Can activities of daily living be represented by the energy consumption?

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Background

• Number of elderly people increasing; at the same time increase of life expectancy
• Number of people with chronic disease / co-morbidity increasing
• Elderly people wish to live as long as possible in familiar surroundings
• Increased risk of accidents for older people living at home
• Limited evidence on technologies for activity & emergency recognition that improve safety of older people
• Emergency systems in place; however, often not used by elderly people

Objectives

• Activities of daily living can be identified through energy consumption
• Data generated from activity monitoring can detect health-related needs that necessitate nursing support
• Individualised movement patterns can be identified based on routine actions

ERED-Project – an Overview

timetable
• 2015 - 2018

participants
• N = 10, age 70+, live alone

Datacollection
• energy consumption
• activities of daily living

Milestone 1 (2015): Priorities are fixed


Milestone 2 (2017): Metrics and applications are defined

Work-Package 3 (2017): Proof of concept study
Measurements

• Activity documentation by means of an electronic diary and handwritten notes over 15 days

• Measurement of energy consumption (electricity and water consumption) over 6 mths
Exemplary results

- Correlation between food and drink preparation and small stove / kettle usage
- 22 activities of preparations detected by the energy consumption of devices
- 11 devices not detected
Exemplary results c’td: Preparing food and fridge lamp on
Discussion

• Findings suggest correlation between activities of daily living and energy consumption data; correlation may help to develop activity monitoring systems

• Benefit of activity monitoring systems: may be used to detect health-related needs -> development of nursing support

• System that identifies irregularities in activities of daily living might help elderly to live longer at home
Benefits of interprofess. work

• Understand / accept different professional role-identities

• Recognize expertise of different professions (appreciation)

• Develop responsibility for professional partnership

• Exchange information about experiences in interprofessional project settings, e.g. at congresses / symposia / during training
Thank you for your Attention

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Perspectives

• Opportunities to expand this activity monitoring system to other diseases / conditions with an increased risk for an accident at home (e.g. M. Parkinson; stroke)

• Inclusion of other parameters (e.g. water consumption; use of heating)

• Expansion of activity monitoring system to whole apartment complex

• Health care providers could base new services on energy consumption data