Responsiveness of the TAWC tool for assessing wheelchair discomfort

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Abstract

Purpose. The purpose of this research was to determine the clinical usefulness of the Tool for Assessing Wheelchair disComfort (TAWC) by examining floor and ceiling effects and responsiveness when used with two groups of wheelchair users—one known to have experienced real changes in discomfort levels and the other with unchanged levels.

Method. In a retrospective analysis of data from two previous studies, change scores were compared across two groups of subjects—one stable group (NON-CHANGERS) and one experiencing a seating intervention (CHANGERS) intended to decrease seating discomfort.

Results. No significant floor or ceiling effects were found. The average General Discomfort Score (GDS) change among the NON-CHANGERS was 2.0 (with a possible score range of 13–91) and average Discomfort Intensity Score (DIS) change was 1.8 (with a possible score range of 8–99) for the same group. Conversely, average GDS change among the CHANGERS was 8.7 and the average DIS change was 7.7. Additionally, both scores demonstrated a moderate effect size (d) for two tested treatments (GDS = 0.53 and 0.50, DIS = 0.31 and 0.33) and the standardized response means were 0.78 and 0.77 for the GDS and 0.80 and 1.2 for the DIS.

Conclusions. All analyses indicate good responsiveness of the TAWC, supporting its use clinically and in future research.

Keywords: Wheelchair users, discomfort assessment, responsiveness, wheelchair seating

Introduction

People who use wheelchairs, particularly those who sit for more than 8 h per day, often experience discomfort [1–3]. Discomfort leads to negative consumer satisfaction [1], decreased quality of life [4], problems related to propulsion ergonomics [5], adoption of poor postures to relieve discomfort [6] and may impair everyday function and the ability to remain in the wheelchair [7]. Yet, few researchers have investigated the nature and causes of wheelchair seat discomfort, or possible solutions to this problem [1,8]. One of the basic problems with investigating discomfort is that there is no proven way to quantify wheelchair seating discomfort. While there are many validated assessment tools in existence to measure the similar construct of pain [9–15], the development of a tool to quantify discomfort has not had the same attention.

To address this need, the Tool for Assessing Wheelchair disComfort (TAWC) – previously known as the Wheelchair Seating Discomfort Assessment Tool (WC-S-DAT) – was developed using the feedback of long-term wheelchair users about seating-related discomfort [16]. The TAWC consists of three sections. Section I is used to collect general information about factors that directly affect discomfort in one’s wheelchair such as the amount of time spent in one position in the chair and whether the individual in the chair was transferred and positioned properly initially. Section II (see Table I) contains eight statements related to discomfort and five statements related to comfort that are rated on a seven-point Likert scale with 1 = strongly disagree