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Influence of therapeutic horseback riding in life quality of elderlies classified by the international classification of functioning, disability, and health – ICF

Influencia de la equoterapia en la calidad de vida de los ancianos caracterizados con la clasificación internacional de funcionalidad - CIF

Influência da equoterapia na qualidade de vida de idosos caracterizados com a classificação internacional de funcionalidade – CIF

ABSTRACT

Objective: The objective of this study was to classify active elderlies' health and life quality through the Core set of the International Classification of functioning, disability and health (ICF) and the 36-Item Short Form Health Survey (SF-36), in therapeutic horseback riding. **Methods:** An observational, analytical, transversal study was carried out with ten elderlies of 60 to 80 years old. All individuals performed 16 therapeutic horseback riding session of 30 minutes each. ICF, SF-36 and the Mini-mental State Examination (MMSE) were utilized to evaluate the elderlies. Data were analyzed by descriptive statistical analysis and paired Student's t-test. **Results:** MMSE pre-intervention demonstrated no cognitive decline. In ICF, domains I, II and III were predominantly coded with qualifiers 0 and 2, and domain IV with qualifiers 3 and 4. **Conclusion:** Therapeutic horseback riding for elderlies is an effective therapeutic alternative for the maintenance and improvement of life quality.

DESCRIPTORS: International Classification of Functionality., Assisted Riding Therapy., Quality of life., Elderly.

RESUMEN

Objetivo: caracterizar a las personas mayores activas a través del Conjunto básico de la Clasificación Internacional de Funcionalidad (ICF) para la salud de las personas mayores y evaluar la calidad de vida a través de la Encuesta de salud de forma breve de 36 ítems - SF-36 en terapia asistida equina. **Métodos:** Este es un estudio analítico transversal observacional, en el que 10 personas mayores activas entre 60 y 80 años realizaron 16 sesiones de terapia asistida con caballos, con una duración de 30 minutos cada una. El cuestionario ICF, el SF-36 y el Mini examen del estado mental - MEEM se utilizaron para la evaluación. Se realizó un análisis estadístico descriptivo y también se utilizó la prueba t pareada. **Resultados:** el MMSE previo a la intervención no demostró deterioro cognitivo. En el ICF, los dominios I, II y III tenían calificadores predominantemente en 0 y 2, mientras que en el dominio IV los puntajes tenían calificadores entre 3 y 4. **Conclusión:** la terapia asistida por caballos en los ancianos es una alternativa terapéutica efectiva para mantener y / o mejorar la calidad de vida.

DESCRIPTORES: Clasificación Internacional de Funcionalidad., Equitación Asistida., Calidad de vida., Anciano.

RESUMO

Objetivo: Caracterizar idosos ativos através de Core Set da Classificação Internacional de Funcionalidade (CIF) para saúde de idosos e avaliar a qualidade de vida por meio do The 36-Item Short Form Health Survey- SF-36 na terapia assistida com equinos. **Métodos:** Trata-se de um estudo observacional analítico transversal, onde 10 idosos ativos entre 60 à 80 anos realizaram 16 sessões de terapia assistida com equinos, com duração de 30 minutos cada. Para avaliação foi utilizado o questionário da CIF, o SF-36 e o Mini Exame do Estado Mental – MEEM. Foi realizado análise estatística descritiva e também foi utilizado o teste t pareado. **Resultados:** O MEEM pré intervenção não demonstrou declínio cognitivo. Na CIF, os domínios I, II e III ficaram com qualificadores predominantemente em 0 e 2, já o domínio IV as pontuações ficaram com qualificadores entre 3 e 4. **Conclusão:** A terapia assistida com equinos em idosos é uma alternativa terapêutica efetiva na melhora da qualidade de vida.

DESCRIPTORES: Classificação Internacional de Funcionalidade., Equoterapia Assistida., Qualidade de vida., Idosos.

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Angela Dubiela Julik

Professor of the Physiotherapy course, State University of the Midwest, PR, Brazil.
ORCID: 0000-0001-7375-6771

Andressa Leticia Miri

Master's student in Rehabilitation Sciences, State University of Londrina, PR, Brazil.
ORCID: 0000-0002-9057-5339

Ana Carolina Dorigoni Bini

Professor of the Physiotherapy course, State University of the Midwest, PR, Brazil.
ORCID: 0000-0003-1717-9249

Patricia Pacheco Tyski Suckow

Professor of the Physiotherapy course, State University of the Midwest, PR, Brazil.
ORCID: 0000-0002-5022-7612

Eliane Gonçalves de Jesus Fonseca

Professor of the Physiotherapy course, State University of the Midwest, PR, Brazil.
ORCID: 0000-0002-6540-6111

Felipe Figueiredo Moreira

Student in Physiotherapy, State University of the Midwest, PR, Brazil.
ORCID: 0000-0002-6625-4084

Emerson Carraro

Professor of Pharmacy, State University of the Midwest, PR, Brazil.
ORCID: 0000-0001-5420-2300

INTRODUCTION

Aging is characterized by progressive deterioration in the function of cells, tissues and organs, leading to a decline in physiological functions, such as loss of muscle mass, reduced blood flow, impaired immune system, decreased energy capacity, altered cognitive function and reduced ability to respond to stress stimuli. These age-related declines culminate in the onset of disease, including sarcopenia, cardiovascular disease, cancer, obesity, diabetes and neurodegenerative diseases.¹

The issues related to old age and the aging process have largely aroused the interest of society in general, due to the rapid population aging that has been occurring in several countries, including Brazil. It is possible to say that this is basically due to the decrease in the birth rate and the increase in life expectancy, provided by technological progress in various scientific fields.² Whether in the field of research or care, population growth

directs attention to proposals aimed at maintaining health in this population.³

In the approach of community development and consequently in public health, the decrease in biological resilience and behavioral plasticity compatible with senescence and fragility, lead to increased losses in health, physical functionality, intellectual functioning, activity, motivation, social participation and well-being subjective, which can be aggravated by stressful events generated by social vulnerability, including unmet needs, and by the double harm of being elderly and belonging to the social segment of the poorest and least educated.⁴

Currently, there is a consensus among health professionals that physical activity is a determining factor in the success of the aging process, scientifically the relationship between quality of life, physical activity and aging has been frequently analyzed, such its relevance.⁵

Physiotherapy has the important mission of rehabilitation and health promotion for the elderly, helping both to

relieve symptoms, as well as to promote functional independence and quality of life.⁶ A therapeutic form is hippotherapy, which uses the horse as an instrument to promote education and riding in people with or without disabilities, bringing benefits to the practitioner in social, physical, psychological and educational areas.⁷

Due to this method being applied in open environments, it ends up making the therapy more pleasant and pleasurable, capable of overcoming behavioral, motor, sensory and cognitive damages, all improved due to the oscillations caused in the horse's rump, requiring the participation of all body parts of the individual to perform the exercises.^{8,9}

In order to propose an alternative for health promotion to the elderly, seeking to contribute to the quality of life, longevity and social inclusion, the objective of the present study was to characterize active elderly people and to assess the quality of life by comparing pre and post intervention of assisted therapy with equine.

METHODS

The present study was carried out in 2018 and is a cross-sectional analytical observational study. For its feasibility, the rules recommended by the National Health Council (CNS) for research with human beings and the National Research Ethics Commission (CONEP), established in Resolution no. 466 of December 12th, 2012 from the National Research Ethics Commission (CONEP); and by the Federal Council of Physiotherapy and Occupational Therapy (COFFITO) through Resolution no.10 of July 03rd, 1978.

This study was approved by the Research Ethics Committee of Universidade Estadual do Centro Oeste - UNICENTRO, under opinion number 1814780.

The visits took place in an appropriate place, with trained animals and with appropriate equipment to ensure the safety of the participants during the visits.

The target population consisted of elderly aged between 60 and 80 years, enrolled at UNATI, linked to the State University of the Midwest (UNICENTRO), in the municipality of Guarapuava, in the state of Paraná.

The sample was obtained by convenience by inviting elderly people available and interested in participating in the research, by telephone, resulting in a final sample of 10 participants.

As inclusion criteria were considered elderly enrolled at UNATI, aged between 60 and 90 years old, practitioners of physical activities, elderly people with the ability to understand simple orders, the ability to carry out activities of daily living independently, ride horses independently and present a medical certificate clearing the practice of hippotherapy.

As for the exclusion criteria, individuals who use a wheelchair and the absolute contraindications for equine therapy according to the National Equine Therapy Association - ANDE BRASIL (2004): obese, atlanto-axial instability, moderate to severe osteoporosis, pain during therapy, hip dislocation, muscular dystrophy,

epilepsy, pelvic amputation, uncontrolled arterial hypertension, inflammatory/infectious conditions, tumors, allergies, institutionalized elderly, with neurological disorders, people over 90 kg (rider weight greater than 20% of the animal's weight compromises the quality of the biomechanics of the horse's stride) and that presented phobia to the animal.

The study was carried out at the Hippotherapy and Paraequestrian Practice Service of the State University of the Midwest - UNICENTRO and the Clínica Escola de Fisioterapia, located on the CEDETEG Campus, with the group of elderly participants of the Open University of the Third Age (UNATI).

Initially, the participants received the Free and Informed Consent Term, exposing all the risks and benefits of the research, as well as the important clarifications for the practitioner, the data and image release document and the Term of Science and Commitment (ANNEX I). Only after the participant's approval and signature on all documents, data collection began.

In order to carry out the tests, the elderly were invited to go to the UNICENTRO Hippotherapy and Paraequestrian Practice Service, and interventions started 7 days after the evaluation. At the end of the 16th session of hippotherapy, the elderly were instructed to keep their daily activities unchanged and to remain without guided physical activity during the study period and to return after 7 days and perform the Post-tests.

Data collection took place with different assessment instruments:

The sample was used to characterize the sample (ANNEX II) which contained questions about age, marital status, education, profession, family income, weight, height and BMI. Information was collected on pre-existing pathologies and medications that the elderly used, in addition to physical activities they performed at UNATI, the frequency and, if there was a possibility to interrupt these exercises momentarily.

In order to characterize the sample in terms of functionality, a CIF Cor Set specific to the physical health of the elderly was applied pre-intervention in 4 domains and 28 categories/subcategories.

To certify a sample without cognitive decline, it was decided to apply the Mini Mental State Examination - MEEM pre and post intervention. Also, the questionnaire to assess quality of life was applied before and after the intervention with The 36-Item Short Form Health Survey- SF-36.

For the application of the ICF, a group of six undergraduate physiotherapy students from UNICENTRO received training, after its completion, data collection took place.

The application occurred most of the time in the form of an interview, where the evaluator read the category and the individual evaluated responded by classifying the response in qualifiers: without any commitment (0), slight commitment (1), moderate commitment (2), severe impairment (3) or totally impaired (4); the answers varied according to the question, but always followed the same line of reasoning.

Only two categories were different: one, in the domain of body functions - for the purpose of assessing proprioceptive function - where there were 4 proprioception tests, which the elderly person must correctly complete all of them to be classified with the highest qualifier in that category; another, still in the domain of body functions, to classify the tone of all the muscles in the body, the task was to feel the musculature of the elderly and classify it as compromised or not and the degree of impairment.¹⁰

The MMSE created by Folstein et al. (1975), was used to assess the cognitive function of the elderly. His questions address temporal and spatial orientation, recording and recalling three words, attention, calculation, language and visual constructive ability.

The MMSE is composed of several questions grouped into seven categories, each of which aims to assess deficits in

specific cognitive functions: orientation for time (5 points), orientation for the place (5 points), record of three words (3 points), attention and calculation (5 points), remembering three words (3 points), language (8 points) and visual constructive capacity (1 point). The score can vary from a minimum of 0 to a maximum of 30 points.

Cognitive decline is classified according to schooling: illiterate, the cutoff is 19; 1 to 3 years of schooling cut-off point of 23; 4 to 7 years cutoff point of 24 and more than 7 years of study cutoff point of 28 points.

The generic questionnaire The 36-Item Short Form Health Survey (SF-36) was used to assess quality of life, being one of the most widely used scientifically used quality of life questionnaires.¹¹ Participants answered a questionnaire that contains 36 items, of which 35 are grouped into eight dimensions (functional capacity, pain, physical aspects, emotional aspects, social aspects, mental health, vitality and general health) and a final item that assesses health change over time. For each dimension, the SF-36 items are coded, grouped and transformed on a scale from zero (worst health) to 100 (best health).¹²

There were 16 sessions of hippotherapy, lasting 30 minutes each, twice a week. Two mares were used for the appointments, Maragata, Creole, 20-year-old zaina, who passed by the pace, and Querida, black, mestizo who also passed the pass. These animals are duly trained for equo-therapeutic practice and are attentively assisted by the university's veterinary medicine team, with the proper health authorizations.

The materials used for riding were: helmets, saddles, blankets, halters, stirrups, cillions and brakes. For therapy: drums, balls, sticks and cones, as well as office supplies for recording sessions.

The service provided differentiation of the route, which had a good afforestation and also a pleasant opportunity to border the lake. The environment provided contact with nature during the equine therapy practice.

The waiting area for the practitioner also offers ample space under the grove of native forest outdoors. The ramp for access to the mount is adapted to the location, making it easier for the waiting practitioners to see the other riding practitioners.

The session was divided into: warm-up exercises, lasting 5 minutes; specific training exercises, lasting 20 minutes; and final 5 minutes of relaxation.

The selection of activities to be carried out in the sessions was based on the suggested activities proposed in the courses promoted by ANDE-BRASIL (2004), as well as on the mediator's clinical practice experience.

Warm-up was performed: breathing exercises; stretches; body awareness exercises; simultaneous lifting of alternating arms; trunk rotation; meeting hands in front, above and behind.

In the second stage, the following exercises were performed:

- a) Rhythmic changes in direction: with dissociation of pelvic and scapular waists;
- b) Floor variations (earth, fine gravel, asphalt and lawn): this floor variation aims to activate the baroreceptors, thus stimulating proprioception;
- c) Terrain variations (flat, rugged and inclined): the terrain variation aims to intensify movements of anteroversion and pelvic retroversion;
- d) Vaulting: are postural exercises performed under the horse, which moves in circles. In the rounding, the elderly alternated the riding positions: sitting sideways on the blanket; subsequently sitting in the inverted posture; sat laterally again, but on the opposite side to the one used previously, ending with the classic mount. Thus intensifying the action of the vestibular system, motor coordination and muscle strengthening;
- e) Up and down the stirrups: this exercise has as main objective to

- f) promote the muscular strengthening of upper and lower limbs;
- f) Scream of encouragement: at the end of each exercise the mediator said "Uipe" and the elderly answered "Ha", in order to relax the therapy and perform a forced expiration, thus increasing the tidal volume of air in the lungs.

In the final phase of the practice, relaxation or a return to calmness was performed, which consists of exercises for psychic and muscular relaxation, with the objective of favoring the reduction of excessive muscle contraction, in addition to educating the proprioceptive sensations. Breathing exercises, stretching and affective interaction were also performed with the horse still mounted.

Data analysis was performed using SPSS, version 25.0. Data were presented as means and standard deviations. Initially, the Shapiro-Wilk test was applied to confirm the hypothesis of normality. The variables that violated normality were mathematically adjusted (BoxCox). Pre and post measurements were compared using the paired t test, with a significance level of $p < 0,05$.

RESULTS

Table 1 shows the characteristics of the sample (N=10): age, gender, weight, height, BMI, education, income and marital status. The values are displayed in percentage, with the sample being predominantly female, married, average age of 70, 6 years old, with stable monthly income (4 thousand reais) and above normal BMI (26, 63).

For the analysis of the ICF data, descriptive statistics was used in order to obtain the relative frequency (%), based on the absolute frequency with which the qualifiers appeared in the sample.

The results of the sample classification were divided into two tables, which present two domains each. Qualifiers' scores are represented in percentages for each subcategory and all ICF domains.

Table 2 shows ICF Domain I, which represents the functions of the body. Its subcategories correspond: energy level; sleep quality; vestibular function of movement; proprioceptive function; feeling of pain; general physical endurance; aerobic capacity; generalized mobility of joints; strength, tone and endurance of all muscles in the body. It is observed that the qualifiers are mostly between 0 and 2, that is, individuals have no problem to moderate problem.

Table 2 also shows ICF Domain II, which is equivalent to the body's structures, is subdivided into: heart, bones, joints and muscles. Note that the values are predominantly at 0 and 1, which indicate no or slight structural problem with the body.

Table 3 shows the percentage of ICF Domain III, which indicates activity and participation. Its subcategories involve: concentration and attention; crouch; get up; walk; use of transport; guarantee your own physical comfort; control of diet and fitness; relationship with peers and playing sports. It appears that the elderly predominantly do not have problems in activity and participation, in addition, none reported difficulty in getting up and walking, favoring the practice of hippotherapy.

Domain IV of the ICF regarding environmental factors (table 5) was subdivided into: medications; general products and technologies for activities; cultural, recreational and sports activities and health services. As opposed to Domains I, II and III, Domain IV presented percentages arranged in all qualifiers (predominance 3 and 4), from no problem related to environmental factors to complete problem.

Table 4 shows the mean and standard deviation values of the MMSE before and after the intervention. The sample has normal cognition, and there was also no relevant change when comparing pre and post evaluation.

Table 5 shows the mean and standard deviation of the SF-36 score values in the domains: functional capacity; physical

Table 1 - Sample characteristics

| Características | Média | Mediana | DP |
|--------------------------------|--------------|---------|------|
| | Idade | 70,6 | 73 |
| Gênero | | | |
| Feminino (%) | 90 | | |
| Masculino (%) | 10 | | |
| Peso | 69,93 | 65,15 | 11,6 |
| Altura | 1,69 | 1,57 | 0,13 |
| Renda (mil reais) | 3,9 | 4 | 1,6 |
| IMC (Kg/cm²) | 20,63 | | 4,54 |
| Estado civil | | | |
| Solteiro (%) | 10 | | |
| Casado (%) | 50 | | |
| Separado (%) | 20 | | |
| Viúvo (%) | 20 | | |

Source: the researcher. DP: Standard deviation. N = 10

Table 2 - Characterization of the elderly by the ICF: Body Structure and Function

| DOMÍNIO I - FUNÇÃO DO CORPO | | Qualificadores (%) | | | | |
|---------------------------------|---|--------------------|------------------|----|----|----|
| Categorias/Subcategorias | | 0 | 1 | 2 | 3 | 4 |
| | | B1300 | Nível de energia | 50 | 30 | 20 |
| B1343 | Qualidade de sono | 40 | 20 | 30 | 10 | 0 |
| B2352 | Função vestibular do movimento | 40 | 50 | 10 | 0 | 0 |
| B260 | Função proprioceptiva | 50 | 20 | 20 | 10 | 0 |
| B280 | Sensação de dor | 30 | 20 | 40 | 10 | 0 |
| B4550 | Resistência física geral | 40 | 40 | 20 | 0 | 0 |
| B4551 | Capacidade aeróbica | 50 | 20 | 20 | 10 | 0 |
| B7102 | Mobilidade generalizada das articulações | 30 | 30 | 30 | 10 | 0 |
| B7306 | Força de todos os músculos do corpo | 30 | 40 | 30 | 0 | 0 |
| B7356 | Tônus de todos os músculos do corpo | 10 | 30 | 50 | 10 | 0 |
| B7402 | Resistência de todos os músculos do corpo | 50 | 30 | 20 | 0 | 0 |
| DOMÍNIO II - ESTRUTURA DO CORPO | | Qualificadores (%) | | | | |
| Categorias/Subcategorias | | 0 | 1 | 2 | 3 | 4 |
| | | S4100 | Coração | 70 | 30 | 0 |
| S7700 | Ossos | 30 | 70 | 0 | 0 | 0 |
| S7701 | Articulação | 40 | 60 | 0 | 0 | 0 |
| S7702 | Músculos | 60 | 40 | 0 | 0 | 0 |

Source: The researcher. 0 - No problems presented. 1- Small problem presented. 2- Moderate problem presented. 3- Serious problem presented. 4- Complete problem presented. N=10

aspects; ache; general health status; vitality; social aspects; emotional aspects and mental health. There was a statistical difference between pre and post intervention in pain ($p = 0,037$) and social aspects ($p = 0,008$). Thus, when obtaining a significant reduction in pain and improvement in social aspects, the effectiveness of therapy with horses in the elderly can be seen.

Campos et al. (2014) carried out a cross-sectional study with 107 elderly people belonging to basic units in Minas Gerais (Brazil) seeking to describe the sociodemographic profile, as well as to evaluate the interdependence relationship between the quality of life of the elderly and physical activity (gymnastics). Some instruments, questionnaires and scale were applied: Katz Index, Lawton-Brody Index, Mini Mental State Examination, Family Apgar; International Physical Activity Questionnaire, World Health Organization Quality of Life instrument-Old and the Geriatric Depression Scale. They found that the predominant profile was women, retired, without a partner and with an income of 622,00 reais or less. Still, they found that the quality of life of the elderly is good and influenced by the practice of regular physical activities, absence of depression, better cognitive capacity and family functionality.

Araújo and Faro (2014) characterized the profile of 386 elderly participants in the Elderly Living Center in São Paulo (Brazil) and investigated health conditions and performance in activities of daily living according to the International Classification of Functionality, Disability and Health and the Mini Mental State Examination. Through the data noted in the sample predominance of women, married, self-declared white ethnicity, with 5-10 years of schooling, retired, monthly income of a minimum wage, own house, means of locomotion and preferred physical activity is walking, with preserved cognitive function. They found that most of the ICF categories were little compromised,

Table 3 - Characterization of the elderly by the ICF: Activity, Participation and Environmental Factors

| DOMÍNIO III - ATIVIDADE E PARTICIPAÇÃO | | | | | | |
|--|--|-----|----|----|----|----|
| Categorias/Subcategorias | Qualificadores (%) | | | | | |
| | 0 | 1 | 2 | 3 | 4 | |
| D169 | Concentrar e atenção | 70 | 0 | 10 | 10 | 10 |
| D4101 | Agachar-se | 80 | 20 | 0 | 0 | 0 |
| D4104 | Levantar-se | 100 | 0 | 0 | 0 | 0 |
| D450 | Andar | 100 | 0 | 0 | 0 | 0 |
| D470 | Utilização de transporte | 60 | 30 | 10 | 0 | 0 |
| D5700 | Garantir o próprio conforto físico | 90 | 10 | 0 | 0 | 0 |
| D5701 | Controle e dieta e forma física | 90 | 0 | 10 | 0 | 0 |
| D7504 | Relação com os pares | 60 | 20 | 20 | 0 | 0 |
| D9201 | Praticar esportes | 60 | 30 | 10 | 0 | 0 |
| DOMÍNIO IV- FATORES AMBIENTAIS | | | | | | |
| Categorias/Subcategorias | Qualificadores (%) | | | | | |
| | 0 | 1 | 2 | 3 | 4 | |
| E1101 | Medicamentos | 0 | 70 | 30 | 0 | 0 |
| E1400 | Produtos e tecnologias gerais para atividades Culturais recreativas e esportivas | 0 | 0 | 0 | 30 | 70 |
| E5800 | Serviços de Saúde | 0 | 10 | 10 | 30 | 50 |

Source: The researcher. 0 - No problems presented. 1- Small problem presented. 2- Moderate problem presented. 3- Serious problem presented. 4- Complete problem presented. N=10

Table 4 – Mini Mental State Examination - MMSE

| MEEM | Média | Desvio padrão |
|-----------------|-------|---------------|
| Pré-intervenção | 25,2 | 3,48 |
| Pós-intervenção | 25,5 | 2,91 |

Source: The researcher. MEEM: Mini Mental State Examination (MMSE). N=10

Table 5 - Score obtained in the SF-36 Questionnaire before and after hospitalization

| | PRÉ | | PÓS | | P |
|-----------------------|--------|-------|--------|-------|--------|
| | M | DP | M | DP | |
| Capacidade Funcional | 97,56 | 2,51 | 98,67 | 3,32 | 0,347 |
| Aspectos Físicos | 94,44 | 16,67 | 66,67 | 25,00 | 0,051 |
| Dor | 78,33 | 20,55 | 62,22 | 3,67 | 0,037* |
| Estado de Saúde Geral | 81,78 | 15,01 | 78,22 | 4,32 | 0,519 |
| Vitalidade | 79,44 | 1,67 | 77,78 | 8,70 | 0,594 |
| Aspectos Sociais | 77,78 | 15,02 | 98,61 | 4,17 | 0,008* |
| Aspectos Emocionais | 100,00 | 0,00 | 100,00 | 0,00 | 1,000 |
| Saúde Mental | 59,11 | 14,39 | 69,33 | 2,83 | 0,081 |

Source: the researcher. M: Average (Média) DP: Standard deviation. P<0,05. N=10

with mild or no difficulty, including environmental factors.

In this research, we also sought to describe the profile of the elderly, when an assessment was applied containing personal data, cognitive status (MMSE) and quality of life (SF-36). Corroborating the studies by Campos et al. (2014) and Araújo and Faro (2014), the samples have preserved cognitive capacity and are predominantly female, this can be explained by the greater longevity of women, their greater adherence to physical activity programs, as well as greater search for health services and adaptation to a healthy lifestyle.

In the studies by Campos et al. (2014) and Araújo and Faro (2014) the sample's monthly income is approximately one minimum wage, while in the present study the profile is of elderly people with a higher monthly income (4 thousand reais).

In this study it is considered a privileged audience, as they are healthy elderly people, without cognitive impairment and who practice regular physical activity. Furthermore, it was concluded that the ICF characterizes positive qualifiers in terms of function, structure, activity and participation (Domains I, II and III).

Adversely the investigation by Araújo and Faro (2014), the elderly in the present study reported problems related to environmental factors (CIF-Domain IV), which were not homogeneous and had a predominance in qualifiers 3 and 4 (serious problem presented to a complete problem introduced).

These results demonstrate that satisfaction with environmental factors and perception of good quality of life are subjective from individual to individual, and that the domains of the ICF are not directly inherent to each other, as the present sample did not show problems in terms of function, structure, activity and participation, in addition to having a stable monthly income, and yet there were reports of environmental problems (medicines; general products and technologies for activities; cultural, recreational and sporting activities and health services.)

Kim (2018) in a clinical study, with 51 subjects, divided into four experimental groups: younger adults with therapeutic horse, older adults with therapeutic horse, younger adults with simulated horse, and elderly with simulated horse. Muscles of postural stability were evaluated with electromyography, which consisted of the session: walking 80m/minute, slow trot 135m/minute, fast trot 159m/minute. They stated that hippotherapy exercises were more advantageous for older adults and the elderly than for young adults. Reducing balance changes, thereby reducing the risk of falls. It is observed in our study that vestibular function, proprioceptive function, general physical resistance, aerobic capacity, generalized mobility of the joints, strength, tone and resistance of all the muscles of the body are normal in the elderly, thus reducing the risk of falls.

Kim and Lee (2015) investigated the effect of riding simulation on balance and trunk activation, seeking to provide evidence of the therapeutic benefits of exercise. They recruited 30 elderly people and randomly divided them into a control group and an experimental group, with only the experimental group performing the exercise. The exercise protocol lasted 20 minutes, 5 times a week, for 8 weeks and was associated with conventional therapy. When analyzing measures of muscle activation and stability limits, the authors suggest that riding exercise increases muscle activation and dynamic stability in relation to control, still claiming that this can be an effective approach in reducing the risk of falls.

Cho (2017) identified in 31 healthy elderly people, randomly divided, the effects of real riding and mechanical riding on psychological stability, through the relative alpha power (electroencephalogram). The exercise program was conducted for 25 minutes, twice a week, for 12 weeks. It consisted of warm-up exercises, horse riding (training in various planes and directions) and cooling down (stretching, breathing training). The results showed that the real riding group obtai-

ned a relatively rapid increase in alpha power, while the mechanical group had a relatively slow increase in alpha power, thus suggesting that both groups have a positive effect on psychological stability in the elderly.

Riding therapy programs are an excellent therapeutic tool, improving static and dynamic balance, gross and fine motor function, gait, spasticity, motor coordination, reduce the risk of falls and generate positive effects on psychological stability, presenting benefits of riding therapy in seniors. The present investigation corroborates these studies regarding the effectiveness of hippotherapy in the elderly.^{8,17,18,19}

In the present analysis, a statistical difference was found in the SF-36, pre and post intervention in pain ($p = 0,037$) and in social aspects ($p = 0,008$). Therefore, when acting in these aspects, hippotherapy demonstrates an alternative therapy capable of maintaining/improving the quality of life. What corroborates in a case report by Santos (2019), an 85-year-old patient, practiced hippotherapy for seven weeks. Each therapy session consisted of 30 minutes of activities to promote balance, posture and self-confidence. Before the first, and at the end of the last hippotherapy session, the elderly answered the STAI (State-Trait Anxiety Inventory) and WHOQOL-Bref (World Health Organization Quality of Life-Bref). It was concluded that the practice of hippotherapy improved the quality of life scores of this evaluated elderly.

It is believed that there was no statistical difference in other SF-36 variables (functional capacity, physical aspects, general health status, vitality, emotional aspects and mental health) because it is a target population without any disability and/or problem relevant installed.

In the study by Mello (2018), 20 participants participated in the trunk analysis, 15 female and five male, with an average of 69 years. And for chewing analysis 17 participants, 13 female and 4 male, with an average of 66 years. 11 sessions of hippotherapy were performed,

once a week, lasting 30 minutes. Using the electromyography for analysis, it was concluded that hippotherapy promotes changes in the activity of the muscles of the elderly, with the trunk muscles being activated, in an increasing way and even the recruitment of the masticatory muscles, which significantly increases the quality of life of the elderly.

The implementation of a control group, a larger sample size and broader

analyzes are potential ideas for further studies and/or further development.

CONCLUSION

The elderly profile of the present study is predominantly female, married, with an average age of 70,6 years, with overweight. In the sample characterization by the ICF, it was found in Domains I, II and III qualifiers predominantly in 0 and 2, that is, no

problem presented to moderate problem presented. In Domain IV, the values were predominant between 3 and 4, ranging from a serious problem to a complete problem. In SF-36 there was a statistical difference between pre and post intervention in pain and in social aspects.

It is concluded that assisted therapy with horses in the elderly is an effective therapeutic alternative in maintaining and/or improving quality of life. ■

REFERENCES

1. Rey-Mermet A. & Gade, M. Inhibition in aging: What is preserved? What declines? A meta-analysis. *Psychon Bull Rev.* 2018; 25:1695 – 1716.
2. Duque A, Peixoto MV, Lima S, Goes MA, Santos A, Araújo KC. et al. Analysis of the relationship between life expectancy and social determinants in a north-eastern region of Brazil, 2010-2017. *Geospatial Health.* 2018; 13(2).
3. Campos FOS. A management of public health in the municipality of Salvador, in the access of the elderly population, at the level of primary care, in front of a neoliberal government. Universidade Católica do Salvador. 2020.
4. Suzman R, Beard JR, Boerma T, Chatterji. S. Health in an ageing world- What do we know. *Lancet;* 2015; 385: 484-6.
5. Czibere I, Rácz A, Szilvási H, Szikszai Z, Imre S. Examination of life quality, mental conditions and cognitive status of people over the age of 90: Results of a Hungarian local research. *Cent Eur J Public Health.* 2019; 27(1):17-23.
6. Certo A, Sanchez K, Galvão AM, Fernandes H. A síndrome da fragilidade nos idosos: revisão da literatura. In *Actas de Gerontologia: Congresso Português de Avaliação e Intervenção em Gerontologia Social.* 2016; 2(1).1- 11
7. Pohl P, Carlsson G, Bunketorp Käll L, Nilsson M, Blomstrand C. A qualitative exploration of post-acute stroke participants' experiences of a multimodal intervention incorporating horseback riding. *PLoS one.* 2018; 13(9).
8. Kim MJ, Kim T, Oh S, Yoon B. Equine Exercise in Younger and Older Adults: Simulated Versus Real Horseback Riding. *Perceptual and Motor Skills.* 2018;125(1):93-108.
9. Livingston-Thomas J, Nelson P, Karthikeyan S, Antonescu S, Jeffers MS, Marzolini S. et al. Exercise and Environmental Enrichment as Enablers of Task-Specific Neuroplasticity and Stroke Recovery. *Neurotherapeutics.* 2016;13(2) 395–402.
10. Ruaro, J.F. Proposição e aplicação de um core set da Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF) para saúde física de idosos. Tese – Universidade Federal do Rio Grande do Norte, Natal, 2014.
11. Folstein MF, Folstein SE, McHugh PR. "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res.* 1975; 12(3):189-98.
12. Lins L, Carvalho FM. Pontuação total do SF-36 como uma medida única de qualidade de vida relacionada à saúde: revisão do escopo. *SAGE Open Medicine.* 2016.
13. Ciconelli RM, Ferraz MB, Santos W, Meinão I, Quaresma MR. Tradução para a língua portuguesa e validação do questionário genérico de avaliação de qualidade de vida SF-36 (Brasil SF-36). *Rev Bras Reumatol.* 1999; 39 (3). 143-150.
14. ANDE-BRASIL [Associação Nacional de Equoterapia]. In: *Curso Básico de Equoterapia*, São Paulo, 2004.
15. Campos ACV, Cordeiro EC, Rezende GP, Vargas AMD. Quality of life of elderly practitioners of physical activity in the context of the family health strategy. *Texto contexto – enferm.* 2014; 23(4). 889-897.
16. Araújo CLO, Faro ACM. Condições de saúde e funcionalidade dos idosos do Vale Paraíba, São Paulo, Brasil. *Enfermería Global.* 2014; 33. 100-115.
17. Kim SG, Lee JH. The effects of horse riding simulation exercise on muscle activation and limits of stability in the elderly. *Archives of Gerontology and Geriatrics.* 2015; 60. 62-65.
18. Cho SH. Effects of horseback riding exercise on the relative alpha power spectrum in the elderly. *Archives of Gerontology and Geriatrics.* 2017; 70.141-147.
19. Stergiou A, Tzoufi M, Ntzani E, Varvarousis D, Beris A, Ploumis A. Therapeutic Effects of Horseback Riding Interventions: A Systematic Review and Meta-analysis. *Am J Phys Med Rehabil.* 2017; 96(10):717-725.
20. Santos ACG, Araújo AMS, Orlando DR, Lobo-Júnior AR, Andrade E.F. Efeitos da equoterapia sobre a ansiedade e qualidade de vida de um idoso institucionalizado: um relato de caso. *ENCICLOPÉDIA BIOSFERA, Centro Científico Conhecer – Goiânia.* 2019;16(30). 231.
21. Mello EC. Efeitos da equoterapia sobre as atividades eletromiográficas dos músculos do tronco e da mastigação em praticantes idosos. 2018. 86f. *Dissertação (Mestrado em Ciências da Saúde) - Programa de Pós-Graduação em Ciências da Saúde, Universidade Federal do Triângulo Mineiro, Uberaba, 2018.*