

# Impact of a Bedside Activity Device on the Functional Status of Hospitalized Older Adults: A Randomized Controlled Trial

## I. Introduction

- A. Population size, Globally, of individuals 65 years and older between 1990 and 2019 increased from 6% to 9%.
  - 1. research proves that the length and frequency of hospital stays goes up with age
- B. Functional loss in elderly can extend past discharge from hospital.
  - 1. orders for complete bed rest.
  - 2. immobilization due to devices such as urinary catheters
  - 3. overzealous falls prevention practices, bed and chair alarms
  - 4. progression of chronic diseases and existing functional impairments
  - 5. psychosocial factors, fear of falling causing injury or exacerbating existing condition
- C. Reduced physical activity and prolonged bed rest promote adipose tissue accumulation and altered muscle protein synthesis
  - 1. loss of lean muscle mass
  - 2. higher falls risk and risk of disability
- D. Older adults with limited mobility at higher risk for frailty
  - 1. threatens ability to independently perform BADL (basic activities of daily living)
- E. Steps needed to prevent/slow down functional decline
  - 1. dynamic balance exercises
  - 2. exergames (interactive bedside video games)

II. Purpose- The purpose of this study was “to evaluate the impact of a bedside activity device that incorporated exergames on the functional status of hospitalized adults ages 65 years and older.”

## III. Method

- A. Single-center randomized control trial
- B. Two general units at an acute care tertiary hospital
- C. Participants lived in Singapore
- D. Inclusion
  - 1. recruited between July 2019 and March 2021

2. 65 years of age or older
3. community ambulant (with/without gait aids)
4. no medical contraindications for physical exertion
5. cognitively intact (no diagnosed condition that might affect cognition and being able to communicate coherently with a research team member during recruitment)
6. no patient enrolled in another rehabilitation program/to be discharged or transferred out of the unit in next three days

E. Groups developed

1. The control group received standard care, may/may not included physiotherapy interventions
2. Intervention group received standard care as well as used the bedside activity device daily

F. Data collected

1. date of birth
2. gender
3. type of living accommodation
4. caregiver presence
5. highest level of education
6. Functional Comorbidity Index (18 item list of diagnoses)
7. Timed Up and Go (TUG) test (assesses patient's mobility)
8. Katz Index of Independence in Activities of Daily Living (Katz ADL) (ability to perform ADL's) given twice to each participant (day of admission and day of discharge)

G. Data analysis

1. IBM SPSS VERSION 23 USED (Descriptive statistics describing their sociodemographic data)
2. Mann-Whitney U and  $\chi^2$  test (checked for between-group similarities regarding sociodemographics)

IV. Results

A. 48 participants recruited

1. 23 randomized to intervention group
2. 25 control group

- B. Ages ranged from 67-90 years old
  - 1. Majority of participants (89.6%) female
  - 2. 36 participants (75%) up to primary school education
  - 3. Most participants (87.5%) lived in public housing apartments on a floor w/lift (elevator) landing
  - 4. Most (83.3%) lived with family
  - 5. More than half (60.4%) had a caregiver that was family
- C. TUG times
  - 1. 43 seconds on admission for both groups
  - 2. 33 seconds demonstrated for intervention group
  - 3. 53 seconds demonstrated for control group
- D. Katz ADL scores
  - 1. 4 and 3 were admission scores for both groups
  - 2. 6=median for intervention group at discharge
  - 3. 4=median for control group at discharge (no change)
  - 4. between-group the intervention group showed median=1
  - 5. between-group the control group showed median=0
- V. Conclusion
  - A. “study findings indicate that the use of a bedside activity device-one that allows the patient to exercise at any time without supervision and targets specific muscle groups and movements needed for BADL-can slow or prevent functional decline and increase BADL independence.”
  - B. It is becoming more and more important for the developing and the implementation of innovative technology in the health care setting.

Monica Fan, P. E., Louis, J. K., Lim, X. Y., Subramaniam, S. G., Seow, J. P., Aloweni, F., Rajasegeran, D. D., Hsiang, C. C., Thilarajah, S., Agus, N. L., Ong, H. K., Ang, S. Y., & Kannusamy, P. (2023). Original research: Impact of a bedside activity device on the functional status of hospitalized older adults: A randomized controlled trial. *AJN, American Journal of Nursing, 123*(3), 22–29.  
<https://doi.org/10.1097/01.naj.0000920992.97182.ab>