

Title

Towards the development of personalised CST interventions in people with cognitive impairments.

Theoretical background (250)

The recent worldwide increase in life expectancy has led to a growing interest in ageing trajectories from physiological to pathological cognitive decline (ISTAT, 2018): finding feasible solutions to manage cognitive decline accurately appears relevant. In this line, psychosocial interventions have demonstrated exemplary levels of effectiveness across several areas of individual functioning and different types and stages of cognitive decline (McDermott et al., 2019). Specifically, psychosocial interventions have resulted in more cost-effectiveness and have fewer side effects than pharmacological treatments (Moniz-Cook & Manthorpe, 2009). Such interventions consist of physical, cognitive, or social activities to maintain or improve personal functioning, interpersonal relationships, and well-being to minimise the risk of future disability.

Group-based cognitive stimulation therapy (CST) is the most recommended psychosocial intervention in clinical guidelines for people with mild to moderate dementia (National Institute for Health and Care Excellence (Great Britain), 2018).

However, at the same time, the literature review showing the effectiveness of psychosocial interventions did not provide information about the aspects of people who are most likely to benefit from CST (Livingston et al., 2020; Smith, 2005).

To offer effective and personalised care, it is necessary to identify the best way to tailor the offer of care.

Aims and Hypotheses

This study aims to define the cognitive and non-cognitive aspects of people with dementia that can represent the most reliable variables in forecasting the effectiveness of psychosocial interventions. Effectiveness will be measured by matching functional, cognitive, psychological and affective outcomes measured before and after the beginning of the CST intervention program.

These outcomes will be derived from quantitative and qualitative data and then modelled upon individual cognitive and non-cognitive aspects featuring the tested population.

Method

Participants: Participants will be recruited through local Alzheimer's Associations in Emilia Romagna. Six groups of 8 older adults (n=48) with mild-moderate dementia will undergo CST treatment. Trained operators will facilitate all groups.

Again, these participants and their primary caregivers (e.g., spouses, children, etc.) will be interviewed to assess the meaningful CST outcomes that the quantitative scale cannot capture. The people with dementia and their caregivers will be all invited to the interviews with no distinction of level of dementia. Although we reach saturation in the themes reported their words will be recorded and considered to create an index of importance of the aspects. The outcomes will then be proposed to the participants in a final discussion to evaluate and correct if what emerges from the qualitative analysis corresponds correctly to what they would express.

Tools

The following measures will be used.

Quantitative measures: Mini-Mental State Examination (Folstein, Folstein, & McHugh, 1975); Big23/10/2023 14:02:00-Five inventory 10 items (Guido, Peluso, Capestro, & Miglietta, 2015); Self-efficacy scale: (McAuley, 1993); Hospital anxiety and depression scale (HADS) (Costantini et al., 1999); UCLA-Loneliness (Boffo, 2012); Social Activity Measure (Sinyor, Schwartz, Peronnet, Brisson, & Seraganian, 1983); EU-Quol (EuroQol Group, 1990); IADL (Yam & Marsiske, 2013).

Qualitative measures: Individual or focus group semi-structured interviews will be conducted with people with mild-moderate dementia and primary caregivers (e.g., spouses, children, etc.) to identify meaningful CST outcomes. The decision to conduct individual or group interviews will depend on the availability of the

participants. Trained researchers will conduct the interviews. Interviews will be recorded and transcribed verbatim.

Procedures

- Identification of working components of CST in the literature: A quick literature review will be conducted to identify CST elements representing the "core components" that are likely critical to producing positive outcomes.
- Implementation of CST. The design of groups, inclusion and exclusion criteria and structured content of session activities will strictly follow CST manual practice guidelines.
- Quantitative assessments: CST effectiveness will be measured before and after the beginning of the CST intervention program. The outcomes will include functional, cognitive, psychological and affective indexes.
- Qualitative interviews: at the end of the CST program interviews will be conducted and analysed to extract those individual aspects that failed to be measured quantitative.
- Statistical data analysis. Functional, cognitive, psychological and affective outcomes will be correlated with the tested population's cognitive and non-cognitive outcomes.

Statistical analyses

Qualitative measures. For what concerns the semi-structured interviews, they will be analysed via inductive thematic analysis (Braun & Clarke, 2006). Participant recruitment will terminate when no additional themes emerge from the analysis of three consecutive interviews (Saunders et al., 2018).

Quantitative measures. A series of multivariate (MANOVA) analyses of variance and post hoc analysis will be performed, considering as dependent variables the coded outcomes of the semi-structured interviews, and cognitive and non-cognitive assessments.

Commitment to request ethical approval.

The protocol will be submitted as an amendment of an ongoing project to the UNIBO Ethics Committee.

Expected Results and Implications

We expect to identify the psychosocial and non-cognitive domains impacting the effectiveness of the CST program. The results will be helpful to better design personalised CST interventions on individual aspects.

References

- Boffo, M. (2012). Exploratory Structure Equation Modeling of the UCLA Loneliness Scale: A contribution to the Italian adaptation. *TPM - Testing, Psychometrics, Methodology in Applied Psychology*, (1), 345–363. doi: 10.4473/TPM19.4.7
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. doi: 10.1191/1478088706qp063oa
- EuroQol Group. (1990). EuroQol—A new facility for the measurement of health-related quality of life. *Health Policy (Amsterdam, Netherlands)*, 16(3), 199–208.
- Folstein, M. F., Folstein, S. E., & McHugh, P. F. (1975). «Mini-mental state». A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 12(3), 189–198.
- Gardini, S. (2021). *La terapia di stimolazione cognitiva: Un intervento efficace per la persona con demenza : programma base e di mantenimento della Cognitive Stimulation therapy (CST)* (2. ed). Milano: Franco Angeli.
- Guido, G., Peluso, A. M., Capestro, M., & Miglietta, M. (2015). An Italian version of the 10-item Big Five Inventory: An application to hedonic and utilitarian shopping values. *Personality and Individual Differences*, 76, 135–140.
- ISTAT. (2018). Il futuro demografico del paese. Previsioni regionali della popolazione residente al 2065 (base 1.1.2017). *Statistiche - Report*, 30.
- Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., ... Mukadam, N. (2020).

Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. *The Lancet*, 396(10248), 413–446. doi: 10.1016/S0140-6736(20)30367-6

McDermott, O., Charlesworth, G., Hogervorst, E., Stoner, C., Moniz-Cook, E., Spector, A., ... Orrell, M. (2019). Psychosocial interventions for people with dementia: A synthesis of systematic reviews. *Aging & Mental Health*, 23(4), 393–403. doi: 10.1080/13607863.2017.1423031

Moniz-Cook, E., & Manthorpe, J. (A c. Di). (2009). *Early psychosocial interventions in dementia: Evidence-based practice*. London: Kingsley.

National Institute for Health and Care Excellence (Great Britain). (2018). *Dementia: Assessment, management and support for people living with dementia and their carers*. Recuperato da <http://www.ncbi.nlm.nih.gov/books/NBK513207/>

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., ... Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, 52(4), 1893–1907. doi: 10.1007/s11135-017-0574-8

Sinyor, D., Schwartz, S. G., Peronnet, F., Brisson, G., & Seraganian, P. (1983). Aerobic fitness level and reactivity to psychosocial stress: Physiological, biochemical, and subjective measures. *Psychosomatic Medicine*, 45(3), 205–217.

Smith, L. B. (2005). Cognition as a dynamic system: Principles from embodiment. *Developmental Review*, 25(3–4), 278–298. doi: 10.1016/j.dr.2005.11.001

Spector, A., Thorgrimsen, L., Woods, B. O. B., Royan, L., Davies, S., BUTTERWORTH, M., & ORRELL, M. (2003). Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia. *The British Journal of Psychiatry*, 183(3), 248–254.

Yam, A., & Marsiske, M. (2013). Cognitive Longitudinal Predictors of Older Adults– Self-Reported IADL Function. *Journal of Aging and Health*, 25, 163S-185S. doi: 10.1177/0898264313495560

Project activities

- Ethical clearance
- Participants recruitment
- CST protocol administration
- Interviews of people with dementia and caregivers
- Data monitoring and analysis
- Drafting scientific paper/conference abstract
- Writing the final report

Training activities

- Deepening the understating of the factor underneath CST
- Deepening the qualitative and quantitative analysis procedures
- Supervision for scientific writing (papers and conference abstracts)

Timing of activities

Project activities	Mounths	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii
Ethical clearance	2	■											
Participants recruitment	8		■	■	■	■	■	■	■	■			
CST protocol administration	7			■	■	■	■	■	■				
Interviews of people with dementia and caregivers	7			■	■	■	■	■	■				
Data monitoring and analysis	5			■			■			■	■	■	
Drafting scientific paper/conference abstract	4									■	■	■	■



Feasibility

The main risk involves participant recruitment. People with dementia conditions can change in one year time. The number of people involved should guarantee the extraction of sufficient-quality indexes to indicate the aspects of people who are most likely to benefit from CST.