

Publication

Diurnal profiles of pedometer-determined physical activity in chronically ill and mobility-limited older adults: a cross-sectional study

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The aim of this study was to analyze diurnal profiles of physical activity for community-dwelling adults aged 70 years and over, and to explore the moderating effect of sex, age, morbidity, mobility limitation, and season on physical activity throughout the day.; A sample of 149 primary health care patients (mean age 79.5 \pm 5.2 years, 74.5% females) was included in the analyses. Participants' physical activity was measured on up to six consecutive days via Omron Walking Style Pro HJ-720IT-E2 pedometer. Step count per day and per hour, and pedometer wear time were descriptively analyzed. A repeated measures ANOVA with physical activity per hour as dependent variable was performed to analyze the moderating effect of sex, age, morbidity, mobility limitation, and season on diurnal profiles of physical activity. The diurnal profile for the total sample and adjusted diurnal profiles for subgroups are presented.; Participants' daily step count averaged 3280 \pm 1873 steps/day. They wore the pedometer for 14.2 \pm 1.7 hours per day and walked on average 234 \pm 139 steps per hour. With respect to diurnal profiles, there were two peaks at 10-11 AM (mean [95%-confidence interval]: 382 [329-435] steps) and at 3-4 pm (313 [261-365] steps) interrupted by a period of lower activity with a low point at 1-2 pm (229 [190-268] steps). A mobility limitation, defined by use of a cane or a rollator, had a significant moderating effect ($p = 0.0237$) on diurnal physical activity.; This is the first study to explore pedometer-determined diurnal profiles of physical activity in chronically ill and mobility-limited older adults. Prolonging periods of elevated physical activity in the afternoon while respecting individual daily routine and commitments could be one option for facilitating the integration of physical activity and for making it a habit in older adults' daily lives. The use of a walking aid seems to be an indicator for a quite low activity plateau during the second half of the day. People who use walking aids should be motivated to increase their physical activity during afternoon; this might help to increase the overall low physical activity level of this vulnerable subgroup of older adults.

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