

ORAL SESSION 1: TECHNOLOGY FOR HEALTH

Digital technology for personalized multisensory stimulation to promote communication and engagement in dementia care

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Purpose Behavioral and psychological symptoms of dementia (BPSD) is a major unmet need in dementia care causing reduction in QoL for the person with dementia (PWD) and care burden and stress on caregivers. Person Centered Care (PCC) is holistic approach to dementia treatment that considers each individual's needs, desires, capabilities, and history and is widely regarded as best practice for preserving wellbeing and QoL for PWD. A key part of person centered care is maintaining relationships and communication which can often become challenging, and Cognitive Stimulation Therapy (CST) is a person-based approach to help PWD to stay mentally stimulated and engaged that has demonstrated benefits on cognition and QoL. However, introduction of PCC and CST into routine caregiving remains a challenge due to insufficient therapists and few tools are available to support implementation, especially in community settings. **Method** A digital platform to provide personalized multisensory cognitive stimulation using a tablet and other devices controlled by IoT and machine learning has been developed to support PCC and CST. The platform allows creation of stimulations from a variety of contents such as music, natural sounds, images, videos and smells which are customized to life history, interests, and preferences of individual PWD. The device was evaluated with 15 people living in 4 Long Term Care facilities in a single intervention. Each intervention was preceded by an interview with family members or care staff to create a profile of each PWD from which a set of personalized stimulations was prepared using CST concepts. These stimulations are presented to the PWD in the presence of a care giver using the tool during a session lasting approximately 30 minutes. Evaluations were conducted by assessment of engagement during the session using EPWDS and changes in the mental wellbeing and behaviour of the person with dementia before and after the intervention using MENFIS. In addition, feedback was obtained from the person with dementia and their care giver. **Results and Discussion** 13 people showed high engagement with the device and no one showed any negative reaction to the device. Although no clear pattern was seen for changes in wellbeing, some cases of reduction in agitation were observed and attributed to the intervention by carers. In general, both PWD and carers found the intervention sessions enjoyable and several carers reported that the device promoted extended concentration and spontaneous communication not usual for the PWD. These results suggest this device is able to promote communication and engagement by PWD, and further investigations are planned to assess the clinical potential of this device to become digital therapy for BPSD.

References

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Figure 1. Aikomi device