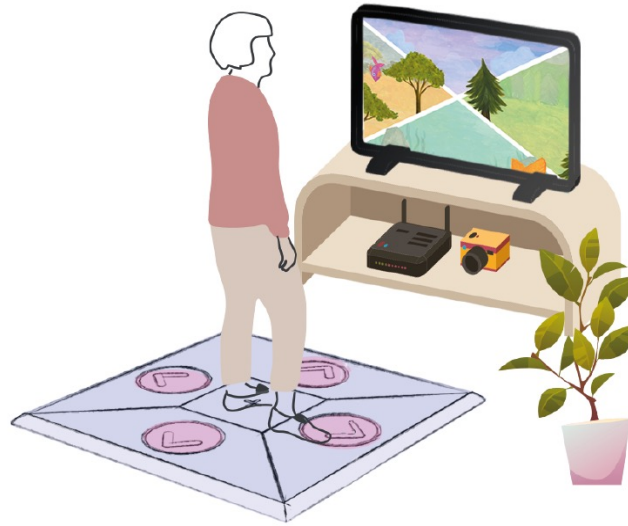


COCARE-project Study 2:

Usability and acceptance of the COCARE-system



Overview COCARE-system

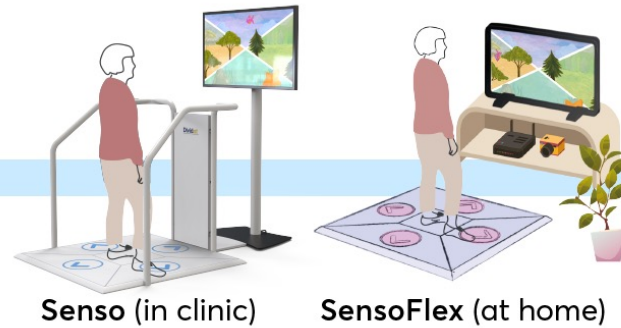


Training Devices

Rehab Cockpit



web-based centralized
management



Assessment System



(1) evaluation of functional status
(2) training recommendations

Research Questions

1. How do older adults (OA) and healthcare-professionals (HP) evaluate usability, acceptability, and enjoyment, and safety of the modified COCARE-system?
2. Which factors do they perceive as facilitators and which as barriers to the implementation at home?
3. Are the Usability measures associated with the older adults' performance during gameplay, demographics, and training-related motivational factors?



Methods

Methods – inclusion and exclusion criteria

Study sample	Inclusion criteria	Exclusion criteria
Older adults (OA)	• 60 years and older • Community-dwelling • Physically able to independently stand for at least 2 min	• sensory impairments (visual/auditor/color blindness)) which interfere with the use of the system • Mini Mental State Examination (MMSE) score < 20) • Terminal illness • Previous or current major psychiatric illness
Healthcare-professionals (HP)	• Actively involved in conducting physical or cognitive training sessions with older people • Registered and accredited members of the healthcare community	• No professional experience with older adults

Methods

Study procedure

Presentation and try out of all components of the COCARE-system:

➤ **Assessment system**

- Try out of some assessments
- Presentation of an exemplary assessment report (showing results and training recommendations)

➤ **Senso Flex**

- Set-up
- Try out of some exergames

➤ **Rehabilitation cockpit**

- Presentation of functions
 - Training overview
 - Training plan

Methods

Primary outcomes:

- Usability
- Acceptance
- Enjoyment
- Perceived safety

Methods

Secondary outcomes:

- Performance parameter
 - Games
 - Assessments
- Demographics
- Training motivation

Results

Demographics

Demographics older adults

	Total	Switzerland	Cyprus	Italy
Number of Participants	45	15	15	15
Age (mean)	71	70,9	67,7	74,6
Gender (f/m)	21/24	(8/7)	(4/11)	(9/6)
Mean years of education	14,5	14,8	15,1	13,6

Demographics

Demographics healthcare professionals

	Switzerland	Cyprus	Italy	Total
Age (mean)	28,8	31,4	36,4	32,2
Gender (f/m)	1 / 4	4 / 1	3 / 2	8 / 7
Number of years in healthcare (mean)	5,6	6,4	9,8	7,3

Usability

Exergames

- Satisfaction
 - High enjoyment scores
 - Recognition of cognitive and physical functions
 - Confirms previous studies: exergames are accepted by and usable for older adults
 - Only *Simon* and *Rocket* require good guidance

Usability

Assessment System

- Very positive ratings (by older adults and healthcare professionals)
- Wish to integrate video instructions

Senso Flex

- Older adults had significantly less problems with the set-up of the Senso Flex and navigation through the system than expected by HP
- Only minor hardware and software problems
 - Wish for embossed markings on the mat (for a tactile stimulus and better orientation on the mat)
 - Wish for more sensitive step-detection

Usability

Rehabilitaton cockpit and telerehabilitation

- Positive feedback
- Huge interest in future communication possibilities through the rehabilitation cockpit
 - Confirms positive findings of previous research concerning telerehabilitation
 - Mobile health = tool for faster communication, feeling of security
 - Remote support increases exercise adherence
- Healthcare professionals more critical about older adults' acceptance of the rehabilitation cockpit than older adults' themselves
 - Concerns: technological literacy

Enjoyment

- High enjoyment scores
 - In line with previous research
 - Crucial advantage of exergames
 - increased training motivation and adherence

Acceptance

- High among older adults and healthcare professionals
 - Usefulness well recognized by all participants
 - Healthcare professionals indeed willing to integrate system in their therapy
 - Social factors/personal contact important but the rehabilitation cockpit offers a solution for social interaction
 - Yet recommendations to further integrate more tools for social interaction

Safety

- 85% no fear of falling while playing the exergames
- 84% no pain
- 91% no dizziness

Correlation Analysis

- Performance in assessments and games: significant associations with usability, enjoyment and acceptance
- Training motivation: significant correlations especially with enjoyment
- Age: significant correlations with usability and acceptance
- Gender and years of education: no significant correlations with usability, acceptance or enjoyment

Conclusion

- Overall high scores of measures of usability, acceptance and enjoyment → negative aspects/wishes for improvement no big impact on perceived usability, acceptance and enjoyment



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