

The Correlation Between Physical Activity and Post-Stroke Depression

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Introduction

- Stroke is identified as one of the largest contributors to long-term disability and morbidity affecting nearly 6.8 million adults over the age of 20¹ with 75% of strokes occurring in individuals >65 years old²
- Up to 64% of stroke survivors also suffer from post-stroke depression (PSD) in addition to physical, functional limitations³
- PSD has been linked to increased dependence with ADLs, decreased level of function, and lesser quality of life
- Most treatment for depression involves pharmaceuticals which are discouraged in the >65 population due to potential side effects thereby necessitating an alternative treatment⁴
- Many studies imply that an increase in physical activity will result in a decrease in depression due to its ability to increase function⁵ and improve overall mood⁶

Objectives

- A review of the literature exposed a lack of conclusive research to support a correlation between post-stroke depression and physical activity, specifically in the acute phase of post-stroke recovery in the population >65 years old
- This study investigated whether physical activity levels and perceived depression levels were correlated in the post-stroke, geriatric population in the inpatient setting
- The hypothesis proposed by the researcher is that a higher physical activity level will correlate with a lesser severity of perceived depression post-stroke.

Methods

- Research shows that the highest onset of post-stroke depression (PSD) is within the first month after a stroke⁷, which makes Brookdale inpatient hospital the ideal place to conduct this study
- Patients admitted to Brookdale Center for Healthy Aging and Rehabilitation with a primary diagnosis of CVA were included in this study
- Participants were fitted with a Camntech Motionwatch-8 and FitBit Charge on the day of admission to Brookdale to monitor physical activity levels throughout their length of stay
- The Geriatric Depression Scale was administered on the day of admit and upon discharge to track perceived severity of depression

Results

- 15 participants were recruited for this study, from which 7 complete data sets were able to be collected
- Combined analysis of primary outcome variables was not possible due to significant difference between complete data at admission (71.86+/- 13.69) and incomplete data (99+/-14.20).
- A correlation was found between GDS and age at admission; however not significant (p=30)
- Inverse correlation discovered for GDS and BIMS at admission; however lacked significance (p=0.40)
- Inverse correlation also found for age and BIMS scores, but insignificant (p=0.20)

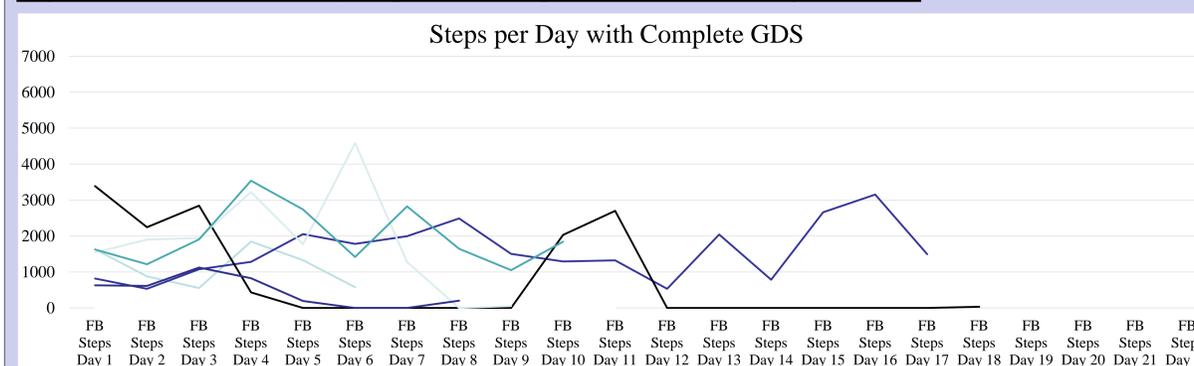
Table 3. Demographic Data of Study Population (N=15)

	Mean	Standard Deviation
Age	75	13
BMI (N=1 Missing)	27.70	4.62
Gender (N=1 Missing)	53% Female (N=8)	

Table 4. Key Clinical Variables from the Subjects with Complete Data

	Mean	Standard Deviation
Number of PT Units	932	269
Number of OT Units	1001	403
Number of ST Units	689	746
Length of Stay (Range 6-22 days)	13	4
FIMs at admission	68	14
FIMs at discharge	103	9
FIMs difference	35	13
BIMs	13	2
GDS at admit	5	3
GDS at discharge	5	3
GDS Difference	0	4

Figure 1. Number of daily steps for each patient over the length of stay



Data Analysis

- Data was analyzed using SPSS and Microsoft Excel Spreadsheet
- Descriptive data included mean, standard deviation, & frequency
- Paired t-test determined a difference from admit to discharge in depression levels (p=0.77) and physical activity levels (p=0.64)
- Pearson's Correlation used to examine physical activity levels and depression scale levels at admit and discharge (N/A)

Discussion

- This study examined activity levels and depression scores of seven patients recovering from stroke in an effort to quantify a correlation between the two variables
- This study did not yield anticipated outcomes. This was partly due to the limited number of participants
- Physical activity levels, as monitored by the FitBit Charge and Camntech Motionwatch-8, did not increase as anticipated over the length of stay and Geriatric Scale scores did not decrease over the length of stay
- Results neither confirmed nor denied the presence of the hypothesized correlation between physical activity and post-stroke depression due to various factors which influenced the outcome of this study
- Limitations for this study include small sample size (N=7) which did not allow for adequate calculation of correlation coefficient between GDS and physical activity levels, missing FitBit data, and cessation of GDS collection to maintain compliance with IRB
- Recommendations for future studies include using a different depression scale, ensuring proper adherence to protocol, and increasing sample size used in study

Conclusions

- The results of this study did not align with the original hypothesis though they will serve as a basis for future research to promote more accurate outcomes
- Future studies would benefit from including a larger sample size, implementing a more appropriate depression screening tool, and improving compliance with wearing activity monitors
- Studies focused on finding alternative treatment options for geriatric PSD in the acute phase post-stroke have the potential to change the future of stroke survivor care