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EFFECTIVENESS OF INTERVENTIONS FOR COGNITIVE STIMULATION WORKSHOPS IN ELDERLY PEOPLE: BEFORE AND AFTER STUDY

EFETIVIDADE DE INTERVENÇÕES PARA OFICINAS DE ESTIMULAÇÃO COGNITIVA EM IDOSOS: ESTUDO ANTES E DEPOIS

EFFECTIVIDAD DE INTERVENCIONES PARA TALLERES DE ESTIMULACIÓN COGNITIVA EN ANCIANOS: ESTUDIO ANTES Y DESPUÉS

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ABSTRACT

Objective: to analyze the strategies of intervention used in the workshops of cognitive stimulation for the elderly and associate them to the performance of functional capacity. **Method:** study of before and after intervention, with 17 selected elderly with complaints about memory. The data collection instruments were tests applied to cognitive screening. The analysis was descriptive and inferential statistics from tables. The research project has been approved by the Ethics Committee in Research, CAAE in 11019912.4.0000.5243. **Results:** most of them were female (82.4%) residing with two or more people (58.8%); elderly young, with an average age of 69.9 ± 6.0 ; with higher education 10.9 ± 3.5 years. There was absence of significant correlation statistics of worsening or improvement: Mini Mental State Examination ($p=0.82$); Geriatric depression scale ($p=0.82$); Lawton scale ($p=0.31$); Evocation of words ($p=0.40$); and Clock ($p=0.59$). **Conclusion:** considering the maintenance of cognitive framework in the elderly, something clinically relevant in gerontological practice. **Descriptors:** Memory; Health of the Elderly; Nursing; Cognitive Therapy; Geriatric Nursing.

RESUMO

Objetivo: analisar as estratégias de intervenção utilizadas nas oficinas de estimulação cognitiva para idosos e associá-las ao desempenho da capacidade funcional. **Método:** estudo de intervenção antes e depois, com 17 idosos selecionados com queixas subjetivas de memória. Os instrumentos de coleta de dados foram testes aplicados de rastreio cognitivo. A análise foi a descritiva e inferencial a partir de tabelas. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, CAAE nº 11019912.4.0000.5243. **Resultados:** a maioria foi a do sexo feminino (82,4%); que residem com duas ou mais pessoas (58,8%); idosos jovens, com média de idade de $69,9 \pm 6,0$; com alta escolaridade $10,9 \pm 3,5$ anos. Destacou-se a ausência de correlação significativamente estatística de piora ou melhora: Mini Exame de Estado Mental ($p=0,82$); Escala de Depressão Geriátrica ($p=0,82$); Escala Lawton ($p=0,31$); Evocação de palavras ($p=0,40$); e Relógio ($p=0,59$). **Conclusão:** pondera-se a manutenção do quadro cognitivo nos idosos, algo relevante clinicamente na prática gerontológica. **Descritores:** Memória; Saúde do Idoso; Enfermagem; Terapia Cognitiva; Enfermagem Geriátrica.

RESUMEN

Objetivo: analizar las estrategias de intervención utilizadas en los talleres de estimulación cognitiva para ancianos y asociarlos al desempeño de la capacidad funcional. **Método:** estudio de intervención antes y depois, con 17 ancianos seleccionados con quejas subjetivas de memoria. Los instrumentos de recolección de datos fueron tests aplicados de rastreio cognitivo. El análisis fue descriptiva y inferencial a partir de tablas. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación, CAAE no 11019912.4.0000.5243. **Resultados:** la mayoría fue de sexo femenino (82,4%); que residen con dos o más personas (58,8%); ancianos jóvenes, con media de edad de $69,9 \pm 6,0$; con alta escolaridad $10,9 \pm 3,5$ años. Se destacó la ausencia de correlación significativamente estadística de peora o mejora: Mini Examen de Estado Mental ($p=0,82$); Escala de Depresión Geriátrica ($p=0,82$); Escala Lawton ($p=0,31$); Evocación de palabras ($p=0,40$); y Reloj ($p=0,59$). **Conclusión:** pondera-se a manutenção do quadro cognitivo nos idosos, algo relevante clinicamente na prática gerontológica. **Descritores:** Memória; Saúde do Idoso; Enfermagem; Terapia Cognitiva; Enfermagem Geriátrica.

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INTRODUCTION

One of the most common problems associated with aging is the impairment of memory. Studies show that although the loss of memory is associated with aging, not all areas of memory are also affected in the elderly.¹⁻³

In Aging, reduction at the speed of information processing occurs, affecting cognitive performance, especially in tasks of memory and attention. Additionally, it may experience decreased muscle mass, bone and neural integration, making the elderly more fragile, leading to instability and impairment of functional capacity.^{2,3} However, those changes vary in their shape and intensity from individual to individual. Differences in lifestyle, health, education, nutrition and physical activities are some of the factors influencing.³

Functional capacity evaluation can define the necessary strategies for health promotion in the elderly, but also to the cognitive stimulation, whose objectives would be to delay or prevent the functional compromises.² Thus, the functional assessment is defined as a systematic attempt to objectively measure the levels at which a person is able to perform activities or functions in different areas using physical and cognitive skills for performance daily living and instrumental activities (DLIA and DLA).⁴

Health promotion for the elderly and the preservation of their mental health is one of the main interventions performed in workshops/training of memory. They aim to work orientation, perception (visual, auditory, tactile, smell and taste), memory, reasoning, the executive functions (planning and development of action), the motor performance, the non-verbal expression and creativity.⁵ In this way, the expected benefits are expanded to outside, improving cognition, emotional and social integration benefits of the elderly.⁶

It should be noted that the importance of memory training is to provide it as a group, the benefit of participating, the year of dialogue, interaction, thus modifying the activities of a single or repetitive training to an enjoyable and challenging activity. Thus, the inclusion of elderly in groups cause a positive impact in physical and mental health, which strengthens their social role, with the possibility of offering emotional support, with contributions to the promotion of healthy and successful aging.⁷

OBJECTIVE

- To analyze the strategies of intervention used in the workshops of cognitive stimulation for the elderly and associate them to the performance of functional capacity.

METHOD

This is a study with quantitative approach, before and after intervention, with functional capacity evaluation, by screening tests in a longitudinal perspective, with clippings in the second half of 2013, with selected elderly with subjective memory complaints.

The search scenario took place on the premises of a public University used by extension project: Cognitive Memory, treatment adherence and Technological innovation: actions for health promotion in the elderly, in Niterói (RJ), Brazil. The team of the research scenario is composed of nurses, nursing students, social worker, social service students, speech therapist, psychologist, physiotherapist and physical educators. It is worth noting that such workshops and dynamic evaluation of execution already occur in the scenario of research and are natural to the elderly.

As inclusion criteria were: participants 60 years old or older, with more than eight years of education; to obtain the MMSE greater than the score indicated according to their education; with subjective complaints of memory; and who agreed to participate in the study. The exclusion criteria were: participants with medical diagnosis of dementia; score in Geriatric Depression Scale (GDS) compatible with depression or who do not go to the memory workshop regularly.

In all, 118 elderly were investigated by experts in the area, with 10 years of training and experience. In the end, 21 subject were allocated to sample, according to criteria established. However, there was follow-up losses due to illness and absence from the second test of evaluation of functional capacity. At the end, 17 elderly composed the sample who attended all 12 interventions and two evaluations. It is noteworthy that the nurse facilitator responsible for intervention did not attend pre and post assessments, thus minimizing possible biases of research.

The subjects of the research were separated into two groups. The interventions were performed once a week, lasting one hour each, in July 29, 2013 to December 13, 2013, equivalent to 14 weeks. However, only 12 workshops were conducted, due to holiday and internal event.

As data collection instrument, cognitive screening tests were adopted: Mini Mental State Examination - MMSE; Activity of Daily Living Scale - Lawton; Geriatric Depression Scale - GDS; Design of the Clock; and Verbal Fluency Test.⁸⁻¹² Besides all these things, an instrument of subjective evaluation of the workshops were used.

The MMSE is a Neuropsychological Test to assess cognitive function; Lawton evaluates the functional performance of the elderly in instrumental activities that enable the elderly keep an independent life; GDS checks for the presence of depression; Design of the clock is a valid and reliable test to track people with brain injuries, verifying the ability visual constructive or constructional apraxia, which is the ability to draw or build from a stimulus (in this case, a command verb); and Verbal Fluency test, verifying cognitive decline.⁸⁻¹²

The cutting point considered for the MMSE were validated values in Brazilian studies: under 13 for dementia, equal to or greater than 13 for the illiterate, equal or greater than 18 for five years or more of education and 26 for people with higher education.⁸⁻¹⁰

In the Design of the Clock, it is considered a score that ranges from four to zero, being

four the score for best performance, i.e. the individual who can represent the circle, the numbers, the correct position and the right time, with one point for each hit.^{8,9}

The Evocation of Words expected to score between 13 to 18 animals in 1 minute, disregarding repetitions of animals of the same class.⁸ The cutting point of the Geriatric Depression Scale was between five and seven, which investigates the depressed mood, and above 7, defining depression.¹² On the Lawton Scale, there are seven scores for dependent, 14 to semi-dependent and 21 for the independents.¹¹

Cognitive stimulation workshops were planned in advance by the characteristics investigated in functional assessment of the elderly group selected.^{13,14} Each workshop was to stimulate cognitive areas less preserved. Each one deals with a cognitive area and developed in groups and individually, represented in Table 1.

Table 1. Distribution of 12 workshops and cognitive trained area. Niterói, 2014.

Week	Activity	Cognitive trained area
1	Guess Correlate the phrases with the authors	Long-term memory, association, logical reasoning, attention and observation. Short term memory, working memory, sssociation, attention and observation.
2	Think Aswer and calculate	Short-term memory, long-term memory, past memories, written language. Short term memory, working memory, long-term memory, logical reasoning, calculation, attention and observation.
3	Vowel chaos Problems with calculations	Sensory memory, short-term memory, attention and observation. Working memory, long-term memory, attention, observation, logical reasoning, calculation and concentration.
4	Music Forming words with your name	Short term memory, working memory, association, attention and observation. Short-term memory, long-term memory, working memory, association, logical reasoning, attention and observation.
5	What doesn't fit? Sudoku	Short-term memory, sensory memory, working memory, attention and observation. Short term memory, working memory, association, logical reasoning, attention and observation.
6	Crossword puzzle Eight-game errors	Long-term memory, attention and observation. Short term memory, working memory, visualization, attention and observation.
7	The menu	Short-term memory, long-term memory, working memory, association, logical reasoning.
8	Enigma e cruzada	Short term memory, working memory, association, attention and observation.
9	Words search puzzle Memories	Short-term memory, attention, observation. Long-term memory, memories, relationships.
10	Dominox	Short term memory, working memory, combination, attention and observation.
11	Forming creative phrases	Short-term memory, long-term memory, association, language, attention and observation.
12	Putting in the correct order	Short term memory, working memory, association, attention and observation.

For organization and processing of data, they have been transposed to a database organized into the Excel program for

Windows. The descriptive analysis presented in tables, expressed by the average, standard deviation, median, minimum and maximum

for numerical data (quantitative) and frequency (n) and percentage (%) for categorical data (qualitative).

The inferential analysis was composed by testing the signaled posts of Wilcoxon test to check if there is significant variation in scores from pre to post intervention. Nonparametric method was used, because the scores did not show normal distribution (Gaussian distribution) due to the rejection of the hypothesis of normality under the Kolmogorov-Smirnov test. The significance determination criteria adopted was the level of 5%. Statistical analysis has been processed by the SAS® statistical software System version 6.11 (SAS Institute Inc., Cary, North Carolina).

As for the ethical aspects, it is important to stress that this project was submitted to the Committee of Ethics in Research, as the Resolution 422/2012, CAAE 11019912.4.0000.5243, under approval number 250,132, on April 19, 2013.

It was clarified to the elderly not to mandatory participation, the objectives of the study, the confidentiality of names, as well as the presentation of the consent form, in which these might choose or not by their inclusion in the study, being aware that the refusal would not add any burden to them, not deleting the memory workshop. As to the application of the instruments, these were used to conveniently and respecting their limits.

RESULTS

In Table 2, it is the characterization of the absolute and relative distributed subjects, obtained most female (82.4%) residing with two or more people (58.8%); long-lived; with an average age of 69.9 ± 6.0, median 70, and variation of minimum of 60 and maximum of 77, average education was 10.9 ± 3.5, median of 11 and a minimum of eight and a maximum of 16.

Table 2. Distribution of characterization variables of the studied subjects. Niterói, 2014.

Variable	Category	N	%
Gender	Female	14	82,4
	Male	3	17,6
Age	60 - 69 years old	6	35,3
	70 - 76 years old	11	64,7
Education	Elementary Complete	3	17,7
	High School Incomplete	1	5,9
	High School Complete	7	41,2
	Higher level Complete	6	35,3
Family residing	Alone	7	41,2
	Two or more people	10	58,8

◆ Functional capacity evaluation before and after the workshops

Table 3 provides the average, median and standard deviation of scores of functional evaluation tests, MMSE, GDS, LAWTON, VFT and Clock, pre and post intervention and their variations (absolute and relative) and the corresponding descriptive level (p-value) of

the signaled posts of Wilcoxon test. Absolute variation corresponds to the difference between the score on post less pre intervention. Thus, an absolute negative variation expressed a fall after intervention, that is, the higher the value the greater the negative variation fall of score.

Table 3. Scores in functional evaluation tests in pre and post intervention. Niterói, 2014.

Variable		Average	SD/SE	Median	p value ^a
MMSE	Pre-intervention (score)	27,6	± 2,4	28	
	Post-intervention (score)	27,6	± 2,2	28	
	Absolute variation (score)	0,00	± 0,60	0	0,82
	Relative variation (%)	0,51	± 2,42	0	0,92
GDS	Pre-intervention (score)	1,24	± 1,09	1	
	Post-intervention (score)	1,29	± 1,76	1	
	Absolute Variation (score)	0,06	± 0,38	0	0,82
	Relative Variation (%)	11,3	± 33,3	0	0,67
LAWTON	Pre-intervention (score)	20,5	± 0,8	21	
	Post-intervention (pontos)	20,8	± 0,4	21	
	Absolute Variation (score)	0,29	± 0,21	0	0,31
	Relative Variation (%)	1,58	± 1,11	0	0,13
VFT	Pre-intervention (score)	17,3	± 4,3	18	
	Post-intervention (score)	18,2	± 4,3	18	
	Absolute Variation (pontos)	0,94	± 1,03	1	0,40
	Relative Variation (%)	8,73	± 7,0	4,8	0,34
Clock	Pre-intervention (score)	2,76	± 1,25	3	
	Post-intervention (score)	2,53	± 1,12	3	
	Absoute Variation (score)	-0,24	± 0,25	0	0,59
	Relative Variation (%)	0,98	± 9,7	0	0,82

SD/SE: Standard deviation or standard error. SE was used to absolute and relative variations.
^a test of signaled points of Wilcoxon (non-parametric).

It is noted that there was no significant variation of falling or improving in the group, which indicated a stabilization of the subjective complaint of memory, such as supporting the benefit of the intervention to the subject.

♦ Workshops evaluation and participants' self-evaluatio

At the end of the 12 workshops, the elderly responded to a self-applicable questionnaire to evaluate the workshops and also a self-evaluation of their performance, this was described in Table 4.

Table 4. Workshops evaluation and participants' self-evaluation. Niterói, 2014.

General Evaluation	n	%
Satisfaction of duration time		
Yes	16	94,1
No	1	5,9
Satisfaction with the workshops		
Good	5	29,4
Great	12	70,6
Easy and clear understanding		
No	1	5,9
Partial	3	17,6
Total	13	76,8
Achieved with the objectives		
Yes	17	100
Self-evaluation		
Content understanding		
Yes	16	94,1
No	1	5,9
Interaction with colleagues		
Yes	17	100
Participation in activities		
Yes	17	100
Improve the memory (1 to 5 scale)		
3	5	29,4
4	5	29,4
5	6	35,3
Did not inform	1	5,9

It is observed that the elderly evaluated as unanimous promotion of interaction, group participation, has reached his objectives and subjective report of improvement on a gradual scale. It should be noted that an elderly has difficulty in completing the evaluation and proposal, although most consider the methodology proposed

appropriate, there were those who showed some kind of difficulty in the realization of workshops.

DISCUSSION

The absence of significant correlation statistics of worsening or improvement in evaluation of screening tests was highlighted.

In this way, it is considered the maintenance of cognitive framework in the elderly, something clinically relevant in gerontological practice. Regardless of the difficulty in fully recover the memory of elderly patients, the memory workshops seek, above all, ways to fulfill the conditions of promotion of well-being and quality of life.¹⁵

It was noted, that most were female, which corroborates with other studies, in part explained by the low presence of men in associative groups, as well as the superiority of women's longevity, with higher life expectancy.¹⁵⁻⁶ As the most elderly young people, which is defined as those under 80 years old¹⁷, as in the studied population, it is a homogeneous population, making possible biases diminish the age factor, considering having severe memory loss after 85 years old.¹⁸ Privileged education of the elderly was highlighted, which differs from the national average of the Brazilian population, so everybody could adequate read and write.¹⁹

About living alone or with relatives, both situations can be defined for most women, which tends to widowhood and not forming new marriages, is also a characteristic of younger elderly.²⁰ Despite the population characteristic, except for education, health care professionals need to prepare for the changes in the change of female and family lifestyle. In this way, it becomes important to establish activities that consider both the female participation as the male; high education elderly; and with different family compositions.²⁰

As the literature indicates, there is a decreasing of some modes of memory during the normal process of aging, including episodic memory and working memory.²¹ It is expected that the cognitive area more trained were in fact short-term memory, attention and language, fields with higher subjective complaints among the participants of the group. For this, we need to have a special preparation of association of these with group activities considering the daily life, the current events, causing and to awaken the emotional and social interest.

In the face of growing in the life expectancy of the population and the prevalence of diseases associated to the process of senescence, it becomes important to follow-up the elderly under the cognitive and functional point of view by nurse and multidisciplinary team, embracing the goal of preventing and/or minimizing the degenerative effects characteristic of aging, with the promotion of well-being, independence and autonomy.⁶

The research on cognitive interventions in Brazil are still in the early stages, with few studies investigating the impact of the inclusion of activities living every day.²² This is due to the heterogeneity of the elderly population, comparing groups with wide variations in age, gender, state of health, complaining of memory and/or mood, in the same group, limiting the studies capable of controlling such variables by comparing two or more homogeneous groups, in addition to the wide variety of suggested activities and the influence of professional qualification.

Another aspect influencing in the evaluation of memory loss in the elderly would be education. Education reduces the association between pathological and load the cognitive decline, i.e. those who have more years of education during life had reduced risk of dementia in old age.²³ Also, the broadly stimulation (physical and mental), during life, it is proposed to increase the cognitive reserve, allowing the cognitive function remains in old ages, both to protect and to delay the dementias.²⁴

The homogenization of groups such as individuals with high education reinforces the hypothesis that high education confers an important role in the cognitive abilities of the elderly and can facilitate the good functional performance.²⁵ As observed in the results of evaluation of the functional capacity of the study subjects, in the Mini Mental State Examination (MMSE), the elderly kept a stabilization of results. The same was observed in the study of elderly visitors of an outpatient clinic of University Hospital, which kept the medians thus emphasized the satisfactory result through workshops.²⁶

Another interesting data in this study was the discreet decline in performance clock test. This test result, even though non-significant, can indicate a cognitive area that should be strongly reinforced in planning the activities so that this test evaluate the executive functions, which are responsible for the planning and execution of tasks, something essential for the elderly to continue independent and autonomous for activities of daily living.²⁷

The activities focused on verbal understanding of command, planning, visual memory, visual-spatial ability, programming and motor execution, numerical knowledge and abstract thinking can help in improving the clock test.²⁸ However, in the activities of daily life, the study showed that there was a stabilization of results, indicating that the elderly remain independent and autonomous for their activities, an important feature of

follow up and of relevance to this study, as it indicates the greater benefit of the intervention in promoting well-being and independence and autonomy (functional capacity).²⁹

Selected elderly for participation in the workshops did not present complaint or suggestive test for depression and that remained after activities, another positive effect in the study. The studies on the impact of subjective memory training in depressive symptoms are conflicting. Some studies report that the subjective memory can be easily changed after training and others demonstrate that improves memory performance objective led to fewer complaints.^{30,26}

It is the responsibility of the health care professional to monitor the perception of older people as their self-evaluation on improvement and participation in the workshop of memory (intervention). The best benefits were declared as for interaction and participation, but also indicated an improvement in the perception of memory, reinforcing the importance of group activities.

Interventions to the elderly should adopt practices that promote in advance the health and well-being of the elderly population, providing longevity with quality of life. Even in the elderly that present pathological processes along this way, his inclusion in a therapeutic and professional screening group can provide early detection of diseases, along with the intersection of health welfare models, something sought in gerontological nursing clinic.

CONCLUSION

The participants of the workshops of cognitive stimulation showed a maintenance of functional capacity. Thus, the proposed intervention should be disseminated in order to promote active and healthy ageing.

The lines of research towards memory interventions for healthy elderly in Brazil are topics still little discussed. Studies are suggested to investigate complaints of memory associated with other variables such as marital status, medications, family income and lifestyle in relation to their cognitive performance, as well as comparing homogeneous groups and types of activities.

The social relevance of this project is also highlighted that over a year and a half answered for free to individuals, specialized nursing care offered and multidimensional assessment, but also provided the vocational training, in a multidisciplinary approach, in contact with the professionals team,

emphasizing the multidimensionality of the human aging process.

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