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EVALUATION OF PSYCHOMOTOR INTERVENTIONS IN ELDERLY WITH MILD COGNITIVE DEFICIT[1]

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ABSTRACT
This study aimed to analyze the effect of psychomotor activities on the balance of elderly patients with Mild Cognitive Deficit. This is a quasi-experimental research carried out in two public health institutions with 43 elderly residents in Niterói and Rio de Janeiro/RJ, in the months of April-July/2014. Ten sessions of psychomotor activities were carried out, as well as assessments with the scales before and after activities. The instruments used were: Tinetti Scale and Equilibrium of the Motor Scale for the Elderly (MSE). The project was approved by the Ethics Committee (Protocol nº 531,807/2014). The Kruskal-Wallis test, with confidence level of 95% and significance of 0.05 showed significant difference between the assessments carried out. In the first evaluation, Tinetti tests presented 22 elderly (51.16%), mean of 17.22 points, at high risk of falls; 11 elderly (25.58%) at moderate risk. The equilibrium - MSE showed a mean of 79.81 points, equivalent to a lower classification. In turn, in the second evaluation, Tinetti presented only five elderly (11.62%) at high risk for falls and 28 elderly (65.11%) at moderate risk for falls and a mean of 20.67 points. Ten elderly showed no risk for falls. The equilibrium - MSE obtained a mean of 92.37 points, shifting to normal medium. Therefore, the results showed that psychomotor activities favor the balance of elderly people with Mild Cognitive Deficit.

Palavras-chave: Postural balance. Mild Cognitive Impairment. Elderly.

INTRODUCTION

Aging is a topic widely studied today. Demographers released in 2013, through the IBGE, estimates based on the 2010 Census that indicate an accelerated aging of the population. Statistics show that, due to increased life expectancy, the number of Brazilians over 65 years of age is expected to be four times superior in 2060. According to IBGE, the population in this age group must increase from 14.9 million (7.4% of total) in 2013 to 58.4 million (26.7% of total) in 2060[(1)]. This increases the concern of the scientific community in conducting research studies that approach the elderly because they represent a population group that is more vulnerable to health problems, among them the risk of falls[(2)].

Body awareness, motor skills, balance and psychomotor skills become compromised in elderly people with mild cognitive impairment. Thus, such body awareness is considered relevant in the study of gerontology, geriatrics and psychomotricity.

Psychomotricity addresses the regressive changes in the psychomotor system of the elderly, according to the geronto-psychomotricity terminology, which is defined as a practice directed to the elderly through psychomotricity. This prioritizes the development of greater body awareness through the concomitant action of feeling, acting and thinking, contributing to greater autonomy in interpersonal relationships, and in family and society integration[(3)].

In the aging process, there is neuronal loss in the cortex precentral gyrus and in the

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cerebellum. It is assumed these changes lead to a decrease in the overall praxes happens, because some information related to this area cause loss of balance among the elderly, making then more prone to falls[4-5].

The balance affected by decreased neural activity can compromise the maintenance of posture. The balance system is responsible for the control of body oscillation. This mechanism declines with advancing age in greater or lesser degree, depending on the association with other diseases or sedentary lifestyle[3,6].

It is essential to work postural control and strategies for balance maintenance among the elderly with cognitive impairment on the grounds of psychomotricity, with cognitive activities and exercises. By doing this, the elderly can improve their functional capacity, which represents their independence to live, to perform physical and mental activities necessary to maintain basic and instrumental activities[7], that is, their independence for carrying out self-care.

The objective of this study is to analyze the effect of psychomotor activities on the balance of elderly patients with Mild Cognitive Deficit.

METHODOLOGY

This is a research with quantitative approach of quasi-experimental type. The sample is composed of 43 elderly over 60 years of age, of both genders, assisted at two public health institutions. The institution I is a Basic Health Unit located in Niterói, and the institution II, the ambulatory of the Hospital of Geriatrics and Gerontology, located in Rio de Janeiro.

Data were collected during the month of April 2014, between 09h and 12h, on Wednesdays in the first institution and on Tuesdays in the second institution, as these were the days that the elderly had to carry out evaluations. Before starting the evaluations, the elderly signed the Informed Consent form.

Inclusion criteria were: people aged over 60 years; with Mild Cognitive Disorder confirmed in medical records. Seniors who had any of these conditions were excluded: severe vision deficits ; labyrinthitis; recent bone trauma; elderly who had undergone surgery recently; elderly with hemodynamically unstable cardiovascular disease and those who missed 25% of the psychomotor activities implemented in the study.

The results of the Tinetti scale[8] and Equilibrium of the Motor Scale for the Elderly - MSE[9-10], and the balance test, applied before and after psychomotor interventions, were compared.

The Tinetti Scale (Performance Oriented Mobility Assessment-POMA) was established in 1986(8), validated in the original language, has good reliability and has been translated into Portuguese and validated in Brazil[11]. This scale classifies aspects of the gait such as speed, distance, step, symmetry and balance when standing, the spin and also changes with closed eyes. It is a scale that does not require sophisticated equipment, and it is reliable to detect significant changes in the gait[13-14]. The use of this assessment tool enables preventive actions, care actions and rehabilitation[12].

The Tinetti index comprises two scales: balance and gait. The first has nine items: balance when sitting, standing, attempts to lift, so lifting, balance right after standing up, balance when in the standing position, tests of the three times, eyes closed, turning 360 degrees and sitting. The second has seven items: start of the march, length and height of the steps, steps symmetry, continuity of steps, direction, trunk and distance between ankles. The overall index score is 28 points[8]. According to the scale, people with scores below 19 are at high risk for falls; between 19 and 24, at moderate risk; and above 24 points, have no risk for falls[8,11-14].

The Equilibrium of the Motor Scale for the Elderly - MSE[9] is a validated instrument[10]. Motor tests are applied individually in a private room containing the appropriate furniture (table and chair) for elderly people (over 60 years of age). Balancie tests evaluate movements of body stability and proprioception. Each test has different degrees of difficulty and are presented in a progressive increase in order. Thus, the level 2 corresponds to 24 points, level 3, to 36 points, level 4, to 48 points, level 5, to 60 points, level 6, to 72 points, level 7 to 84 points, level 8, 96 points , level 9, 108 points, level 10, 120 points and level 11 to 132 points.

The results of the scores obtained in the evaluation allow to classifify motor parameters into seven levels, namely: much higher (130 or more), higher (120-129), normal high (110-119),

normal medium (90-109), normal low (80-89), lower (70 - 79) and much lower (<70)(9).

After the first evaluation with the scales, psychomotor activities were started. Each session began with a visual scene, with several figures to work perception, attention, memory, that are compromised in dementia, which were presented for 10 minutes, with the passage of figures every five seconds. After the video, with pictures and music in data show, we talked about the topic presenting the memories and experiences lived by each member, for about 10 minutes. Then the group members participated in activities and dynamics suggested for elderly people[9], according to the theme presented, which consisted of ten sessions, once a week for two hours in each institution, on Wednesdays at the institution I and Tuesdays in the institution II. At the end of each session, snacks were always offered to the participants.

The dynamics were: "The Chair Dance"(9) and "The Train"; "Sailors"[9] with innovation and highlight for the song "I got as a Gaiato in the ship", of the Paralamas do Sucesso group; "Mimic"[9]; "Balance and stretching activities"(10) innovated with airplane theme music; "Mimic" and music and innovations with seasons as theme; "Game of Touch"[9] with videos and music on the theme 'sense organs'; The June Festival with dances, songs, activities and snacks typical of the June Festival; Dynamic with balls[9] and innovation with music and videos on the World Cup, past and present; Making Diaphragmatic Breathing[9] and innovation with music and videos on the theme 'truck trip'; "Move on the balance beam"[9] and "Play the bass drum"[9]; "Touching the balloon" and remanence with music videos from YouTube. There were stretching and balance activities in all dynamics. Objectives, materials and scenarios with shared characteristics were presented.

The SAS statistical software version 9.3.1 was used for data analysis and statistical treatment. However, a descriptive analysis of the data collected in the survey in the two public health institutions with the participation of 43 elderly was first we carried out. Data were divided into first and second measurement (assessment). After preliminary analysis, tests were carried out to see if there was a difference between one measure and the other.

It is noteworthy that the study did not have the purpose of comparing institutions, but comparing the performance before and after the application of the psychomotor activities. Thus, data were analyzed by joining the results of the first and the second evaluation of the two institutions.

Shapiro Wilks test was applied for checking normality and variables were not normally distributed, and thus, the nonparametric sign test was applied. After preliminary analyses, the Kruskal Wallis test with a 0.05 significance level was applied to verify if there is difference between measurements. There was a significant difference, with 95% confidence, between the scores in the first and second measurements in the Tinetti Scale(8) and in the balance parameter of the MSE[9-10].

This research was conducted in accordance with the Resolution of the National Health Council (NHC) nº 466 of December 12, 2012, Operational Norm nº 001/2013. The study was approved by the Research Ethics Committee (REC) involving human beings of the School of Medicine, Fluminense Federal University/FM/UFF/HU under Opinion nº 531,807.

RESULTS AND DISCUSSION

Among the 43 elderly studied, 86.05% were female with a mean age of 74.95 years, with minimum age of 64 and maximum of 88 years. The 2010 Census shows that there are 95.9 men for every 100 women, ie, there are 3.9 million more women than men in Brazil[15]. This may be related to higher mortality among men(10). Yet another possible reason is that women look for health services more frequently, while there is a lower demand for these services among men, mainly due to factors related to gender and culture, such as masculinity[16].

We present below the results of the Tinetti scale[8] and the results for Equilibrium of the Motor Scale for the Elderly– MSE scale[9-10], applied to the elderly in both institutions.

In Table 1, in relation to the Tinetti scale, the first measurement before implementing psychomotor activities, it is observed that 51.16% of the elderly obtained an average of 17.22 points and were considered at high risk for falls. About 25.58% got an average of 21.45 points - moderate risk. The mean for all participants was 20.44 points.

Table 1: Distribution of the elderly according to risk for falls and classification in both measurements. Niterói and Rio de Janeiro, 2014

Variables in the First Measurement	N	%	Mean	SD
Risk for Falls (Tinetti Scale)				
High risk	22	51.16	17.22	1.23
Moderate risk	11	25.58	21.45	1.29
No risk	10	23.26	26.4	1.42
Total	43	100	20.44	3.34
Equilibrium Classification - MSE				
Much lower	14	32.56	60.43	5.78
Lower	10	23.25	73.20	2.53
Normal Low	5	11.63	84	0
Normal medium	10	23.25	95.4	7.18
Normal high	2	4.65	114	0
Higher	1	2.33	120	0
Much higher	1	2.33	132	0
Total	43	100	79.81	19.44
Variables in the Second Measurement	**n**	**%**	**Mean**	**SD**
Risk for Falls (Tinetti Scale)				
High risk	5	11.62	18	0
Moderate risk	28	65.11	20.67	0.94
No risk	10	23.26	27	1.76
Total	43	100	21.83	3.34
Equilibrium Classification - MSE				
Much lower	0	0	0	0
Lower	13	30.23	76.62	1.52
Normal Low	9	20.93	84	0
Normal medium	13	30.23	96	6
Normal high	3	6.97	114	0
Higher	3	6.97	122	3.46
Much higher	2	4.65	132	0
Total	43	100	92.37	16.72

Source: Research data.
Legend: n: frequency; %: percentage; SD: Standard Deviation.

Regarding the low scores in Tinetti[8], among participants, 60.47% had suffered falls. It was observed that, regarding the elderly who had fallen, this cause appears more significantly in the evaluation of the gait, because they presented some changes, especially in aspects related to the difficulty of gait, such as length and height of the steps, trunk position and distance between ankles. This finding is borne out by the study conducted at one Hospital in Florida, United States, with 143 pairs of people with mild dementia and their caregivers, which used the Tinetti Scale and showed high risk for falls. The importance of identifying individuals at risk was stressed for effective interventions be developed to reduce or prevent falls while walking, and also the importance of using this scale was addressed[14].

The results with low scores in the Tinetti Scale were corroborated by the results of balance of the MSE because this scale had also lower scores in the first evaluation carried out. There were 32.55% elderly classified as much lower, 23.25% as lower, and 11.62% as low normal. However, 23.25% of participants were classified as average normal, 4.65% as normal high and only one elderly was classified as higher and much higher. The mean score of the participants in the MSE scale for balance, was 79.81 points, equivalent to the 'Lower' classification. Corroborating these results, a study conducted with 150 elderly residents in Florianópolis/SC, aged between 60 and 94 years, of both sexes, in which the Equilibrium of the Motor Scale for the Elderly- MSE was used, obtained results in the balance of 86.7 points, which is classified as low normal[10].

Thus, aging is associated with impaired balance because of physical problems (overweight, postural deviations, physical inactivity, decreased muscle

mass), neurological problems (vestibular pathways, cerebellum, sense organs), and emotional problems (family, psychiatric disorders). The presence of chronic diseases in aging also contributes to the limitation of many movements[9].

Thus, gait and balance disorders make the elderly more prone to falls. These may result in injury or more serious damage such as fractures, causing physical injury, functional loss or prolonged periods of immobility, thereby generating functional disability and dependence of the elderly[18]. That is why such disorders are relevant for nursing diagnosis.

In this study, the use of the Tinetti Scale[8] and MSE[9-10] made it possible to trace a nursing diagnosis by the perceived needs and psychomotor deficits observed at the first assessment, and then to outline a plan of care, which is, implement psychomotor activities. In terms of assessment, an integrative review study in the Public Domain Portal and in the CAPES database of Thesis that analyzed instruments that assess mobility, among them the Tinetti scale, showed that several studies using scales claimed to have a more reliable assessment of mobility when more than one instrument is simultaneously adopted, focusing on early detection and prevention of falls[19].

During the performance of the dynamics, the participation, interaction and involvement of participants in the study were observed. They would give suggestions and performed the dynamics with satisfaction, leading to favorable results of the psychomotor stimulation performed.Several authors have shown that the practice of regular exercise reduces the morbidity and mortality, incidence of falls, fractures, and number of medications taken, and also promotes longevity, improved functionality and health status[20].

In the second measurement, according to the results of the Tinetti scale, 65.11% of the elderly presented moderate risk for falls with an average of 20.67 points. In turn, elderly at high risk for falls were only 11.62% of participants, with average of 18 points. Thus, in the second measurement, it is observed that 17 (39.53%) elderly were able to improve balance and gait, and from high risk, they went to the classification of moderate risk for falls.This result is corroborated in the quantitative longitudinal study conducted in São Paulo with 94 elderly using the Tinetti Scale for Balance and Gait. In this study, after six months of exercise, it was observed a decrease in the percentage of high risk for falls for both, the P2 group (3.7%) and the P3 group (0%), showing the efficacy and importance of the activity performed[20].

It is observed that in both measurements, according to the Tinetti tests, 23.26% of the elderly did not have risk for falls. The average of the first measurement was 26.4 points of the elderly, and of the second measurement, 27 points. The average of all participants was 21.83 points, corresponding to moderate risk for falls.

The results in Tinetti supports the results of the MSE, because this showed higher scores in the second evaluation. Thus, no one elderly remained in the 'much lower' classification, 30.23% of the elderly were in the 'lower' classification, 20.93% elderly were classified as 'normal low' and 30.23% were in the 'normal medium' classification. The 'normal high', 'higher' and 'much higher' classifications also had the highest number of elderly in the second measurement performed. The elderly in the tests of equilibrium - MSE moved from 'Lower' classification to 'Normal Medium' classification in the second evaluation, getting an average of 92.37 points and P value of 0.0001. This means that the elderly of the institutions surveyed had good results and improvement and they corresponded to the expectations for the psychomotor activities implemented. This result corroborates the findings of other authors who have confirmed the occurrence of increased functional performance of the elderly and, consequently, increased balance and decreased risk for falls by implementing weekly physical activities[3].

Table 2 presents the elderly according to age groups and the scores obtained in the Tinetti scale for Balance and Gait, in the first and second measurements. Regarding age, the mean age was 74.95 years. The maximum value of age was 88 years and the minimum of 64 years, with a total range of 24 years. Among respondents, 55.81% were aged between 70 and 79 years, 23.26%, between 80 and 89 years and 20.93%, between 60 and 69 years.

In the first evaluation, 55.81% of the elderly had a mean of 20.37 points. It is observed that there was an increase in the mean of the second evaluation after the elderly have participated in psychomotor activities implemented; they had a

mean of 21.83 points. It is noticed that the elderly in all age groups showed scores corresponding to moderate risk for falls in the Tinetti Scale for Balance and Gait in both measurements. However, in a quantitative cross-sectional study carried out in São José do Rio Preto (São Paulo) with 20 elderly that had Alzheimer's dementia, of both sexes, were evaluated for gait and balance with the Tinetti scale and it was found high risk for falls for 70% of the participants, and the more advanced the age, the higher was the risk for falls[21].

Table 2. Distribution of the elderly according to age group in the Tinetti Scale. Niterói and Rio de Janeiro, 2014.

Balance and gait	n	%	Mean	SD	P-value
Age - first evaluation					
60 – 69	9	20.93	21.11	5.41	
70-79	24	55.81	20.37	3.69	97
80-89	10	23.26	20	3.43	
Age - second evaluation					
60 – 69	9	20.93	22.66	4.18	
70-79	24	55.81	21.83	3.19	709
80 – 89	10	23.26	21.1	3.03	
Total	43	100	74.95	6.67	-

Source: Research data.

However, in the present study, according to the Kruskal-Wallis test, with a confidence level of 95% and significance level of 0.05, there was no significant difference between age groups in any of the two evaluations performed. Thus, when comparing the results of the elderly aged between 60 and 69 years with other age groups, taking into account the difference of age between participants, younger seniors showed minor improvements in balance and gait in the two institutions researched and in the two assessments carried out. This result of improved balance in all age groups suggests that all seniors, regardless of age, had satisfactory responses to the implementation of psychomotor activities.

Thus, it is important to incentive the elderly to practice in regular exercises to improve their functional capacity, preventing and treating functional declines associated with the aging process in an effective way.

FINAL CONSIDERATIONS

It was found in this study that the participants from the two public health institutions surveyed had significant postural lack of balance, which was demonstrated by the results of the scales applied. More significant scores are shown in the second evaluation in both scales, as the Equilibriumin the MSE scale increased and moved to Normal Medium classification with mean of 92.37 points.

Likewise, the second evaluation in the Tinetti scale was observed that 65.11% of the elderly have increased their scores and were at moderate risk for falls, with mean of 20.67 points.

It was noticed that there was progress in the balance of the elderly in all age groups in the second evaluation, according to Kruskal-Wallis test with a confidence level of 95% and 0.05 significance level, and there was no significant difference in the scores of the Tinetti test for balance and gait between age groups in any of the two evaluations performed. Thus, these results confirm the trend of improvement in any age group and suggest that psychomotor activities are beneficial regardless of age, proving its effectiveness. The results with higher scores of balance among the elderly are an important factor, as 60.47% of the elderly had suffered falls. Thus, it is essential training professionals involved in the health of the elderly and studies must be carried outto develop strategies to improve the balance and functional capacity of older people with Mild Cognitive Deficit.

One limitation of this study relates to the sample size studied. However,the contribution is fundamental if the population growth in this age group is taken into consideration. Thus, it is suggested that further studies with a larger population of older people be carried out in order to promote the safety of this group.

AVALIAÇÃO DE INTERVENÇÕES PSICOMOTORAS EM IDOSOS COM DEFÍCIT COGNITIVO LEVE

RESUMO

O presente estudo teve como objetivo analisar o efeito de atividades psicomotoras sobre equilíbrio em idosos com Déficit Cognitivo Leve. Trata-se de pesquisa quase experimental realizada em duas instituições públicas de saúde, com 43 idosos, residentes em Niterói e Rio de Janeiro/RJ, nos meses de abril a julho/2014. Realizaram-se dez sessões de atividades psicomotoras e avaliações com as escalas antes e após atividades realizadas. Os instrumentos utilizados foram: Escala de Tinetti e Escala Motora para Terceira Idade (EMTI). O projeto foi aprovado pelo Comitê de Ética (Protocolo nº 531.807/2014). Através do Teste Kruskal-Wallis, nível de confiança 95%, significância 0,05, existe diferença significativa entre as avaliações realizadas. Na primeira avaliação, Tinetti apresentou 22 idosos (51,16%), média 17,22 pontos, com alto risco para quedas; 11 idosos (25,58%) com risco moderado. O equilíbrio – EMTI apresentou média 79,81 pontos, equivalente a classificação inferior. E na segunda avaliação, Tinetti apresentou apenas cinco idosos (11,62%) com alto risco para quedas e 28 idosos (65,11%) com risco moderado para quedas e média 20,67 pontos. Dez idosos não apresentaram risco para quedas. O equilíbrio – EMTI obteve média 92,37 pontos mudando para classificação normal médio. Diante dos resultados, evidenciou-se que as atividades psicomotoras favorecem o equilíbrio dos idosos com Déficit Cognitivo Leve.

Keywords: Equilíbrio Postural. Comprometimento Cognitivo Leve. Idoso.

EVALUACIÓN DE INTERVENCIONES PSICOMOTORAS EN ANCIANOS CON DETERIORO COGNITIVO LEVE

RESUMEN

El presente estudio tiene el objetivo de analizar el efecto de actividades psicomotoras en el equilibrio en ancianos con Deterioro Cognitivo Leve. Se trata de una investigación casi experimental realizada en dos instituciones públicas de salud, muestra de 43 ancianos, residentes en Niterói y Rio de Janeiro/RJ/Brasil. Tuvo su inicio en abril y terminó en julio/2014. Fueron realizadas diez sesiones de actividades psicomotoras y evaluaciones con las escalas antes y después de actividades realizadas. Instrumentos utilizados: Escala de Tinetti y Escala Motora para Tercera Edad (EMTI). Proyecto aprobado por el Comité de Ética (Protocolo nº 531.807/2014). A través de la Prueba de Kruskal-Wallis, nivel de confianza 95%, significancia 0,05 existe diferencia significativa entre las evaluaciones realizadas. Primera evaluación: Tinetti presentó 22 ancianos (51,16%), promedio de 17,22 puntos, con alto riesgo para caídas; 11 ancianos (25,58%) con riesgo moderado. El equilibrio – EMTI presentó promedio de 79,81 puntos, equivalente a la clasificación inferior. Segunda evaluación: Tinetti presentó solo cinco ancianos (11,62%) con alto riesgo para caídas y 28 ancianos (65,11%) con riesgo moderado para caídas y promedio de 20,67 puntos. Diez ancianos no presentaron riesgo para caídas. El equilibrio – EMTI obtuvo promedio de 92,37 puntos, cambiando para clasificación normal medio. Ante los resultados queda evidenciado que las actividades psicomotoras favorece el equilibrio de los ancianos con Deterioro Cognitivo Leve.

Palabras clave: Equilibrio Postural. Deterioro Cognitivo Leve. Anciano.

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