

Correlations of ADAMO mobility index with physical functioning and health status: preliminary results of an IMI SPRINTT Living Lab

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AIM

ADAMO is an innovative remote monitoring device for older adults produced by Caretek S.r.l. It allows to identify emergency situations such as falls and to monitor levels of mobility. ADAMO is constituted of a care watch and a base station receiving data from the watch. The watch records raw data from its sensors and, every 10 minutes, transmits them to the base station which forwards such information to the storage servers. Telemonitoring solutions may reduce clinical negative outcomes such as emergency visits, hospitalization, and hospital length of stay [1].

The present study, part of the project IMI SPRINTT, aims to evaluate **the association of the mobility index provided by ADAMO with physical functioning and health status indicators** in a sample of community-dwelling older adults.

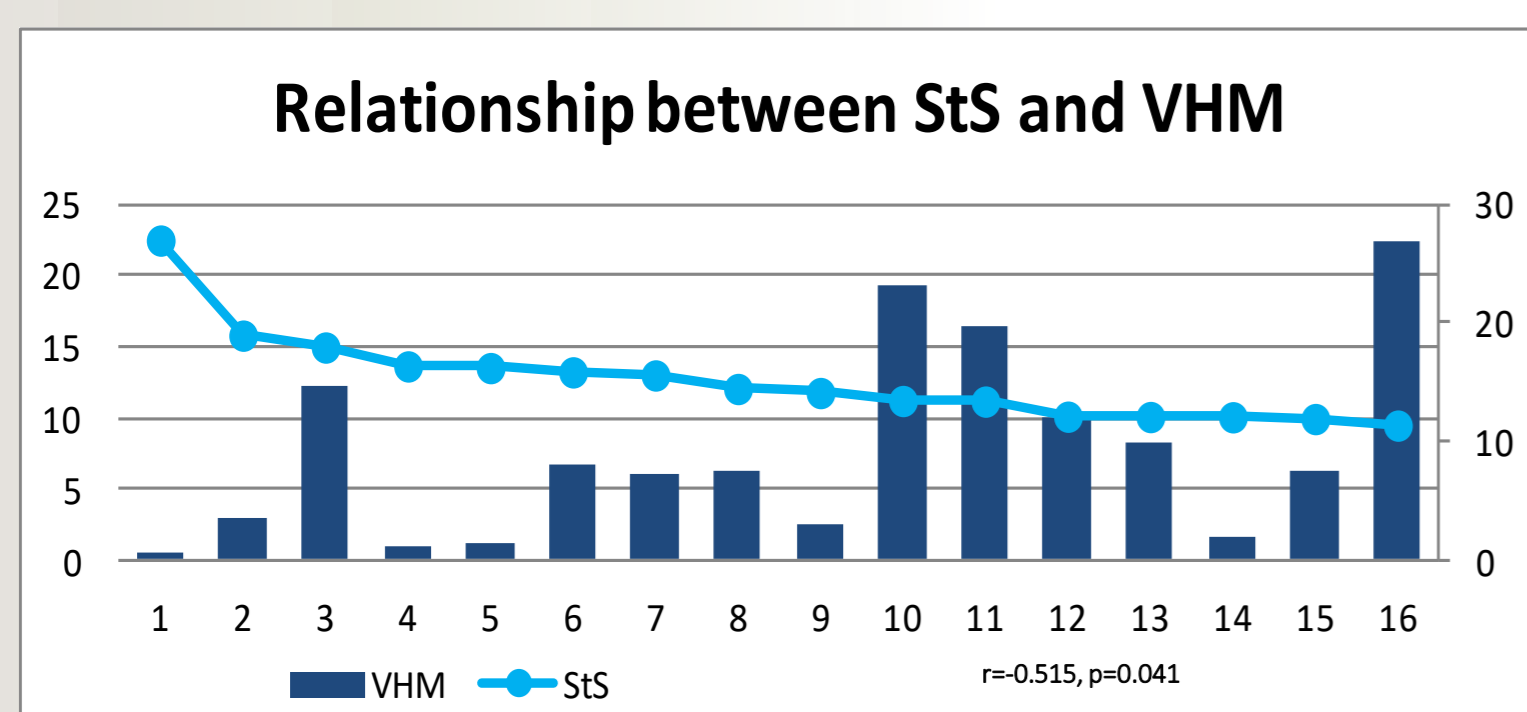


Figure 1

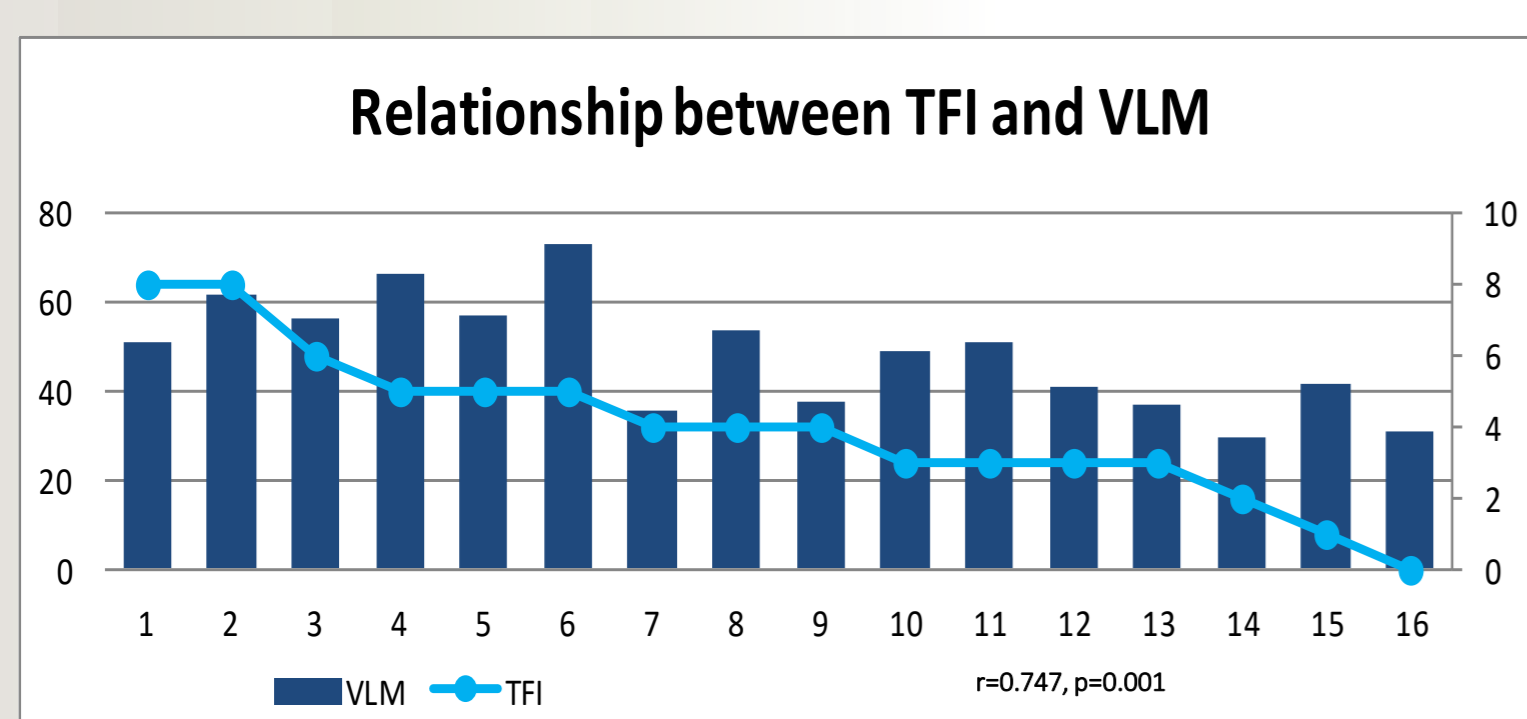


Figure 2

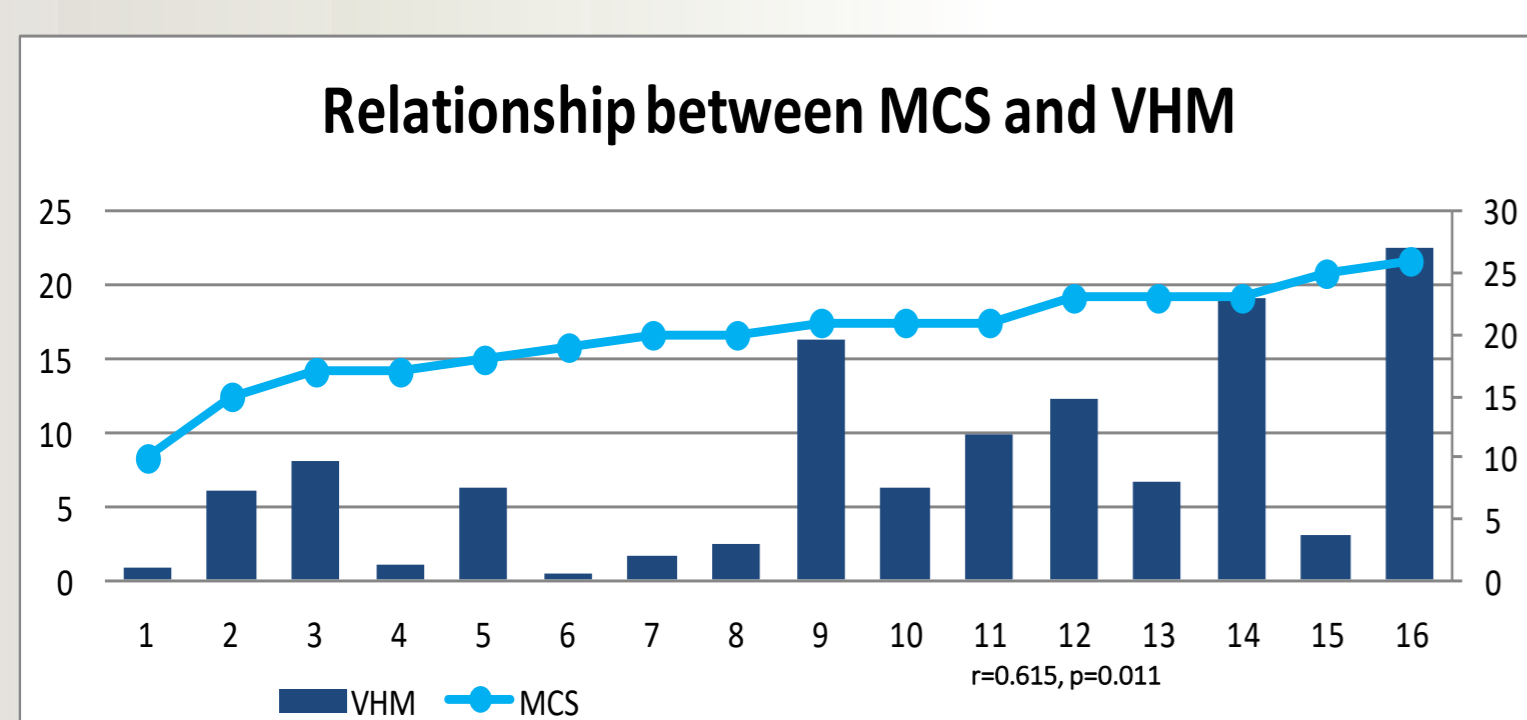


Figure 3

Sixteen older adults (72 ± 7 years, range 65-89 years; 50% of women) living in Piedmont and Lazio were enrolled in this study. People aged over 65 years willing to test a connected device, able to come to the test centre by themselves or accompanied by a family member, and able to understand and answer to the study's questionnaires were included. Those affected by any acute disease or chronic conditions that could contraindicate the execution of physical tests were excluded. ADAMO was continuously worn for a week.

The **mobility index** (MI) related to the 7-day period is a measure of the time spent performing physical activity in each of the following levels: Very Low (VLM), Low (LM), Medium (MM), High (HM), and Very High (VHM) Mobility. **Physical functioning** was assessed using the five repetition Sit to Stand test (StS) of the Short Physical Performance Battery [2]. **Health status** was investigated using: the Italian version of the Tilburg Frailty Indicator (TFI) [3] to evaluate frailty condition and the 12-Item Short-Form Health Survey [4] to evaluate quality of life, considering both the Physical Component (PCS) and the Mental Component Summary (MCS). Descriptive and Spearman correlation analysis were run.

METHODS

RESULTS

Participants showed mean values of MI corresponding to 48.1% for VLM, 13.8% for LM, 17.8% for MM, 12.6% for HM, and 7.7% for VHM. The mean value of the StS test was 15 s (SD=4). The mean of frailty score was 4 points (SD=2), with 6 (37.5%) people in a condition of frailty. The mean values of the PCS and the MCS were 15 (SD=2) and 20 (SD=4) points, respectively. The following **significant correlations** were found: i) StS with VHM ($r=-0.515$, $p=0.041$), Fig. 1 ; ii) TFI with VLM ($r=0.747$, $p=0.001$), Fig. 2, with MM ($r=-0.565$, $p=0.022$), with HM ($r=-0.512$, $p=0.043$); iii) MCS with VLM ($r=-0.516$, $p=0.041$), with HM ($r=0.487$, $p=0.055$), with VHM ($r=0.615$, $p=0.011$), Fig. 3. There were no significant correlations between the mobility index and the PCS.

These findings showed that **the MI detected by ADAMO is significantly associated with validated indicators of physical functioning and health status** in older adults. Specifically, people with a better performance in the StS test showed higher VHM. Those with a more severe frailty condition presented higher VLM and more reduced MM and HM. Lastly, at the increasing of mental well-being corresponded a lower VLM and higher HM and VHM.

Therefore it is possible to suggest that **ADAMO may be used as telemonitoring solution for older adults**, since it allows to obtain in a non-intrusive way data on mobility levels strictly related to wider information on individual health condition internationally accepted as references.

DISCUSSION

REFERENCES

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