

The Fall Concerns Scale for People Who Use Wheelchairs and Scooters: An innovative outcome tool for occupational therapists & the entire interprofessional team

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Wheelchairs and Scooters Use



Worldwide

- More than 80 million people

United states

- At least 5.5 million as of 2014

Burden of Falls & Concern about Falls (CaF) for People Who Use Wheelchairs & Scooters

▪ Prevalence of falls:

- Depending on the health condition, falls occurred **at least once** for **57.4%** of people who use wheelchairs/ scooters (*Kirby, 1994*)

▪ Psychological consequences:

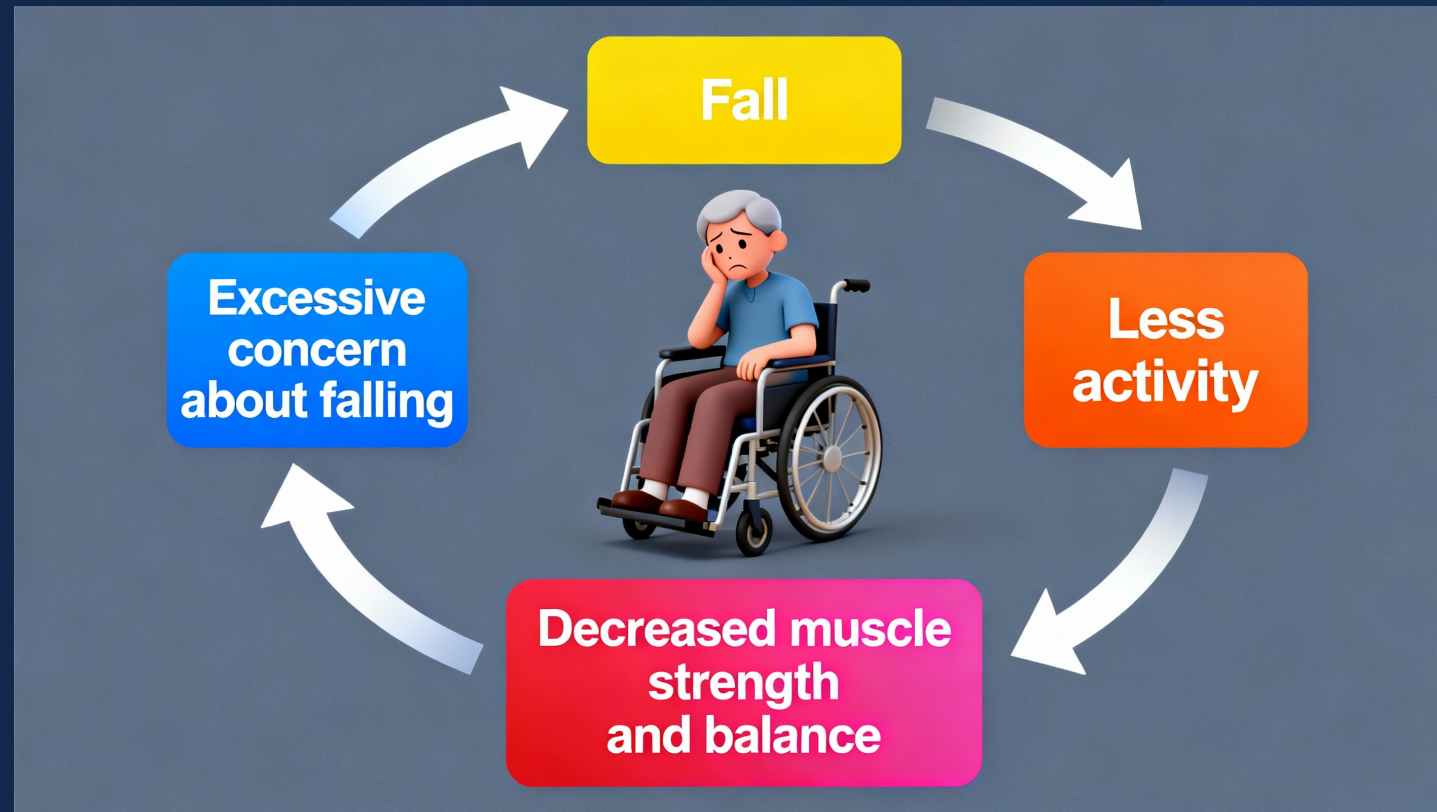
▪ CaF

- Previously referred to as “fear of falling” or “low falls self-efficacy”

▪ Prevalence of CaF among wheelchair/scooter users

- 64%
(*Sung et al., 2021*)

Importance of CaF Assessment



CaF Measurement: Research Gap

A Cross-disability Tool:

Fall Concerns Scale
for people who use
Wheelchairs
and Scooters
FCS-WC/S

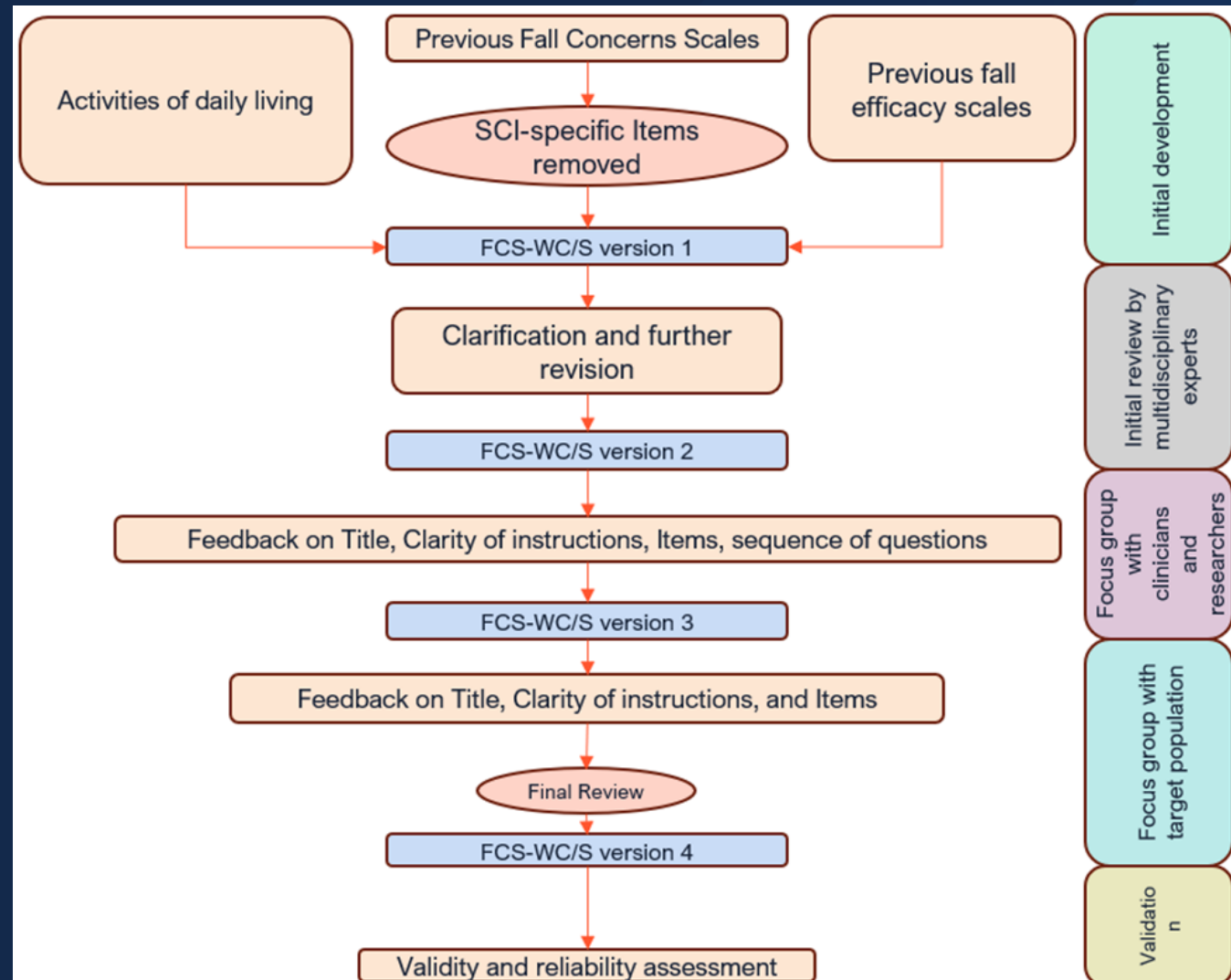
- Most existing CaF scales were developed for **ambulatory** populations.
- Those scales **lack items** on wheeled mobility tasks.
- The only wheelchair/scooter-specific tool (Spinal Cord Injury-Falls Concern Scale(SCI-FCS)) is validated for people with **spinal cord injury** who use manual wheelchairs.
- More inclusive measurement of CaF is essential to **identify risk** and design effective **interventions**.
- **Research Gap:** Need for a self-report tool specifically to assess CaF among adults who use wheelchairs or scooters, **regardless of diagnosis.**

Study Objectives

1. To describe the initial **development** of the FCS-WC/S.
2. To explain the **preliminary validation** of the FCS-WC/S.
3. To describe the **future work** planned.

**Fall Concerns Scale
for people who use
Wheelchairs
and Scooters
FCS-WC/S**

FCS-WC/S Development



FCS-WC/S Questionnaire

- 33 items.
- Examines CaF when engaging in a variety of activities (e.g., getting dressed, toilet transfers)
- 4-point scale ranging from “1” (not at all concerned) to “4” (very concerned)
- **Example item:**
- How concerned are you about falling while doing the following day-to-day activity:
Getting into your bed (the bed you sleep in most often)
 - I do not perform/Not at all concerned/Somewhat concerned/ Fairly concerned/ Very concerned

FCS-WC/S Validation: Methods

▪ Design:

- Survey-based longitudinal design (Baseline- Week 1)

▪ Participant Inclusion criteria:

- Adults who used wheelchairs and scooter for ≥ 1 year.
- With ≥ 1 fall in the previous 3 years.

▪ Analysis

- *Reliability*: Internal consistency and test-retest reliability
- *Validity*: Concurrent validity, Convergent Predictive validity, Rasch analysis

FCS-WC/S Validation: Results

- **The baseline survey:** 124 respondents.
- **Week 1:** Subset of 63 respondents.
- **Excellent** internal and **good** test–retest **reliability** ($\alpha \geq 0.90$, ICC=
▪ 0.86–0.9).
- **Strong concurrent validity:** (Spearman's $\rho = 0.72$) with the SCI-FCS. (*Moein et al, 2024*)

FCS-WC/S Validation: Results

- **Convergent validity:** The FCS-WC/S differentiated fear of falling levels from an established measure (ORs 4.1, 25.8, 46.7).
- **Rasch analysis:**
 - High person separation (4.07)
 - High person reliability (KR-20 = 0.98, Rasch = 0.94);
 - Acceptable infit statistics (between 0.78 and 1.30)

What Do These Results Mean?

- Clinicians can trust that the items on the scale reliably measure the same underlying construct (CaF).
- Clinicians can attribute score differences to true changes, **not measurement error.**
- The FCS-WC/S aligns well with what we already know from validated concerns about falling tools.
- The scale can distinguish people across the full spectrum of concern, not just at the extremes.

Conclusion and Future Plans

- **The FCS-WC/S can therefore advance OT assessment of CaF.**
- **Future work involves:**
 - FCS-WC/S refinement
 - Gathering information on the clinical interpretation of the refined tool & its psychometric properties in a heterogenous sample
 - Dissemination and translation to Swedish.



Questions?

To request the **FCS-WC/S** Tool, please get in touch with the developers at
DPQoL-Lab@illinois.edu



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