
POSTER ABSTRACT

SAPA: Gamification strategy against cognitive frailty

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The SAPA game is part of a project called fraAgiLe (fraagile.eu) aimed at mitigating frailty, specially in its pre-frail stage. This game is easy to use and to access for everybody with a tablet and internet connection, which means that many more citizens will become active parts of the health system in an autonomous and self-responsible way to prevent their frailty status from worsening. SAPA also works with addressing health determinants, as cognitive frailty is a syndrome whose main relevance comes from the fact that it evolves into many health complications, that lead to loss of autonomy.

SAPA game has different activities aimed at training multiple areas of cognitive frailty. The objective is to reach the exit door. He/she shall avoid several obstacles and collect the stars and the key. The different activities in the game work with abilities that are relevant to fight frailty, namely:

Memory

Spatial orientation

Attention

Executive functions (planifying)

Prospective memory

Selective attention

With all these tasks performed, the levels increase in difficulty, while the user improves both as a gamer and as a frailty patient. The healthcarers can also adjust the difficulty and the platform itself has an algorithm for personalisation as, the system collects data from his/her performance and generates level suggestions. Once the training has been going on for some months, and combined with nutritional and physical training, as well as frailty monitoring one more tool will be at disposal of the health professional for controlling the health-related situation.

The creation has involved both elders and carers. The testing of SAPA is being carried out in 2 phases (Lab Testing + Final Trial) and in 4 locations in Cyprus, Romania, Switzerland and Spain in health and day-care centres during 2 years. In these places, 60 users will perform the activities of the game and several tests in order to collect data and improve the system where possible. The remaining 40 participants will be part of the control group, whose role is to allow the comparison between groups. The tests include UTAUT for usability, combined with Tree Testing, Attention Based Engagement and Play Testing Questionnaire for the same purpose. These have drawn some results already in the Lab Testing, where 80% of the participants took less than 90 seconds to

understand SAPA without instructions, which is a positive result. Also 75% of them had a positive or very positive of the overall experience. As for the monitoring of the participants' health status, these tests are included: Initial Assessment designed by health professionals for obtaining general information followed by MMSE, IQCODE, AD8, MOCA, AMT, GDS and FAQ for the mental status and SPPB, FRIED's CRITERIA and MNA for the physical status. These tests have been placed in time by the team in order to avoid overlaps or over testing and so as to collect the best quality in the data, true to reality.

The key finding includes the possibility to merge several abilities in the training of cognitive frailty through gamification.