WHEELCHAIR BOOT CAMP: ENABLING OCCUPATIONAL THERAPY STUDENTS TO BE SKILLED AND CONFIDENT TRAINERS

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INTRODUCTION

Occupational and physical therapists are frequently responsible for the assessment and prescription of wheelchairs for individuals with a mobility limitation. The wheelchair prescription process is complex and clients are best served when clinicians provide a comprehensive and thorough intervention (Mortenson & Miller, 2008). A critical component in this process is the provision of comprehensive training in how to optimally operate the wheelchair, as advocated by the World Health Organization (WHO, 2008). This is consistent with various conceptual frameworks for the provision of assistive technologies generally (Lenker and Paquet, 2003; Cook & Miller-Polgar, 2008). The provision of structured, evidence-based wheelchair skills training, such as the Wheelchair Skills Training Program [WSTP] (Dalhousie University, 2012), have proven to be highly effective in enhancing skill capacity among persons with a disability (MacPhee et al., 2004; Best et al., 2005).

Clinicians frequently do not provide wheelchair mobility training beyond basic propulsion strategies and transfer skills (Best, Routhier & Miller, 2014). Several clinician-based factors have been implicated in contributing to this situation. Occupational and physical therapists are typically exposed to only a small range of wheelchair skills during their university training (Best, Miller & Routhier 2014). As a result, therapists limited repertoire of skills make it challenging to teach more advanced skills to their clients, particularly because they lack the ability to demonstrate such strategies. Low wheelchair self-efficacy, or confidence in their capacity to perform wheelchair maneuvers, further limits this capacity and may contribute to lower expectations for their clients to master such skills.

Two published studies have investigated the effect of providing wheelchair skills training to clinicians. A condensed version of the WSTP was provided to 22 occupational therapy (OT) students in small groups (1-3 participants) over 2-3 hours (Coolen et al., 2004). There was a significant improvement in skill capacity compared with two control groups. A second study involved a 4-hour training and wheelchair use experience workshop with 12 medical students in small groups (3-4 participants), and also found a significant improvement compared with peer controls (Kirby, Crawford, Smith, Thompson & Sargeant, 2011). Both studies measured only skill capacity and no evaluation of self-efficacy related to skill training among prescribers has yet been undertaken.

PURPOSE

The aim of this study was to evaluate the effect of a large-group wheelchair skills training program on skill capacity and wheelchair-specific self-efficacy among OT students. Such a study would address two important issues. First, we wanted to ascertain whether skill training could be effectively provided in a comprehensive but efficient manner that might be viable within a university-based OT program. Second, to determine whether skill training also has a significant impact on OT students' wheelchair-specific self-efficacy.

METHODS

Students from OT programs at two Canadian universities were invited to attend a wheelchair skills training "boot camp" conducted outside of their academic program. Approval was obtained from ethics review boards at each university. Four boot camps were held (14-19 attendees each), with a total of 65 participants. Participants were primarily females (n=61) in the second (final) year of

their program (n=54) who self-identified their wheelchair experience as novice/little experience (n=52).

Two occupational therapists with considerable clinical experience and WSTP training led the boot camps. Each boot camp included a 1-hour introduction to the WSTP (Dalhousie University, 2012), including safety orientation related to spotting and use of a safety strap to prevent rearward tips. This was followed by 3.5 hours of hands-on training, which included demonstration of several skills at a time followed by practice in pairs under the supervision of the boot camp trainers. Sets of skills demonstrated were progressive over the boot camp, moving from basic to advanced. Participants could choose whether or not they wanted to attempt or practice each skill, particularly among the more advanced techniques (e.g. going down stairs).

Wheelchair skill capacity was measured using the Wheelchair Skills Test – Questionnaire (WST-Q 4.2), which asks participants to evaluate their ability to perform 32 different skills. Response options include "yes" (2), "yes, with difficulty" (1) and "no" (0), for a total possible score of 64. Items can be considered in three categories of increasing difficulty: indoor skills (15 items), community skills (9 items) and advanced skills (8 items). Wheelchair-specific self-efficacy was measured using the Wheelchair Use Confidence Scale for Manual Wheelchair Users – short form (WheelCon-M, SF) questionnaire (Sakakibara, Miller & Rushton, 2014). Participants rate their confidence in performing 21 activities in a wheelchair; each item is rated on an 11-point Likert scale ("0" = not confident; "10" = "completely confident"). Outcomes were administered immediately before (T1) and after (T2) the boot camp intervention.

Participants at the Winnipeg site (n= 36) were also invited to complete a satisfaction questionnaire following the boot camp, responding to 5 questions on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The questions inquired about the boot camp organization, pace, quality of attention/assistance, value of attending and application to future clinical practice.

RESULTS

With respect to skills capacity, mean participant score on the WST-Q improved significantly from 28.1 ± 10.9 to 52.8 ± 6.0, with a difference of 24.7 (CI_{95} = 22.1; 27.3). After standardizing the score, this was an increase of 38.6%. The success rates at T2 for the skill categories were: indoor 99.6%; community 98.8%; and advanced 58.1%. See Table 1 for examples of individual skill and reported success rates.

Table 1: Individual Skill Success Rates

Skill	Scored "2"	Scored "2" or "1"
Ascend low curb	89%	94%
Ascend 6" curb	34%	77%
Descend 6" curb	54%	60%
Perform a wheelie	35%	77%
Perform a turn in wheelie	14%	54%
Wheelie down a steep ramp	11%	40%
Wheelie off a 6" curb	17%	32%
Down a short flight of stairs	28%	42%

With respect to self-efficacy, the mean participant standardized score on the WheelCon-M improved significantly from 46.3 ± 3.4 to 54.8 ± 4.7, with a difference of 8.5 (CI_{95} = 7.4; 9.6). The mean item score (out of 10) improved from 5.2 ± 1.6 to 8.2 ± 1.0, with an improvement of 3.0 (CI_{95} = 2.5; 3.3).

Responses to the satisfaction questionnaire are summarized in Table 2 (n=36).

Table 2: Satisfaction Questionnaire Responses

Item	Mean rating	Responses by rating		
		5 or 4	3	2 or 1
Organization	4.4	94%	6%	0%
Pace	4.3	94%	6%	0%
Quality of attention	4.7	100%	0%	0%
Value of attending	4.6	100%	0%	0%
Apply to practice	4.7	97%	3%	0%

DISCUSSION

Based on the study results, we obtained a substantial improvement in both skill capacity and wheelchair-specific self-efficacy with this group of OT students. The increase of nearly 40% on the WST is larger than the 16.2% reported in the previously published study of OT students. This is likely due, in part, to the longer period of training (3.5 hours versus 2 hours), which would allow additional practice and opportunity to move through a larger repertoire of skills. The fact that students in this study were largely successful with many of the more advanced skills would support this hypothesis.

This is the first study to evaluate self-efficacy in addition to skill acquisition. The significant improvement in students' confidence following the boot camp would suggest that they might have confidence in their ability to demonstrate skills, particularly more advanced ones. These improvements in skill and confidence lead us to believe that these students may be more likely to emphasize and pursue comprehensive wheelchair skill training with their future clients.

This is a cross-sectional study and the lack of a control group limits the inference of cause. In addition, as there was no follow-up in this study, we cannot know whether the gains in skill capacity and confidence are retained over time, or whether this translates into greater emphasis on wheelchair skills training in their future practice.

CONCLUSION

The results of this study are promising and provide preliminary evidence that a large group boot camp approach is both a viable and efficient strategy for university training programs to equip OT students with comprehensive wheelchair training skills for clinical practice.

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