

Official Title:

Evaluating the Impact of Custom Assistive and Adaptive Technology

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Madonna Rehabilitation Hospital's (MRH) inpatient and outpatient programs provide care for individuals with a diverse range and level of disabilities. Five patients received a custom built assistive device to increase their independence and/or hasten their recovery.

A MRH research staff member met with the potential participant after the patient received the requested Rehabilitation Engineering Center assistive or adaptive device and indicated to their therapist that they would like to learn more about the study. The participant and a legal guardian (if appropriate) were asked to complete the informed consent/assent, Authorization to Disclose Health Information (to assist in understanding the participant's diagnosis and other potential health problems), and photo/video consent.

If the patient consented to be involved with the study, they met with a member of the MRH research staff again after using the assistive device for at least 2 days (maximum of 30 days). As appropriate, individuals utilizing the assistive devices (or their designated respondent if unable to personally respond) would be asked to complete one or more qualitative and quantitative questionnaires to help understand the impact of the adaptive device on their function, independence, and quality of life.

Three questionnaires were used to evaluate how effective the adaptive device was at addressing the specific need (PIADS), how demanding the device is mentally, physically, etc. (NASA-TLX), and how satisfied they were with the device and related services (QUEST).

Basic statistical measures (mean, range, and standard deviation) were used for initial evaluation of the results.

Average PIADS score was 1.89 (range, 1.58 to 2.15; SD = 0.26) following receipt of the technology.

The overall mean NASA Load Index score was 4.8 (range 2.8 to 7.6; SD = 1.8). The mean NASA Mental Demand score was 9.6 (range, 2 to 18; SD = 6.0), the mean NASA Physical Demand score was 3.8 (range, 1 to 11; SD = 4.2), the mean NASA Temporal Demand score was 4.6 (range 1 to 10; SD = 3.5), the mean NASA Performance score was 3 (range 1 to 6; SD = 2.1), the mean NASA Effort score was 2.8 (range, 1 to 5; SD = 1.8), and the mean NASA Frustration score was 6.0 (range, 2 to 14, SD 4.6).

The mean QUEST device score was 4.3 (range, 4 - 4.6; SD = 0.29). Mean QUEST services score was 4.5 (range, 4.25 - 5; SD = 0.47).