

## Estimulação em idosos institucionalizados: efeitos da prática de atividades cognitivas

Stimulation in institutionalized elderly people: effects of cognitive activity practice

Estimulación en ancianos institucionalizados : efectos de las prácticas de actividades cognitivo

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### How to quote this article:

Neto AVL; Nunes VMA; Oliveira KSA; et al. Stimulation in institutionalized elderly people: effects of cognitive activity practice. Rev Fund Care Online. 2017 jul/sep; 9(3):753-759. DOI: <http://dx.doi.org/10.9789/2175-5361.2017.v9i3.753-759>

### ABSTRACT

**Objective:** To evaluate cognitive aspects in institutionalized elderly people before and after realization of cognitive stimulation activities. **Method:** It is a semi-experimental and quantitative study. It was performed in a Long Term Care Institutions for the Elderly (ILPI) located in Natal, Rio Grande do Norte with the elderly who reached the minimum score in the survey instrument Mini Mental State Examination. They were only 26% of the residents. **Results:** After stimulation activities it was observed that the elderly were able to maintain or to increase the score for the various aspects evaluated. It was confirmed by statistical analysis using the Wilcoxon test a significant difference between the groups before and after, given by p-value = 0.027. **Conclusion:** It was identified that the realization of cognitive stimulation activities get responses that contribute to the increase of the Mini Mental State Examination score.

**Descriptors:** Elderly; Institutionalization; Cognition.

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## RESUMO

**Objetivo:** Avaliar aspectos cognitivos em idosos institucionalizados antes e após a realização de atividades de estimulação cognitiva. **Métodos:** Trata-se de estudo quase-experimental, contemplando uma abordagem quantitativa. Foi realizado em uma instituição de longa permanência na cidade do Natal/RN com os idosos que atingiram o ponto de corte no instrumento de pesquisa Mini Exame do Estado Mental, que somam apenas 26% do total de residentes. **Resultados:** Após as atividades de estimulação percebeu-se que os idosos conseguiram manter ou aumentar a pontuação dos diversos aspectos avaliados. Foi comprovado pela análise estatística, utilizando o teste de Wilcoxon, que há diferença significativa entre os grupos antes e depois, dado pelo p-valor = 0,027. **Conclusão:** Identificou-se que com a realização de atividades de estimulação cognitiva foram obtidas respostas que contribuíram para o aumento do escore do Mini Exame do estado mental.

**Descritores:** Idoso; Institucionalização; Cognição.

## RESUMEN

**Objetivo:** Evaluar los aspectos cognitivos en los ancianos institucionalizados antes y después de realizar actividades de estimulación cognitiva. **Método:** Se realizó un estudio cuasi-experimental, contemplando un enfoque cuantitativo. Se llevó a cabo en una institución de larga estancia en la ciudad de Natal/RN con las personas mayores que alcanzaron el punto de corte en el instrumento de la encuesta Mini Examen del Estado Mental, que representan sólo el 26 % de todos los residentes. **Resultados:** Después de actividades de estimulación se dieron cuenta de que los ancianos eran capaces de mantener o aumentar la puntuación de los diferentes aspectos evaluados. Se confirmó por análisis estadístico, usando la prueba de Wilcoxon, una diferencia significativa entre los grupos antes y después, dado por p-valor = 0,027. **Conclusión:** Se identificó que con la realización de actividades de estimulación cognitiva fueron las respuestas que han contribuido al aumento en la puntuación Mini Examen del Estado Mental.

**Descritores:** Anciano; Institucionalización; Cognición.

## INTRODUCTION

Brazil, according to demographic data, lives a sharp transition in its age structure, in which the elderly are the population group that has a remarkable growth across the country. This phenomenon, in recent decades, was unleashed because of the demographic and epidemiological transition.<sup>1</sup> The Brazilian Institute of Geography and Statistics (IBGE) in 2013 found that the elderly accounted for 7.4% of the population. It is estimated that in 2060 the percentage of people aged 65 or more will be 26.8%.<sup>2</sup>

Because of this growing aging population and the difficulties encountered by families in caring for the elderly, it is observed a directly proportional growth of this public institutions offering continuous care, known as long-term care facilities for the elderly (ILPI).

It is understood that aging consists of a complex process, with implications both for the person who experiences it and for society to assist it. It is a silent process, hardly realized in full and, in most cases, is identified only when the individual has compromised their functional and cognitive ability.<sup>3</sup>

Concurrently with the increase in the proportion of people reaching the age of the elderly, also increases the problems presented by the same, due to the decline in their everyday functional activities. This problem is perceived in different contexts, both at home and in ILPI.

Advancing age brings, in addition to deficits in the performance of physiological activities, a loss in the ability to make decisions and perform certain actions. In this sense, it is necessary to stimulate independence and self-care with the elderly in the exercise of daily activities such as bathing, dressing, feeding, and the factors related to cognition.

Is understood as cognition all aspects involved in mental function, such as: ability to express feelings, thoughts, perception, memory and reasoning, in addition to complex structures involving thoughts and the ability to produce and provide responses to external stimuli.<sup>4</sup>

There are several changes that affect the cognitive, affective and social performance. With regard to cognitive changes, which most affect the elderly are: attention, concentration and inductive reasoning.<sup>5</sup>

It is noticed that most of the complains from elderly are difficulties to hear, to store various information and remind them, such as: name of known people, take medicine at the right time, place that left some personal items, among others. These facts undermine their performance and can contribute to the isolation and loss of self-esteem.<sup>6</sup>

Studies show that it is possible to decrease the degradation rate of cognitive through stimulation programs, since even with aging there is sufficient brain plasticity.<sup>7-8</sup> In this sense, the question is: what are the effects of cognitive stimulation practice in institutionalized elderly?

Thus, it is understood that the aspects related to aging, specifically related to cognition of the elderly, deserve special attention. Therefore, are necessary assessments and interventions by health professionals, in an interdisciplinary way, focusing on quality of life and active and healthy aging to enable the preservation of autonomy, functionality and cognition.

For this purpose, there can be performed several assessments, among them those related to the mental state, one of which is the application of the Mini Mental State Examination (MMSE). This test helps with a diagnosis about the cognitive aspects and assists in describing an intervention plan to improve these aspects.<sup>6</sup> Therefore, it is necessary to implement actions aimed at elderly stimulus, especially in the context of ILPI.

This study aims to evaluate cognitive aspects in institutionalized elderly before and after performing cognitive stimulation activities, believing the hypothesis that there is an improvement in cognitive ability.

## METHOD

It is a quasi-experimental study of the before and after type without control group, contemplating a quantitative approach. It was held in a long term care facility (ILPI), defined as shelter for the elderly, located in the south district of the city of Natal/RN, whose elderly population corresponds to 10.4% of the total population, according to the 2010 IBGE census.

The ILPI is a nonprofit philanthropic civil entity, registered by the city Health Surveillance and classified as type IV, the Special Technical Standard that regulates the operation of long-stay institutions designed for the elderly in the city of Natal.<sup>9</sup> It is located in an urban area of the city and now houses 30 elderly, male and female, aged between 63 and 101 years.

The study subjects were elderly people living in the institution aged over 60 years, of both genders, retired or not, who scored greater than or equal score to 13 in the survey instrument Mini Mental State Examination (MMSE). Have been excluded those with cognitive impairment, that unable them to answer the questionnaire, and had visual and/or severe hearing loss.

From these criteria, it was observed that 22 elderly obtained a score lower than 13, and eight participants obtained 13 or more points. As this factor being the reason for the realization of cognitive stimulation activities for two months. Thus, the size of the study sample was 8 participants.

The choice of different cut off point than recommended in the literature, related to the education of individuals, is justified by the fact that the institutionalized the elderly is already classified as a fragile being due to deprivation of projects and activities, the idleness of the environment itself and the loss of autonomy. In addition, the high illiteracy rate found in the institution also contributed to the choice.<sup>10</sup>

The data collection instrument included questionnaire identification/characterization with socio-demographic data and the cognitive assessment instrument, MMSE, which assists in the investigation of possible cognitive deficits in risk individuals such as the elderly, as well as identification of dementia frames. These were applied by undergraduate students and graduate students of the Federal University of Rio Grande do Norte, using the interview technique.

The MMSE is validated in Brazil and includes 30 items that address the axes of spatial and temporal orientation, record, attention and calculation capacity, memory, language and building capacity.<sup>11</sup>

The management team of the institution was contacted to be informed about the relevance of carrying out the activities on the property. Both for the management team and the elderly were placed the topic and the research intervention procedure, the secrecy that protects the privacy of themselves and the commitment to use the information for research purposes, according to ethical principles. The study used the Terms of Free and Informed Consent Form (ICF).

After the consent of management and elderly participants the activities were initiated.

The data collection took place in two stages, the first was in May to July 2014 and included 30 elderly residents at the institution. The second was made in November 2014 and included all subjects who had been classified after the first investigation with the MMSE, according to the adoption of the cut-off point (13 points), given the fragility of the institutionalized elderly.

However, between the first and second data collection stage, a cognitive stimulation with the sample in order to check whether this intervention would influence positively or negatively was held at the next assessment.

These interventions have been made in the period of two months, October and November 2014, for groups of three researchers who encouraged each elderly twice a week through logical reasoning activities, memory, attention, concentration, sequencing and learning, expressive activity, temporal and spatial orientation, determined with the help of an occupational therapist and literature.

The logical reasoning activity was performed by a table with 100 squares, some of which were numbered and others blank. They should be filled by the elderly according to the numerical sequence. To address the memory, attention, concentration, learning and sequencing we used seven activities: one showing images of objects and asked to mark which of them were used by a dressmaker; others were the game of memory, puzzle and bingo; there was also the exercise of water and clay to shape objects of any commemorative date; preparing fruit salad and finally the activity of coloring the numbers according to the subtitle.

The expressive activity exercise was carried out by means of a mirror in a box, where the elderly by looking at himself/herself had to describe himself/herself. In the activity of temporal and spatial orientation the individual was asked to say the months of the year, then he would be asked questions such as: "what is the month of your birthday?" and "in which neighbourhood are we?". The researchers chose which of these activities are best suited in the context of the elderly and applied.

The choice of working with the elderly for two months happened because the brain has plasticity to recover connections and improve performance after training,<sup>12</sup> given that the brain maps are not static and constantly change.<sup>13</sup>

Data analysis was descriptive, with presentation of the absolute and relative frequencies, and analytical, in which we sought to compare the results of the two groups. The first was obtained before the intervention and the second after, and it was found significant difference between them. To test this hypothesis, considering the level of significance lower than 5% (p-value <0.05) and that these were scores, which are classified as ordinal categorical data, we used the Wilcoxon non-parametric for dependent samples test.

The research is part of an integrated action entitled "Health Project of the Institutionalized Elderly: work of

professionals in the health care of elderly people living in long-stay institutions,” of academic-scientific, ethical and policy nature that involves three dimensions: teaching, research and extension approved by the Research Ethics Committee (CEP), the Federal University of Rio Grande do Norte (UFRN) under registration in SISNEP No 164/2011 and CAAE No 0045.0.051.051-11.

## RESULTS

The results presented in this study include a population of eight participants with the following sociodemographic characteristics: the majority are female (n = 5, 62.5%), single (n = 5, 62.5%) and without children (n = 6, 75%). Most patients included is in a range of ages ranging between 71 and 80 years (n = 5, 62.5%); about 37.5% (n = 3) is institutionalized in a period up to one year and the same percentage of two to three years and 12.5% (n = 1) of eight years or more. About the data relating to health/disease, most of them have hearing problems and take medications, as can be seen in Table 01.

**Table 01** - Characteristics of institutionalized elderly in the city of Natal/RN, Brazil, according to social, demographic and health characteristics

Variable	n	%
<b>Sex</b>		
Female	05	62,5
Male	03	37,5
<b>Age</b>		
61 - 70	2	25,0
71 - 80	5	62,5
81 - 90	1	12,5
<b>Marital status</b>		
Single	5	62,5
Married	2	25,0
Divorced	1	12,5
<b>Education</b>		
None	3	37,5
0 - 3 years	4	50,0
4 - 8 years	1	12,5
<b>Religion</b>		
Catholic	3	37,5
Evangelical	5	62,5
<b>Children</b>		
None	6	75,0
1 to 2 children	1	12,5
7 or more children	1	12,5

(To be continued)

(Continuation)

Variable	n	%
<b>Institutionalization time</b>		
Up to 1 year	3	37,5
2 to 3 years	3	37,5
8 years or more	1	12,5
NR	1	12,5
<b>Difficulty sleeping</b>		
Yes	5	62,5
No	3	37,5
<b>Difficulty seeing</b>		
No	4	50,0
Yes	4	50,0
<b>Hearing problems</b>		
No	5	62,5
Yes	3	37,5
<b>Take any medicine</b>		
Yes	7	87,5
No	1	12,5
<b>Smoker in the past</b>		
Yes	3	37,5
No	5	62,5
<b>Alcohol drinking in the past</b>		
No	5	62,5
Yes	3	37,5
<b>Retired</b>		
Yes	6	75,0
No	2	25,0
<b>Type of institutionalization</b>		
Does not have family	2	25,0
Has no one to take care	1	12,5
Others	5	62,5

After the stimulation activities, it was perceived that seven of the eight seniors who had already reached the MMSE cut off managed to maintain or increase the score for the various aspects evaluated. It is worth mentioning that one of them was not re-evaluated for having died before.

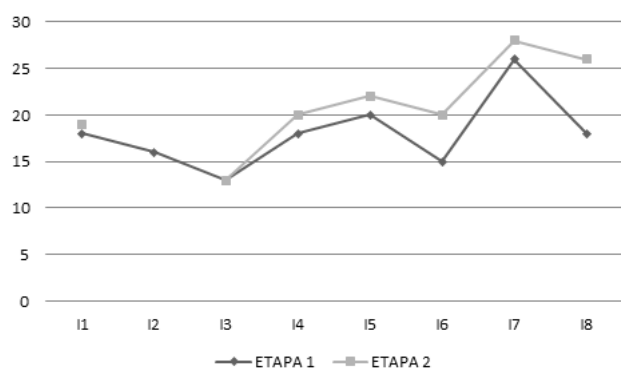
It was proven by statistical analysis, using Wilcoxon test, a significant difference between the groups before and after, given by  $p = 0.027$ , as it can be seen in Table 2 and the Graph 1.

**Table 2** - MMSE score before and after cognitive stimulation. Natal/ RN, 2014

ELDERLY	MMSE score in the First Evaluation of the Elderly	MMSE score after stimulation activities	p-valor
11	18	19	0.027
12	15	-	-
13	13	13	0.027
14	19	20	0.027
15	20	22	0.027
16	15	20	0.027
17	26	28	0.027
18	18	26	0.027

\*considering  $p < 0,05$ .

**Graphic 1** - MMSE score in step 1, before the cognitive stimulation, and in step 2 after stimulation. Natal/ RN, 2014



## DISCUSSION

The need to study the cognitive aspects in institutionalized elderly is given by the vulnerability that those present due to environmental, social and emotional issues they experience. This vulnerability is confirmed in this study, given that only eight elderly (26.7%) evaluated from the MMSE obtained 13 or more points among the 30 seniors who reside in ILPI.

When the elderly shows lack of autonomy, very common among institutionalized elderly, social, economic, cultural problems and lifestyle can lead to impairment of functional and cognitive ability and change their healthy aging and well-being.<sup>14</sup> So, keeping these capabilities has become an important factor for the health of the elderly and should be taken into account by health professionals in clinical practice.

A study of 60 institutionalized elderly who evaluated the cognitive profile of these through three instruments found that the percentage of elderly people with cognitive loss through the MMSE was 30% of the sample, being more prevalent in women compared to men.<sup>15</sup> In our study, the elderly with cognitive impairment represent a much higher percentage (73.3%) among the elderly living in the institution, which also were mostly female.

Other studies are in line with the results of this study, 16 of which in assessing cognition of elderly residents in the community, one of them noted that the elderly with lower MMSE score were female and older. Another study evaluated the performance of elderly women in ILPI in Curitiba/PR, through the MMSE and showed a high number of elderly with cognitive decline in the sample (26.5%) and low education and older age correlated them with lower scores.<sup>17</sup>

With stimulation activities and reapplication of the MMSE, the elderly maintained or increased their score, which means that the stimulation had a positive effect on cognition of the elderly. Similarly, another study<sup>18</sup> which examined the effectiveness of cognitive stimulation in cognition and in instrumental activities of daily living (IADL) in elderly noted that stimulation improved the cognitive condition of the elderly.

Another study conducted with 46 elderly aged 60 to 85 years tested the ability of cognitive plasticity through computer games in 12 hours for 4 weeks, and it was found that the elderly showed improvements in tasks.<sup>19</sup> Research also assessed the cognitive improvement of institutionalized elderly and the results after only three months found that the elderly showed significant improvements, as this study also revealed.<sup>20</sup>

A research<sup>21</sup> which assessed the effects of the practice of cognitive activities and physical activity in institutionalized elderly found that there was no statistically significant difference before and after the interventions between groups in variables. However, the differences between individual values obtained by the participants in the tests show positive effects, suggesting that the cognitive activity program produced major positive effects on cognitive ability of its participants, and the physical activity program was more effective in reducing the intensity of depressive symptoms of the participants.

Keeping the elderly in good cognitive status is important for overall health maintenance and well-being of these. The stimulation of the elderly is efficient for maintaining the mental health of the elderly and/or preventing their decline. Therefore, it is clear, too, the need for skilled professionals in order to develop educational materials targeted to these seniors.<sup>22</sup> These exercises may vary prior knowledge of activities, mental exercises and sensory training; which, in fact, we have accomplished in this intervention.

This study had some limitations, such as the sample number and the loss of a participant in the second stage. Furthermore, the population of cognition level under study and the absence of a control group to measure the effect of repeating the learning Mini Mental decreases the possibilities of generalization. However, the results were relevant and in line with data found in literature and serve as a warning to managers and interdisciplinary teams working in the care scenario in ILPI, given that the stimulation is important to keep in good condition the cognition of institutionalized elderly.

## CONCLUSION

This study aimed to evaluate cognitive aspects in institutionalized elderly before and after performing cognitive stimulation activities. Thus, according to the results, it was perceived the importance that should be given to issues related to cognitive aspects of the elderly. In a short time, it was identified that with the realization of cognitive stimulation activities were the responses that contributed to the increase in the Mini Mental State Examination score.

In this sense, it is considered that the elderly, specifically those institutionalized, must be valued and perceived as a socially inserted subject. Therefore, it is necessary that in a macro context policies aimed at active aging, healthy and enhancement of cognitive aspects are implemented. In the context of ILPI, should be strengthened and motivated to carry out activities that cherish the preservation of cognition and even improve these aspects.

It is therefore essential interdisciplinary work in this scenario, once the various professionals working can contribute to the achievement of satisfactory results and consistent with a reality in which the elderly is the center of care and an autonomous subject, with good cognitive and with ability to make decisions.

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Received on: 24/03/2016

Reviews required: No

Approved on: 19/09/2016

Published on: 10/07/2017

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