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Clinical Application of Wearable Activity Tracker to Enhance Physical Activity Level of Patient in Orthopaedic Rehabilitation

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Introduction

A number of studies indicated that physical activity level in aged care rehabilitation settings is low. A similar sedentary situation is also observed among the elderly patients in our setting which is believed to be detrimental for their mobility and function.

Objectives

This study intends to increase the physical activity level of elderly orthopaedic patients with the use of mutually understandable activity data obtained by wearable activity tracker (MiBand), and hence achieving a higher functional status on discharge.

Methodology

Previously community dwelling elderly patients fulfilled preset criteria were recruited. Enrolled participants were provided with activity trackers and assigned into intervention or control group. Patients and their case therapists in intervention group were provided with daily activity data (i.e. steps count and active time) on every working day for reference in addition to the usual physiotherapy service received by control group.

Result

36 sets of completed data (19 intervention and 17 control group) from 47 participants were used for analysis. With similar age (79.00 vs 80.47) and baseline functional status on admission (Elderly mobility Scale (EMS) 8.37 vs 7.71; Modified Functional Ambulation Classification (MFAC) 4.47 vs 4.47), a significantly higher 7 day cumulative step counts (8238 steps vs 3297 steps) and active time (180 minutes vs 96 minutes) were found in patients in intervention group.

Comparable discharge functional outcomes (EMS 16.53 vs 15.18; MFAC 6.11 vs 5.88) were achieved with a shorter length of stay (16.79 days vs 20.35 days) from patients in intervention group implies the potential functional improvement from enhanced activity level.

In conclusion, the use of consumer grade wearable activity tracker was able to

enhance the activity level with more efficient functional gain in our target group.