

The Impact of Aquatic Therapy on Individuals with Parkinson's Disease

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Introduction

My chosen focus area of study was program development to create and implement a fall prevention aquatic therapy program for individuals with Parkinson's disease. The purpose was to establish an aquatic therapy program to improve balance and decrease fall prevalence in older adults in the Bryan community. The program commenced once weekly on Saturdays for 60 minutes and was held at the Advance Physical Therapy facility in Bryan, Texas.

Postural instability results in a high proportion of falls in people with PD, with studies estimating around 60–70% of people with PD fall at least once a year, and that 39– 50% have recurrent falls (Terrens et al., 2020). Aquatic sessions that have a focus on balance and rotations, may improve core strength and therefore postural stability in individuals with PD (Terrens et al., 2020).

Processes/Methodology

To further my professional development, I created three goals to achieve through my capstone experience: Create and implement an aquatic therapy program in the Bryan community; identify strengths and weaknesses of the program for sustainability; and gain aquatic therapy experience with the Parkinson's population. Through meeting these professional development goals, I gained expertise in program development, recruitment, communication, teaching, clinical skills, and aquatic therapy for Parkinson's patients through an occupational therapy lens.

Outcomes

Participant feedback was collected via interviews and surveys. Participants completed a pre- and post-test survey. Timed Get Up and Go (TUG) scores were recorded pre- and post-aquatic intervention.

A paired-samples t-test was conducted to evaluate the intervention's effect on participant TUG scores. TUG scores did not decrease significantly from Time 1 (Mean=12.1, SD =3.31) to Time 2 (Mean 9.84, SD 3.49), $t(2)=3.13$, $p=0.230$. However, mean TUG scores decreased from Time 1 to Time 2 by 2.23 sec, with a 95% confidence interval ranging from -0.84 to 5.30.

Thematic analysis was used to analyze qualitative data. Four themes emerged when analyzing qualitative quotes: Social Participation, Balance, Confidence, and Fear of Falling.

Social Participation

All participants reported aquatic exercise positively impacted their social engagement. Participant 1 reported being “able to interact with people outside of immediate family” which “helped with conversations and following instructions.” Participant 3 stated “the atmosphere was very encouraging and upbeat. We enjoyed being together.” Participants often stated feeling a sense of “community” among the aquatic group.

Balance

Participants were asked: “How has aquatic exercise impacted your balance?”. Participant 1 reported aquatic exercise impacted their balance through “improved coordination and concentration.” Participant 2 stated feeling “more relaxed.”

Confidence

Participant 1 reported feeling “more confident in daily activities” such as “bending, getting up, and doing household activities” as well as “dressing.” They indicated that “increased confidence” was one of the program's most beneficial outcomes.

Fear of Falling

All participants reported a decreased fear of falling. When asked about the program's beneficial impact, Participant 1 reported "not having a fear of falling performing the tasks." Participant 2 reported "An aquatic environment significantly decreased the amount of attention the participant must pay to avoid falling." Participant 3 stated "I can definitely tell the difference from when I'm in the pool and when I'm on land. The fear of falling over in the pool is abated by the water."

Conclusion

Adherence to an aquatic therapy program may enhance balance and mobility, reduce fear of falling, decrease pain, and increase social participation. All these factors will encourage engagement in individuals' daily occupations. Aquatic therapy can provide a new meaningful occupation while encouraging physical activity, allowing participants to remain independent longer.

References

- Terrens, A. F., Soh, S. E., & Morgan, P. (2020). The safety and feasibility of a Halliwick style of aquatic physiotherapy for falls and balance dysfunction in people with Parkinson's Disease: A single blind pilot trial. *PloS one*, *15*(7), e0236391.
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