 8/21 used a validated wheelchair skills training program in curriculum development. Conclusion: Despite the public availability of a validated wheelchair skills program, there is little use of the program in entry-to-practice curriculum. Integrating online training programs into existing curricula or the development of post-professional training modules may help clinicians to better accommodate the mobility needs of the substantially increasing population with disabilities.

**Keywords**  
Entry-to-practice curriculum, manual wheelchair skills training, occupational therapy, physical therapy

**History**  
Received 4 December 2013  
Revised 4 March 2014  
Accepted 18 March 2014  
Published online 7 April 2014

**► Implications for Rehabilitation**

- Current clinical curriculum includes basic wheelchair skills training, but not necessarily training in the advanced wheelchair skills that are needed for optimal wheelchair mobility.
- There is evidence for a standardized approach for providing wheelchair skills training, that may be administered through curriculum, online or through post-graduate training modules.

1. Knowledge translation of existing programs is needed.
1. Alternative approaches to wheelchair training are worth considering.



# Wheelchair use self-efficacy is important<sup>1-3</sup>



... And low in older adults.

~ 40% of experienced wheelchair users have low self-efficacy for using a wheelchair<sup>4</sup>

<sup>1-3</sup> Sakakibara et al., 2012, 2013, 2014

<sup>4</sup> Miller et al., 2012

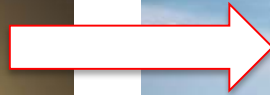
# Social cognitive theory provides a framework for enhancing self-efficacy




Bandura, 2007

Performance  
mastery

# Wheelchair use self-efficacy is modifiable



Sakakibara et al., 2013



Vicarious  
experience

# Peer-trainers provide a source of vicarious experience<sup>1</sup>

- Peer-trainers can effectively change behaviour<sup>2,3</sup>
- Peer trainers may be especially influential for wheelchair users<sup>4,5</sup>
  - Credible
  - Sense of understanding

<sup>1</sup>Bandura 2007

<sup>2</sup>Webel et al. 2010

<sup>3</sup>Best et al. 2016

<sup>4</sup>May et al. 2006

<sup>5</sup>Standal et al. 2008

Self-efficacy enhanced, peer-led wheelchair training improved wheelchair use self-efficacy and wheelchair skills.





# Purpose

Evaluate the feasibility of a novel self-efficacy enhanced, peer-led wheelchair training intervention for older adults



Wheelchair Training Self-efficacy Enhanced For Use

# Study Aims

## **Primary Objectives:**

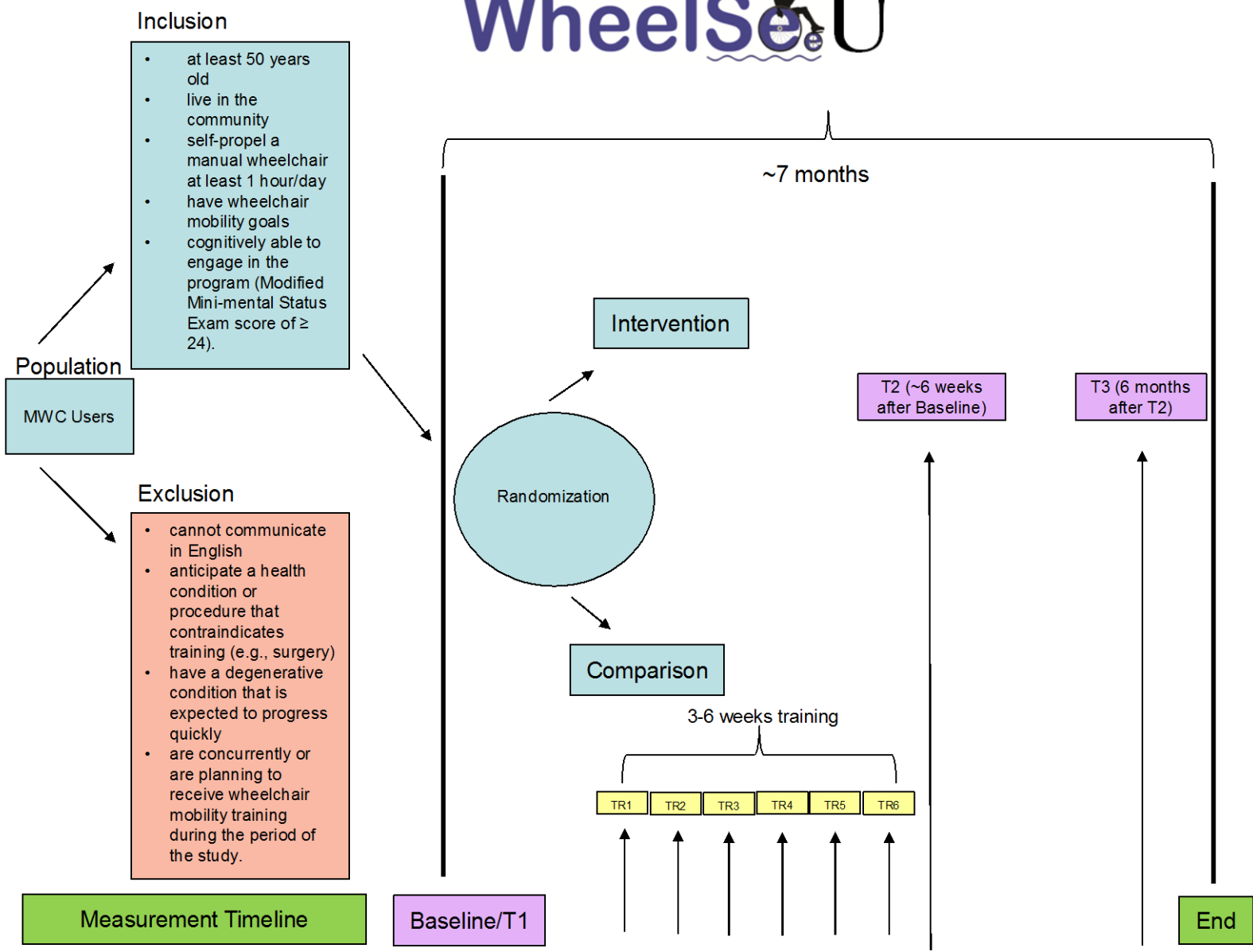
To evaluate feasibility of the intervention and study design according to issues of:

1. Process
2. Resources
3. Management
4. Treatment

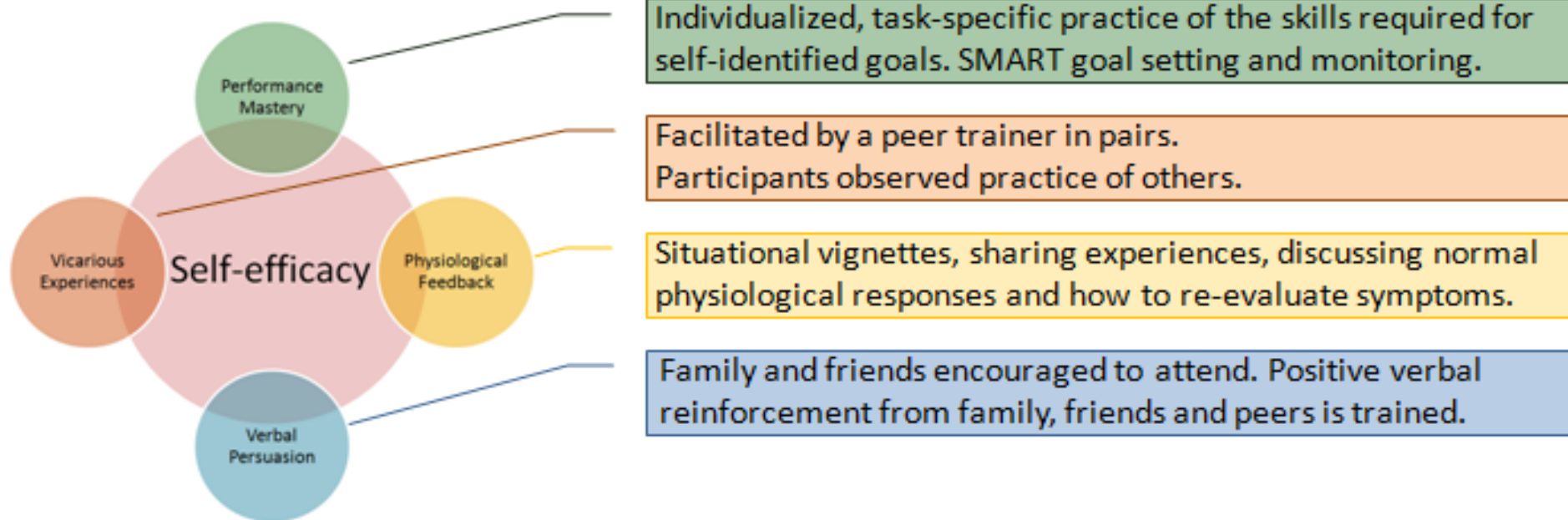
## **Secondary Objectives: Clinical Outcomes**

Calculate effect size estimates of WheelSeeU on:

1. wheelchair skills capacity;
2. wheelchair skills performance & safety, confidence, wheelchair mobility, satisfaction with participation, functioning, and health utility.



- 6, 1.5 hour sessions, 1-2 times per week



# Resources for improving wheelchair users (iWheel)

- 6, 1.5 hour sessions, 1-2 times per week
- Didactic presentations
  - 1 health professional
  - 2 wheelchair users
- Sessions include:
  1. Accessing the community
  2. Using computers and the internet
  3. Wheelchair seating and maintenance
  4. Community transportation and travel
  5. Pain and fatigue
  6. Physical activity and nutrition



# Participant Characteristics

Demographics; n = 38 (QC, BC)	
Age, years; mean (SD); range	65 (8); 50 - 84
Sex, no. (%)	
Male	22 (58)
Marital Status, no. (%)	
Married/Common Law	21 (55)
Education, no. (%)	
Post-secondary (College/University)	27 (71)
Primary Diagnosis, no. (%)	
Neurological	22 (58)
Musculoskeletal/Other	16 (42)
Previous wheelchair use, years; mean (SD)	6.5 (10.7)

# Preliminary baseline findings

Clinical outcomes at baseline	
WC skills capacity (WST-Q); mean (SD) /100	72 (14)
WC skills performance (WST-Q); mean (SD) /100	50 (19)
WC use self-efficacy (WheelCon); mean (SD) /100	73 (19)
WC mobility (LSA); mean (SD) /120	39 (22)
Satisfaction with participation (WhOM); mean (SD) /100	66 (27)

# Future directions

- WheelSeeU has the potential to influence wheelchair mobility, health, and social participation in older adults.
- Results from WheelSeeU could change the way older adults use their wheelchairs.
- Potential for use across age and diagnostic groups.



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