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Predictors of accelerometer-measured physical activity in real-life settings among older adults with cancer: the role of motivation and fatigue

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Purpose: Older adults with cancer are underrepresented in clinical trials and are predominantly inactive, particularly during treatment. Ecological momentary assessment (EMA) is an effective method to repeatedly capture real-world measures and dynamic psychological processes, such as motivation. This study aimed to observe motivational predictors of physical activity among older patients with cancer using EMA and accelerometers.

Methods: For 15 days, older adults with cancer (≥ 70 years) participated in EMA data collection and continuously wore a hip-mounted triaxial accelerometer (ActiGraph GT3X-BT) to measure their physical activity. Intention, affective and instrumental attitudes, social norms, perceived behavioral control, and fatigue, were collected in the morning and at midday. The analyses were performed using Multilevel Vector Autoregressive models.

Results: A total of 41 patients were recruited, and data from 31 participants (mean age = 79 years) were included in the analysis. Mean compliance was 77% for accelerometer wear and 81% for EMA responses. Mean daily acceleration averaged 9.5 mg in our study, which is approximately half that reported for healthy individuals of the same age. Intention positively predicted duration of moderate-intensity activity ($\beta = 0.19$, $p = 0.01$), while fatigue negatively predicted duration of light-intensity activity ($\beta = -0.10$, $p = 0.04$). In mixed models, intentions ($\beta = 0.24$, $p = 0.01$) and perceived behavioral control ($\beta = 0.09$, $p = 0.04$) were associated with higher-intensity activities within the most active 30-minute period of the day.

Conclusions: Intentions and perceived control drove moderate physical activity, while fatigue limited light activity, highlighting the need for intensity-specific strategies in older patients with cancer.

Keywords

Physical activity, Accelerometers, Motivation, Geriatric oncology

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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