The effectiveness of a cognitive stimulation therapy on elders cognition and depressive symptoms

LINKING EVIDENCE TO ACTION

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The Portugal Centre for Evidence Based Practice: an affiliate centre of the Joanna Briggs Institute

Nursing School of Coimbra – UICISA-E

http:// www.esenfc.pt

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Nursing School of Coimbra - Established in 1881

Campus A



Laboratories.



Campus B

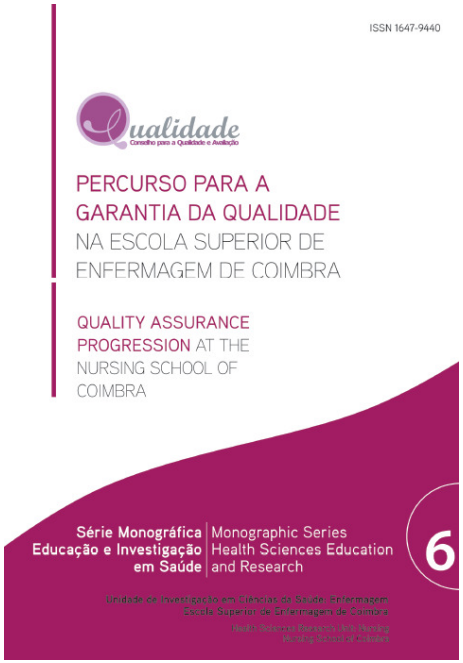


Campus C

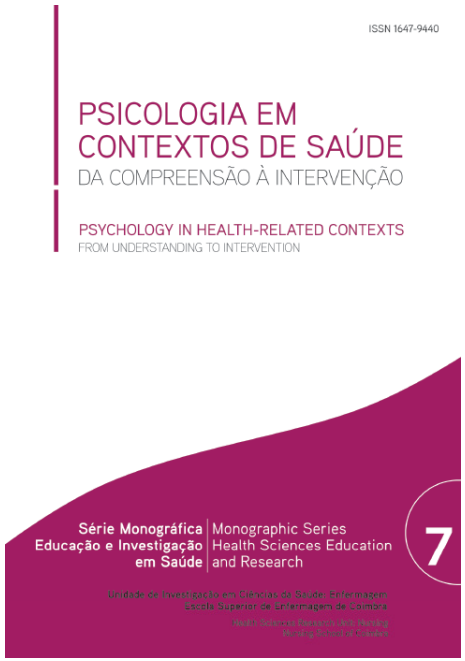


SCIENCE DISSEMINATION

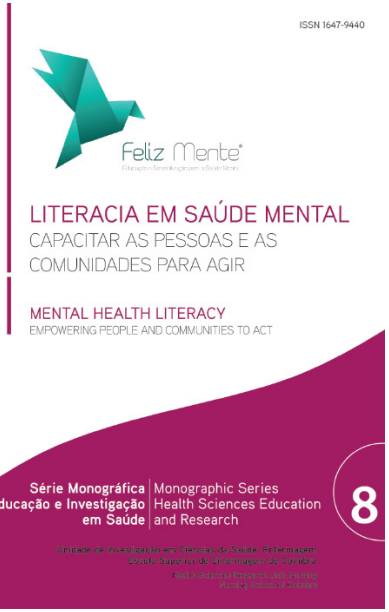
Monographic series











SCIENCE DISSEMINATION



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Referência

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Goal

Fulfilling the commitments established for the production of systematic reviews

Scope

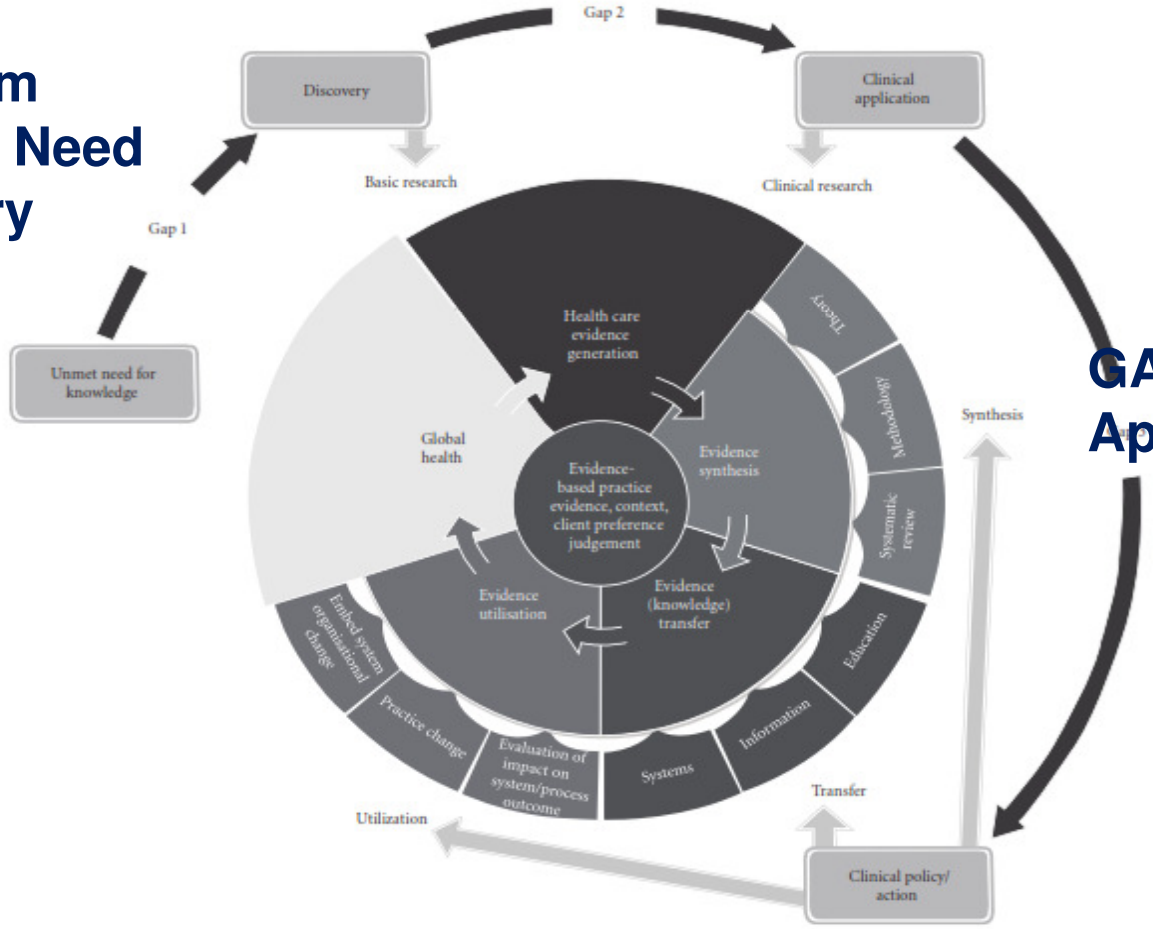
The Centre will engage in both academic and practice aspects of evidence generation, synthesis, transfer and utilization. Our Centre will focus on evidence synthesis.

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THREE TRANSLATION GAPS (Alan Pearson, Zoe Jordan, and Zachary Munn, 2011)

GAP 2: From Discovery to Clinical Application

GAP 1: From Knowledge Need to Discovery



GAP 3: From Clinical Application to Action IMPACT

FIGURE 4: The relationship between the translation science cycle and evidence-based healthcare.

Access to clinical decision support and tools/resources to facilitate evidence informed practice

- Resources such as:

Databases





Cochrane Library



Guidelines



Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

CDC Centers for Disease Control and Prevention



Comprehensive, bundled services (JBI COnNECT+ brought to you by OVID)







LINKING EVIDENCE TO ACTION

AN EXPERIENCE WITH IMPLEMENTATION OF EVIDENCE BASED NURSING

HEALTH SCIENCES RESEARCH UNIT NURSING
UNIDADE DE INVESTIGAÇÃO EM CIÊNCIAS DA SAÚDE ENFERMAGEM

Group **G2: WELLBEING, HEALTH AND ILLNESS**

SP **AGING, HEALTH AND CITIZENSHIP**

ASN **Cognitive stimulation in elderly**

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WHAT'S NEW?



DEMENTIA CHAPTER IN DSM-5 IS TITLED "NEUROCOGNITIVE DISORDERS,"

IN DSM-IV IT WAS TITLED "DELIRIUM, DEMENTIA, AMNESTIC, AND OTHER COGNITIVE DISORDERS."

Neurocognitive Disorders

DILIP V. JESTE, M.D. (2007–2011)
Chair Emeritus

DAN G. BLAZER, M.D., PH.D., M.P.H.
Chair

RONALD C. PETERSEN, M.D., PH.D.
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Mary Ganguli, M.D., M.P.H.,
Text Coordinator
Deborah Blacker, M.D., Sc.D.
Warachal Faison, M.D. *(2007–2008)*
Igor Grant, M.D.
Eric J. Lenze, M.D.
Jane S. Paulsen, Ph.D.
Perminder S. Sachdev, M.D., Ph.D.

What's New?

The term *dementia* is retained in DSM-5 for continuity and may be used in settings where physicians and patients are accustomed to this term. Although dementia is the customary term for disorders like the degenerative dementias that usually affect older adults, the term *neurocognitive disorder* is widely used and often preferred for conditions affecting younger individuals, such as impairment secondary to traumatic brain injury or HIV infection. Furthermore, the major NCD definition is somewhat broader than the term *dementia*, in that individuals with substantial decline in a single domain can receive this diagnosis, most notably the DSM-IV category of "Amnestic Disorder," which would now be diagnosed as major NCD due to another medical condition and for which the term *dementia* would not be used.

Criteria for Mild vs. Major NCD

A. Neurocognitive decline

1. Report by patient, informant, clinician

AND

2. Neurocognitive deficits: 1-2 vs. >2 SD's

B. Interference with independence in IADLs (- even with greater effort, etc.)

C. Not exclusively due to delirium

D. Not primarily attributable to other Axis 1 psychiatric disorders

Neurocognitive Domains

Complex attention

Executive abilities

Learning/Memory

Language

Visuoconstruction

Visuoperception

Social cognition

TABLE 1 Neurocognitive domains

Cognitive domain	Examples of symptoms or observations	Examples of assessments
Complex attention (sustained attention, divided attention, selective attention, processing speed)	*Major:* Has increased difficulty in environments with multiple stimuli (TV, radio, conversation); is easily distracted by competing events in the environment. Is unable to attend unless input is restricted and simplified. Has difficulty holding new information in mind, such as recalling phone numbers or addresses just given, or reporting what was just said. Is unable to perform mental calculations. All thinking takes longer than usual, and components to be processed must be simplified to one or a few. *Mild:* Normal tasks take longer than previously. Begins to find errors in routine tasks; finds work needs more double-checking than previously. Thinking is easier when not competing with other things (radio, TV, other conversations, cell phone, driving).	*Sustained attention:* Maintenance of attention over time (e.g., pressing a button every time a tone is heard, and over a period of time). *Selective attention:* Maintenance of attention despite competing stimuli and/or distractors: hearing numbers and letters read and asked to count only letters. *Divided attention:* Attending to two tasks within the same time period: rapidly tapping while learning a story being read. Processing speed can be quantified on any task by timing it (e.g., time to put together a design of blocks; time to match symbols with numbers; speed in responding, such as counting speed or serial 3 speed).
Executive function (planning, decision making, working memory, responding to feedback/error correction, overriding habits/inhibition, mental flexibility)	*Major:* Abandons complex projects. Needs to focus on one task at a time. Needs to rely on others to plan instrumental activities of daily living or make decisions. *Mild:* Increased effort required to complete multistage projects. Has increased difficulty multitasking or difficulty resuming a task interrupted by a visitor or phone call. May complain of increased fatigue from the extra effort required to organize, plan, and make decisions. May report that large social gatherings are more taxing or less enjoyable because of increased effort required to follow shifting conversations.	*Planning:* Ability to find the exit to a maze; interpret a sequential picture or object arrangement. *Decision making:* Performance of tasks that assess process of deciding in the face of competing alternatives (e.g., simulated gambling). *Working memory:* Ability to hold information for a brief period and to manipulate it (e.g., adding up a list of numbers or repeating a series of numbers or words backward). *Feedback/error utilization:* Ability to benefit from feedback to infer the rules for solving a problem. *Overriding habits/inhibition:* Ability to choose a more complex and effortful solution to be correct (e.g., looking away from the direction indicated by an arrow; naming the color of a word's font rather than naming the word). *Mental/cognitive flexibility:* Ability to shift between two concepts, tasks, or response rules (e.g., from number to letter, from verbal to key-press response, from adding numbers to ordering numbers, from ordering objects by size to ordering by color).

TABLE 1 Neurocognitive domains *(continued)*

Cognitive domain	Examples of symptoms or observations	Examples of assessments
Learning and memory (immediate memory, recent memory [including free recall, cued recall, and recognition memory], very-long-term memory [semantic; autobiographical], implicit learning)	*Major:* Repeats self in conversation, often within the same conversation. Cannot keep track of short list of items when shopping or of plans for the day. Requires frequent reminders to orient to task at hand. *Mild:* Has difficulty recalling recent events, and relies increasingly on list making or calendar. Needs occasional reminders or re-reading to keep track of characters in a movie or novel. Occasionally may repeat self over a few weeks to the same person. Loses track of whether bills have already been paid. **Note:** Except in severe forms of major neurocognitive disorder, semantic, autobiographical, and implicit memory are relatively preserved, compared with recent memory.	*Immediate memory span:* Ability to repeat a list of words or digits. **Note:** Immediate memory sometimes subsumed under "working memory" (see "Executive Function"). *Recent memory:* Assesses the process of encoding new information (e.g., word lists, a short story, or diagrams). The aspects of recent memory that can be tested include 1) free recall (the person is asked to recall as many words, diagrams, or elements of a story as possible); 2) cued recall (examiner aids recall by providing semantic cues such as "List all the food items on the list" or "Name all of the children from the story"); and 3) recognition memory (examiner asks about specific items—e.g., "Was 'apple' on the list?" or "Did you see this diagram or figure?"). Other aspects of memory that can be assessed include semantic memory (memory for facts), autobiographical memory (memory for personal events or people), and implicit (procedural) learning (unconscious learning of skills).
Language (expressive language [including naming, word finding, fluency, and grammar, and syntax] and receptive language)	*Major:* Has significant difficulties with expressive or receptive language. Often uses general-use phrases such as "that thing" and "you know what I mean," and prefers general pronouns rather than names. With severe impairment, may not even recall names of closer friends and family. Idiosyncratic word usage, grammatical errors, and spontaneity of output and economy of utterances occur. Stereotypy of speech occurs; echolalia and automatic speech typically precede mutism. *Mild:* Has noticeable word-finding difficulty. May substitute general for specific terms. May avoid use of specific names of acquaintances. Grammatical errors involve subtle omission or incorrect use of articles, prepositions, auxiliary verbs, etc.	*Expressive language:* Confrontational naming (identification of objects or pictures); fluency (e.g., name as many items as possible in a semantic [e.g., animals] or phonemic [e.g., words starting with "f"] category in 1 minute). *Grammar and syntax* (e.g., omission or incorrect use of articles, prepositions, auxiliary verbs): Errors observed during naming and fluency tests are compared with norms to assess frequency of errors and compare with normal slips of the tongue. *Receptive language:* Comprehension (word definition and object-pointing tasks involving animate and inanimate stimuli): performance of actions/activities according to verbal command.

TABLE 1 Neurocognitive domains *(continued)*

Cognitive domain	Examples of symptoms or observations	Examples of assessments
Perceptual-motor (includes abilities subsumed under the terms *visual perception, visuo-constructional, perceptual-motor, praxis,* and *gnosis*)	*Major:* Has significant difficulties with previously familiar activities (using tools, driving motor vehicle), navigating in familiar environments; is often more confused at dusk, when shadows and lowering levels of light change perceptions. *Mild:* May need to rely more on maps or others for directions. Uses notes and follows others to get to a new place. May find self lost or turned around when not concentrating on task. Is less precise in parking. Needs to expend greater effort for spatial tasks such as carpentry, assembly, sewing, or knitting.	*Visual perception:* Line bisection tasks can be used to detect basic visual defect or attentional neglect. Motor-free perceptual tasks (including facial recognition) require the identification and/or matching of figures—best when tasks cannot be verbally mediated (e.g., figures are not objects); some require the decision of whether a figure can be "real" or not based on dimensionality. *Visuoconstructional:* Assembly of items requiring hand-eye coordination, such as drawing, copying, and block assembly. *Perceptual-motor:* Integrating perception with purposeful movement (e.g., inserting blocks into a form board without visual cues; rapidly inserting pegs into a slotted board). *Praxis:* Integrity of learned movements, such as ability to imitate gestures (wave goodbye) or pantomime use of objects to command ("Show me how you would use a hammer"). *Gnosis:* Perceptual integrity of awareness and recognition, such as recognition of faces and colors.
Social cognition (recognition of emotions, theory of mind)	*Major:* Behavior clearly out of acceptable social range; shows insensitivity to social standards of modesty in dress or of political, religious, or sexual topics of conversation. Focuses excessively on a topic despite group's disinterest or direct feedback. Behavioral intention without regard to family or friends. Makes decisions without regard to safety (e.g., inappropriate clothing for weather or social setting). Typically, has little insight into these changes. *Mild:* Has subtle changes in behavior or attitude, often described as a change in personality, such as less ability to recognize social cues or read facial expressions, decreased empathy, increased extraversion or introversion, decreased inhibition, or subtle or episodic apathy or restlessness.	*Recognition of emotions:* Identification of emotion in images of faces representing a variety of both positive and negative emotions. *Theory of mind:* Ability to consider another person's mental state (thoughts, desires, intentions) or experience—story cards with questions to elicit information about the mental state of the individuals portrayed, such as "Where will the girl look for the lost bag?" or "Why is the boy sad?"

DSM 5 Criteria

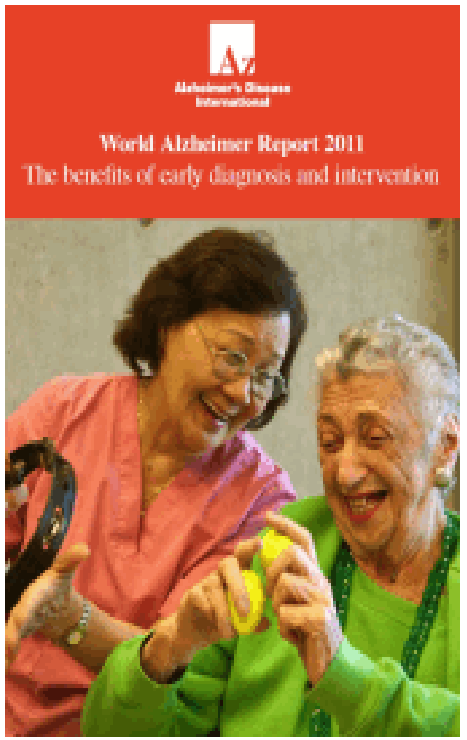
- Disorders in this section are attributable to changes in brain structure, function, or chemistry. The etiologies of these syndromes, when known, are to be coded as subtypes.

Subclassification by Etiology

Alzheimer's disease
Lewy body Disease
Frontotemporal dementia
Vascular neurocognitive impairment
Traumatic brain injury
HIV
Huntington's disease
Other causes

Assuming that 60% of people with dementia living in high income countries, and 90% of those living in low and middle income countries have yet to receive a diagnosis, it is possible that up to 28 million of the world's 36 million people with dementia do not receive evidence-based treatment and care.

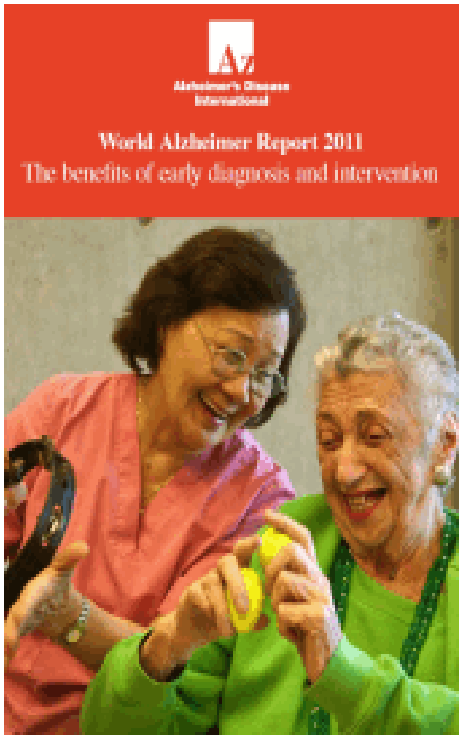




Prince M, Bryce R, Ferri C: *World Alzheimer report: the benefits of early diagnosis and intervention*. Alzheimer's Disease International; 2011.

http://www.alz.co.uk/worldreport2011

Conclusions and Recommendations

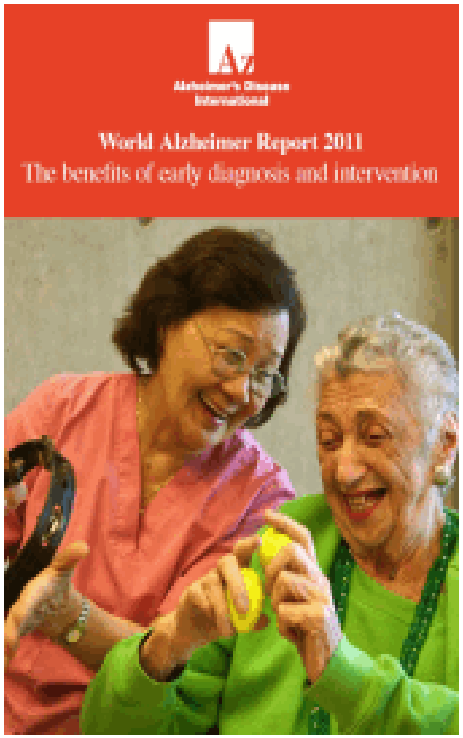


Acetylcholinesterase inhibitors and cognitive stimulation may enhance cognitive function in people with mild Alzheimer's disease, and these interventions should therefore be routinely offered.

Cognitive stimulation may also be effective across dementia subtypes

Prince M, Bryce R, Ferri C: *World Alzheimer report: the benefits of early diagnosis and intervention*. Alzheimer's Disease International; 2011.
http://www.alz.co.uk/worldreport2011

Conclusions and Recommendations



CS may also prove to be effective therapy for people with early stage dementia, either complementing treatment with AChEIs or as the main therapy to support cognitive function in those who do not meet evidence-based criteria for AChEIs

CS targets cognitive and social function, through reality orientation, activities, games and discussions, prioritising information-processing rather than knowledge.

Prince M, Bryce R, Ferri C: *World Alzheimer report: the benefits of early diagnosis and intervention*. Alzheimer's Disease International; 2011.

http://www.alz.co.uk/worldreport2011

Cognitive stimulation to improve cognitive functioning in people with dementia (Review)

Woods B, Aguirre E, Spector AE, Orrell M 2012

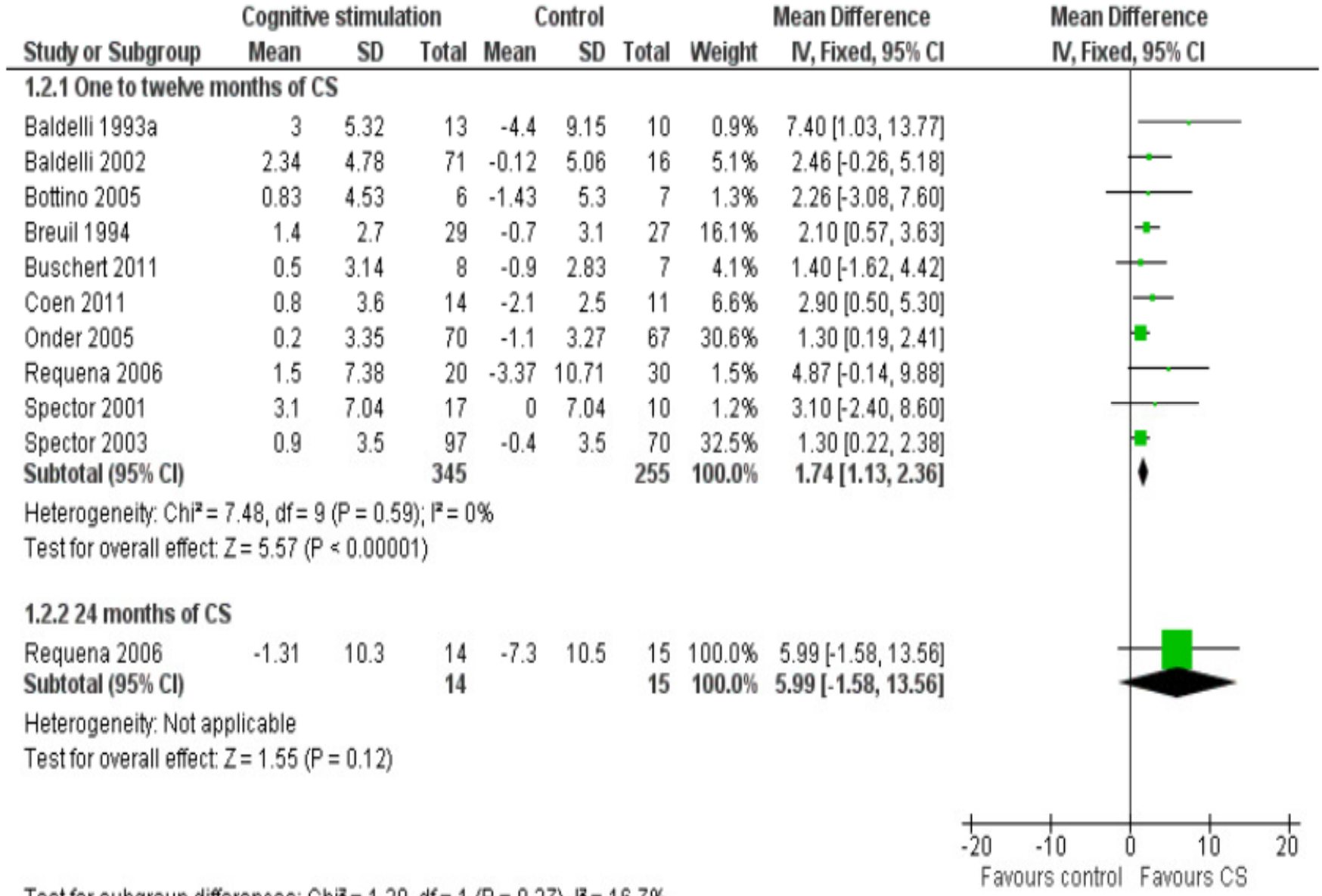
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AUTHORS' CONCLUSIONS

Consistent evidence that CSP benefit cognition in people with mild to moderate dementia over and above any medication effects.

Trials were of variable quality with small sample sizes and only limited details of the randomisation method were apparent in a number of the trials.

Figure 3. Forest plot of comparison: 1 Cognitive Stimulation vs No Cognitive Stimulation, outcome: MMSE.



CST Intervention Key Principles

- 1. Using new ideas, thoughts and associations
- 2. Using orientation (both sensitively and implicitly)
- 3. A focus on opinions rather than facts
- 4. Using reminiscence as an aid to the here and now
- 5. Providing triggers to aid recall
- 6. Creation of continuity and consistency between sessions
- 7. Stimulating language
- 8. Stimulating executive functioning being person Centered
- 9. Multi-sensory stimulation

CST COGNITIVE STIMULATION THERAPY FOR DEMENTIA

The programme

1) 14, 45 minute sessions (2 x week, 7 weeks)

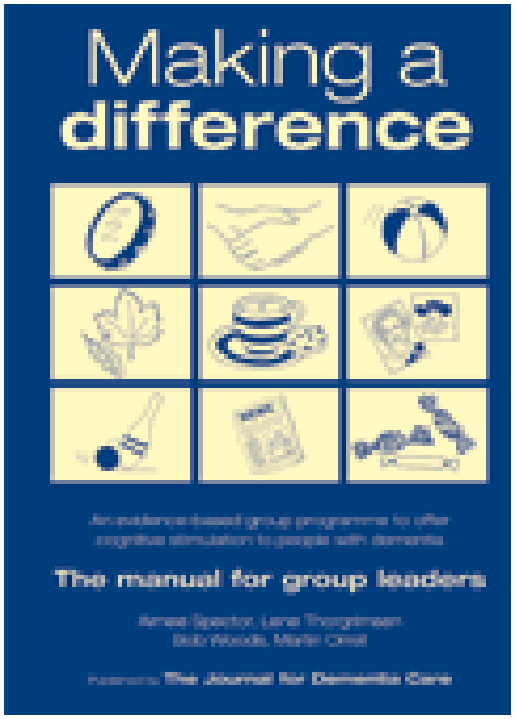
2) Participants asked to give a group name

3) RO board

4) Sessions begin with warm up exercise

5) Bridging between sessions, consistency in time, place, participants and facilitators

6) Presenting sessions in a fun and stimulating way



CST trial (Spector et al., 2003)

The study

JOURNAL OF NURSING SCHOLARSHIP

CLINICAL SCHOLARSHIP

The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial

João Luís Alves Apóstolo, RN, PhD[1], Daniela Filipa Batista Cardoso, RN[2], Ana Isabel Rosa, RN, MSN[3], & Constança Paúl, PhD[4]

1 Phi XI Coordinator Professor Health Sciences Research Unit: Nursing, Portugal, Nursing School of Coimbra, Coimbra Portugal
2 Research Grant Holder, Portugal Centre for Evidence-Based Practice: an Affiliate Centre of the Joanna Briggs Institute (Health Sciences Research Unit: Nursing, Nursing School of Coimbra), Coimbra Portugal
3 Health Sciences Research Unit: Nursing, Portugal, Nursing School of Coimbra, Coimbra Portugal
4 Full Professor Research UNIFAI/ICBAS, University of Porto, Porto Portugal

JOURNAL OF NURSING SCHOLARSHIP

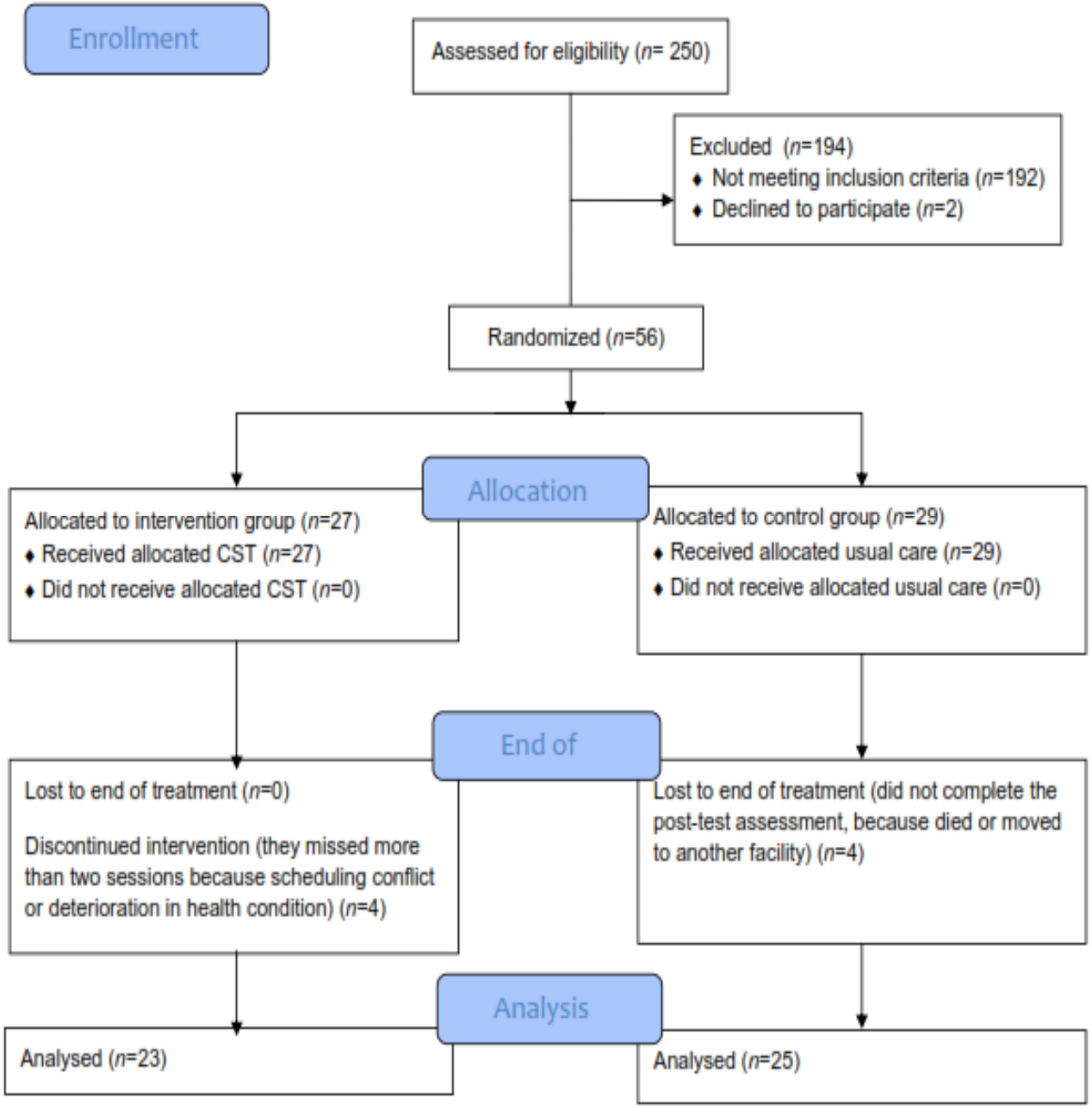
The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial

Purpose: This paper describes the effectiveness of cognitive stimulation therapy (CST) on cognition and depressive symptoms in older adults in nursing homes (NHs).

Design: A randomized controlled trial, carried out from 2012 to 2013, included 56 residents from four NHs, 36 women and 20 men (randomized into experimental and control groups). Eight participants dropped out.

JOURNAL OF NURSING SCHOLARSHIP

The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial



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The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial

Methods: Participants of the experimental group underwent 14 CST sessions (7 weeks) in groups of six to eight older adults, and participants of the control group received usual care. The Montreal Cognitive Assessment, the Geriatric Depression Scale-15, and the Barthel Index of activities of daily living (ADLs) were administered at baseline and postintervention.

Journal of Nursing Scholarship

The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial

Table 2. Evolution of Experimental and Control Groups of Nursing Home Elders on Cognition and Depressive Symptoms

		Baseline		Postinterv ention		Paired *t*-test (baseline/postinterv ention)		Mean difference (baseline) /postintervention)		Repeated measures	
Outcomes	Groups	*M*	*SD*	*M*	*SD*	*t*	*p*[a]	*M*	*SD*	*F*	*p*
Cognition (MoCA)	EG	17.22	5.04	19.00	5.82	−2.388	.013	1.78	3.58	8.581	.005
	CG	16.88	4.68	15.88	4.82	1.659	.055	−1.00	3.01		
Depressive symp-toms (GDS-15)	EG	6.17	4.36	5.61	3.70	1.084	.145	0.57	2.50	1.090	.302
	CG	6.88	3.88	7.08	3.59	−0.397	.348	−0.20	2.52		

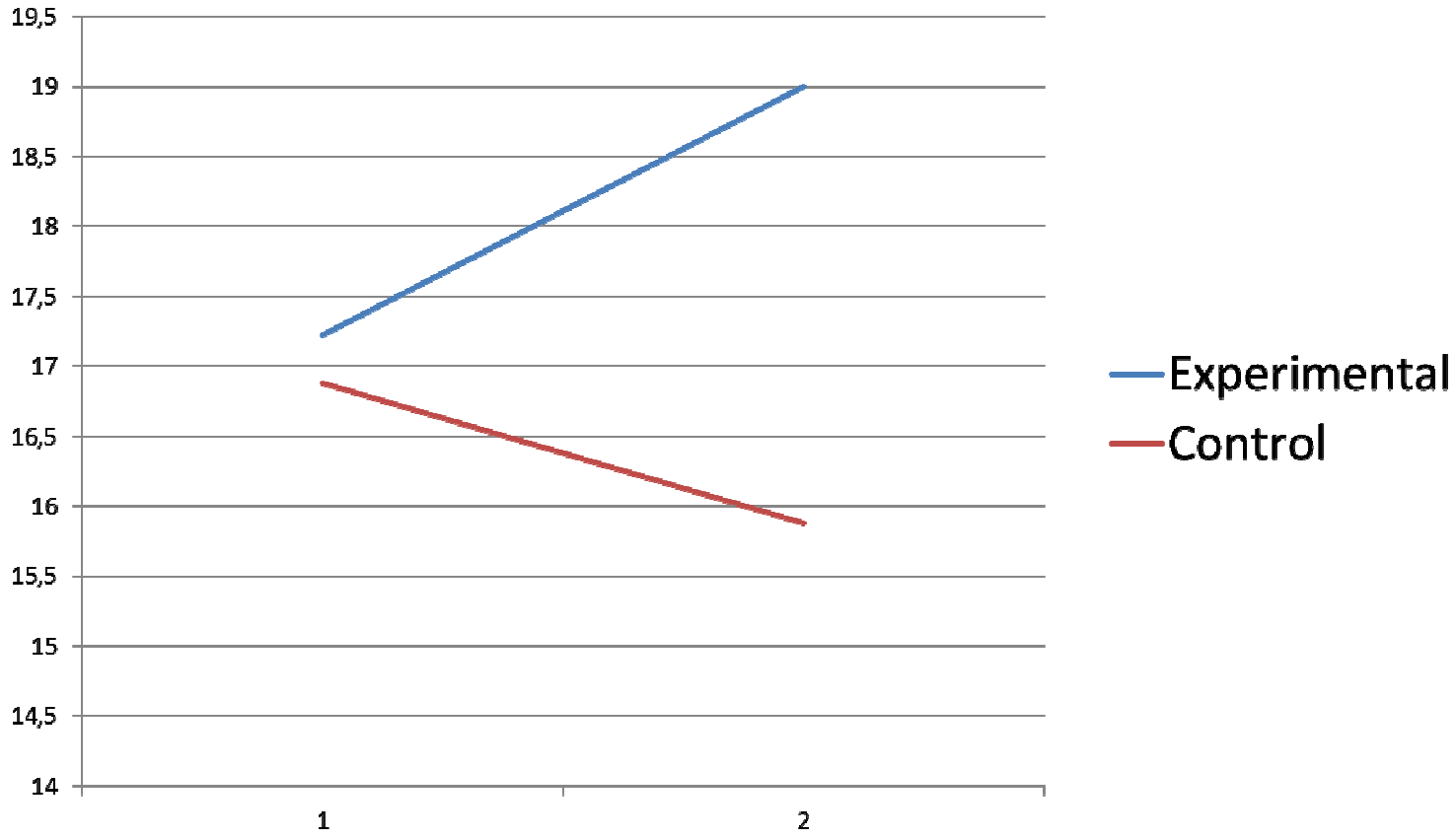
Note EG = experimental group; CG = control group; MoCA = Montreal Cognitive Assessment; GDS-15 = Geriatric Depression Scale-15.

[a]One-tailed.

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The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial

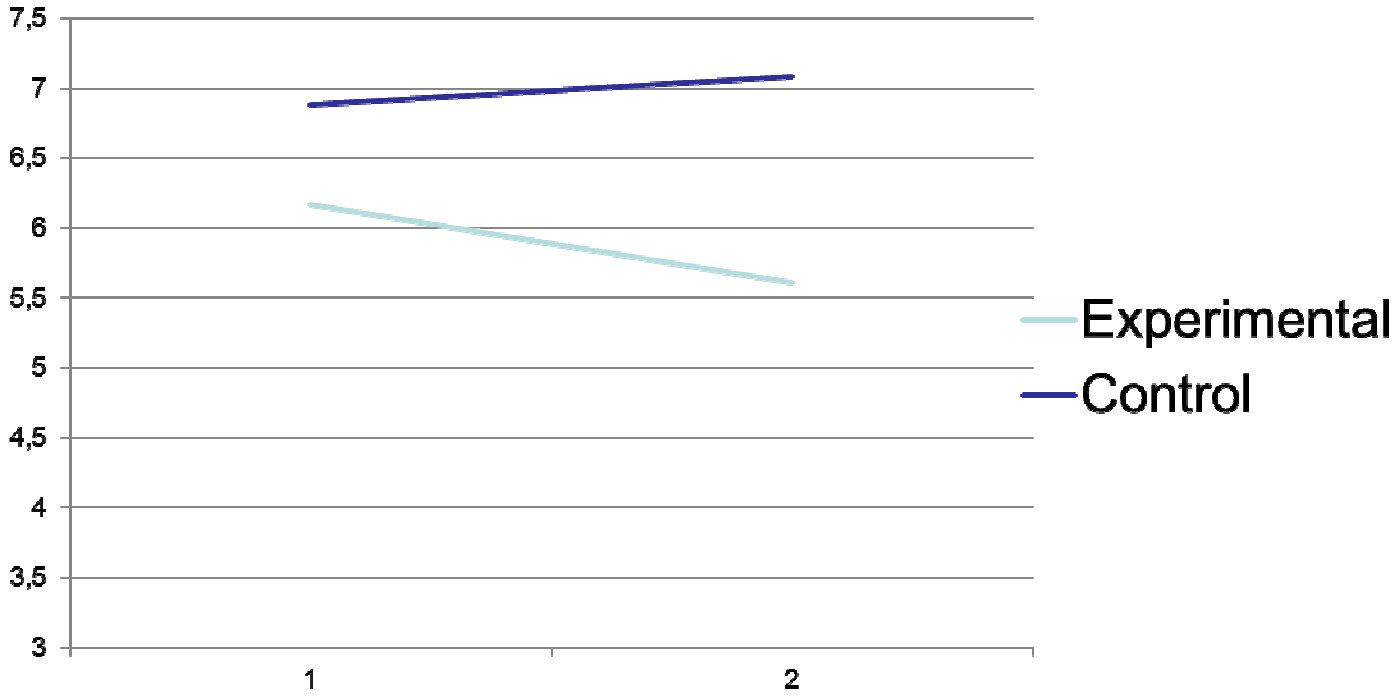
MOCA



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The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial

GDS-15



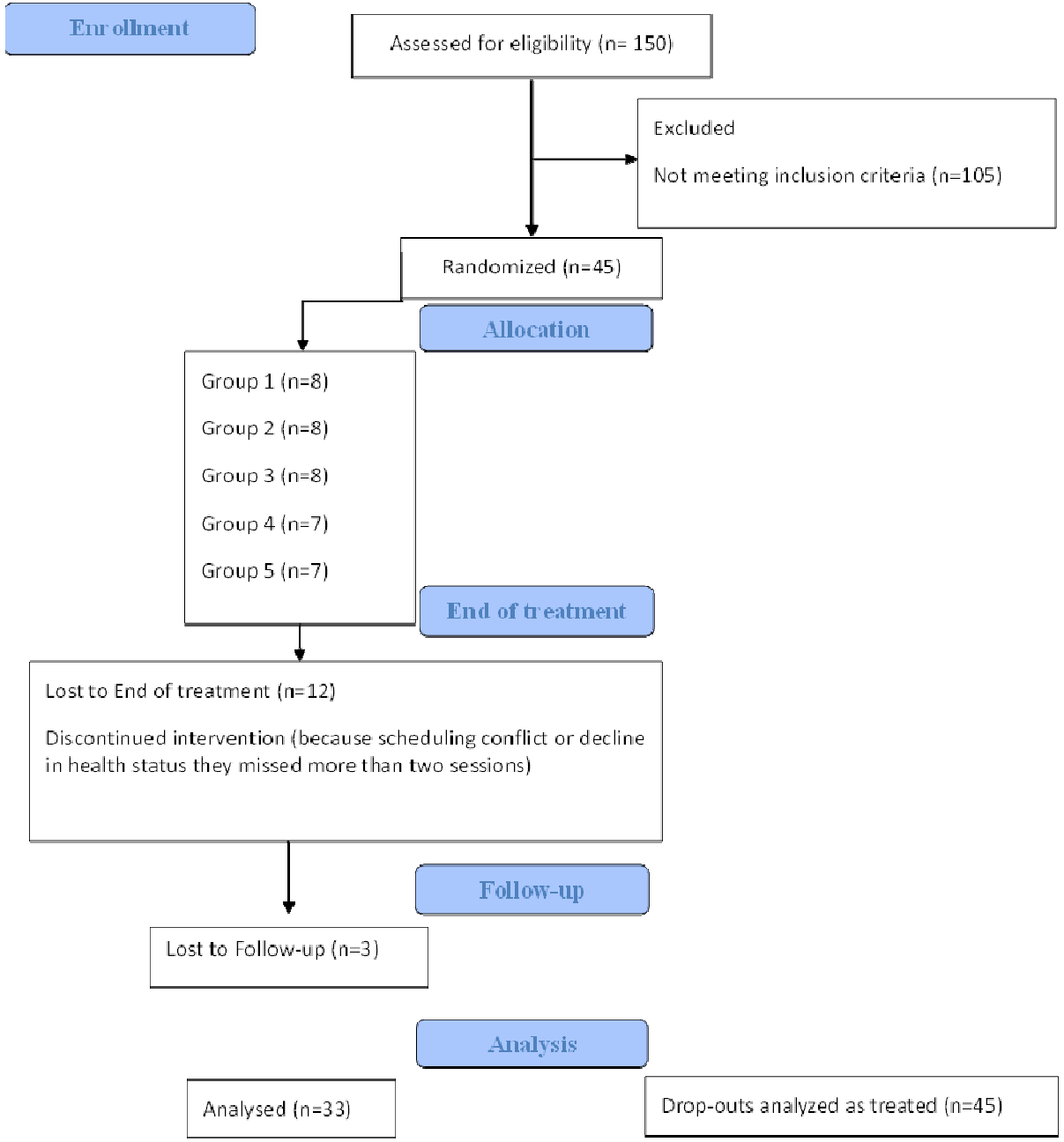
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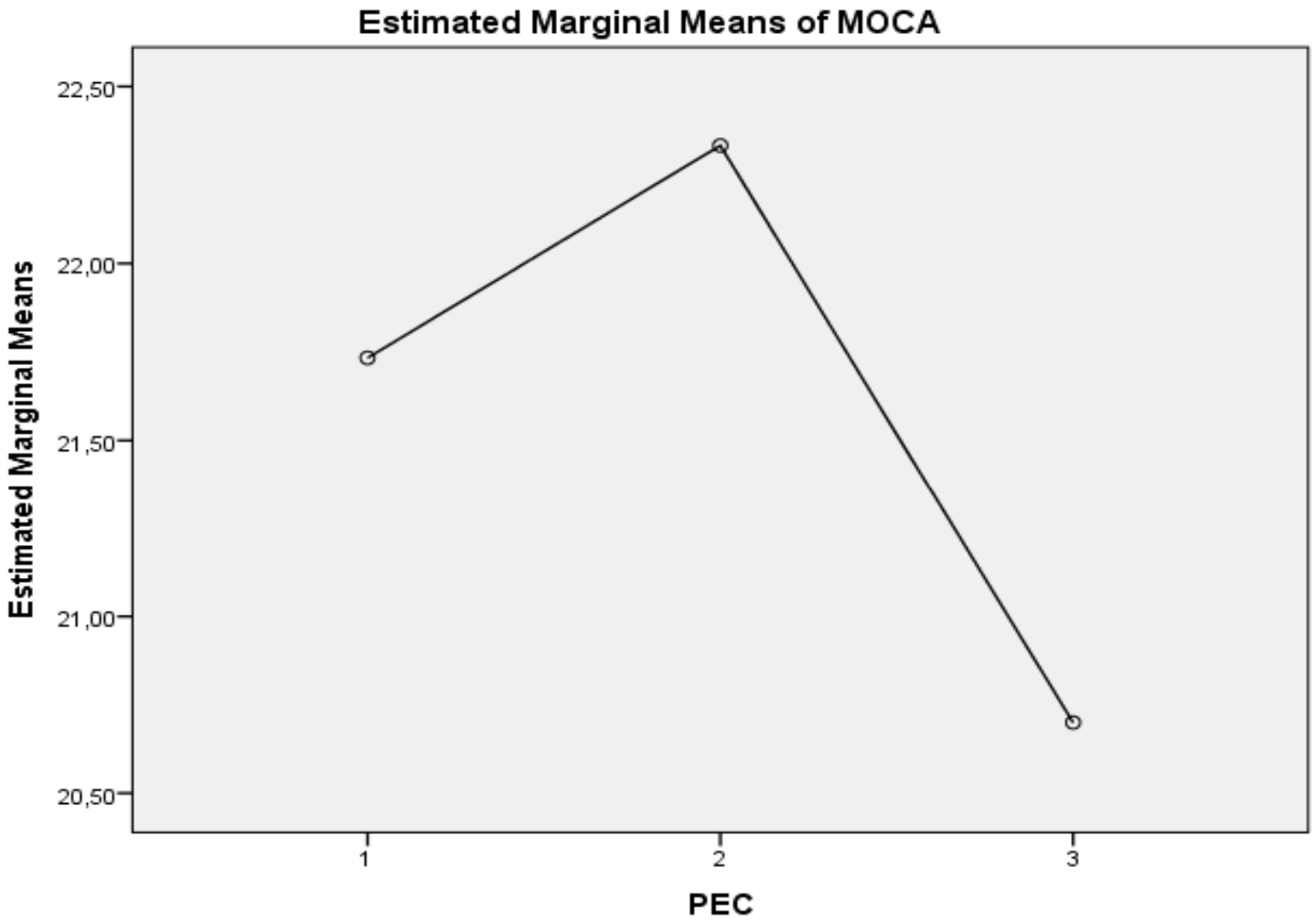
The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial

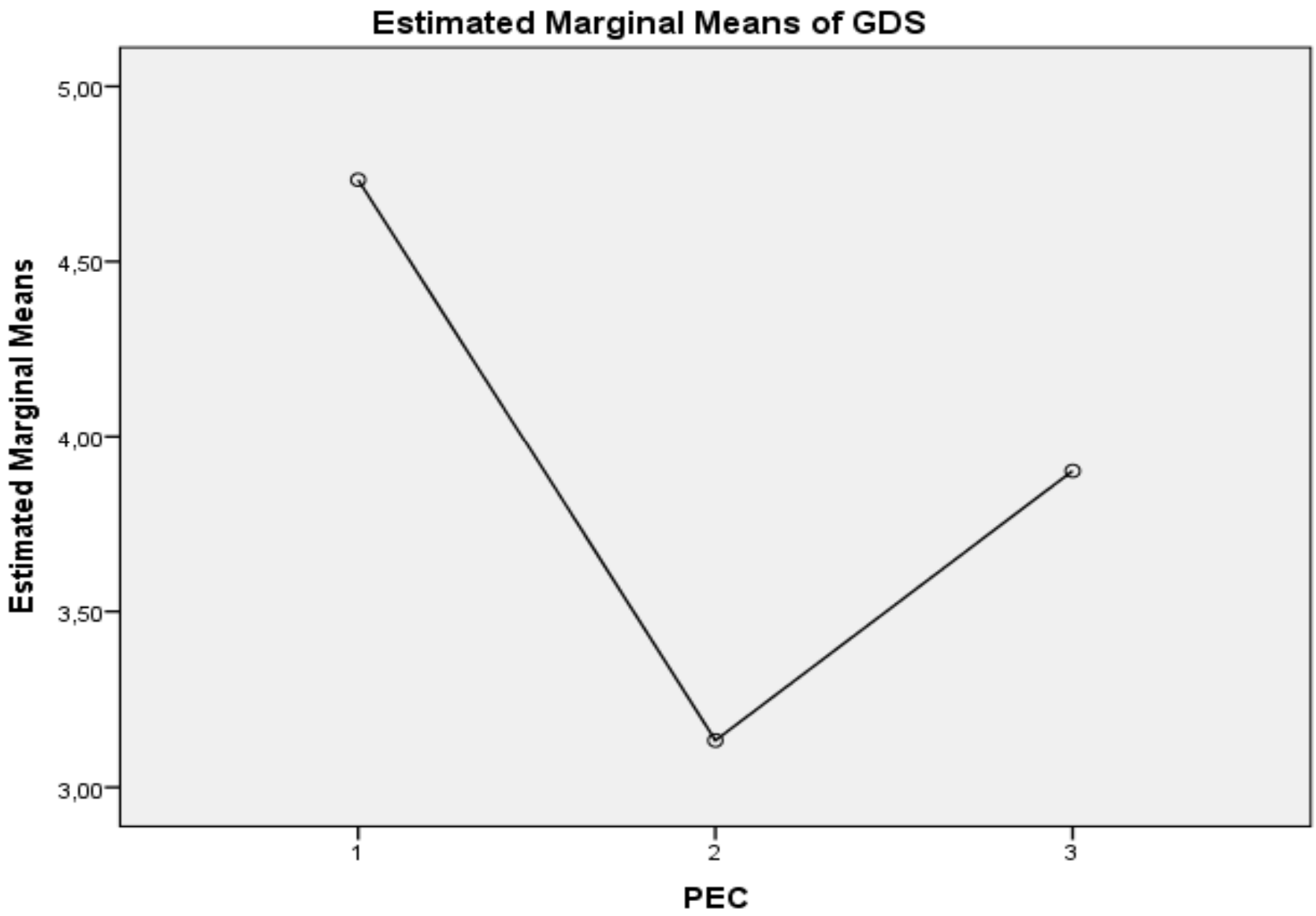
Conclusions: CST had significantly improved cognition, explaining the 15.7% variability, but there was no statistical evidence of its effectiveness on depressive symptoms. This improvement was not affected by the baseline level of dependence-independence in ADLs.

Clinical Relevance: CST offers a range of activities, providing general stimulation for thinking, concentration, and memory, usually in a social setting. These results will support implementation of CST in NHs. In addition to the impact on elderly independence and autonomy, CST may also have an economic impact by reducing the direct costs of the impact of elders' cognitive frailty.

Other study


Enrollment
Assessed for eligibility (n= 150)
Excluded
Not meeting inclusion criteria (n=105)
Randomized (n=45)
Allocation
Group 1 (n=8)
Group 2 (n=8)
Group 3 (n=8)
Group 4 (n=7)
Group 5 (n=7)
End of treatment
Lost to End of treatment (n=12)
Discontinued intervention (because scheduling conflict or decline in health status they missed more than two sessions)
Follow-up
Lost to Follow-up (n=3)
Analysis
Analysed (n=33)
Drop-outs analyzed as treated (n=45)


Estimated Marginal Means of MOCA
Estimated Marginal Means
22,50
22,00
21,50
21,00
20,50
1
2
3
PEC


Estimated Marginal Means of GDS
Estimated Marginal Means
5,00
4,50
4,00
3,50
3,00
1
2
3
PEC

Author EIP on AHA ACTION GROUP A3

A3 Action Group "Prevention on early diagnosis of frailty and functional decline, both physically and cognitive, in older people"



A COMPILATION OF GOOD PRACTICES

Cognitive stimulation and Brain fitness

1.Location

Country: Portugal

Region: Coimbra

Total population: 1500

2. Description

Target population: High risk dependent people (Mild cognitive impaired elders, Mild to moderate demented elders)

Target population : 300 (+ 65 years – Nursing homes and Day Centers of the center region of Portugal)

Main topic: cognitive decline.

Thank you