

Nutrition service in physical rehabilitation: epidemiological profile of patients in outpatient care

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ABSTRACT

It is estimated that one person in ten has a deficiency, which is 10% of the world's population. The most common causes of physical disability are amputation, stroke, head trauma, spinal cord injury, fibromyalgia, and neurodegenerative diseases. **Objective:** This study sought to describe the profile of patients served by the nutrition service at the Instituto de Medicina Física e Reabilitação (IMREA) - Vila Mariana Unit, São Paulo, between February 2012 and September 2015. **Method:** This is a descriptive study whose data were obtained from medical records of visits where the following data were collected: gender, age, service personnel, associated diseases, initial and final body mass index, and initial and final bowel habits. **Results:** The studied population was predominantly female; young adult; main etiology of brain damage; diagnosed hypertension associated in most cases; and mostly overweight. **Conclusion:** Observed significant improvement in bowel habits after nutrition education program.

Keywords: Rehabilitation Services, Nutrition Programs, Constipation, Body Mass Index

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INTRODUCTION

It is estimated that one person in ten has some kind of disability, which is 10% of the world's population, as determined by the World Health Organization (WHO) from studies in the 1970s; this corroborates with the proportion found by the Rehabilitation International organization.^{1,2}

In Brazil, the 1998 estimate was 16.5 million persons with disability,³ but more current data has it at either 17 million⁴ or 24.5 million,⁵ depending on the source, with 48.1% having visual disabilities, 22.9% having motor disabilities, 16.7% having impaired hearing, 8.3% having some mental disability, and 4.1% some physical disability.⁶ We can see that the increase is proportional to the increase in the general population.

In relation to these disabilities, there are few studies in Brazil that present an epidemiological profile, especially concerning what etiological agents were involved in its determination.⁶ These studies are essential to reducing the costs and complications, improving the quality of life of these patients, launching educational campaigns for the prevention of these agents whenever possible, and improving the health care system.

Physical or motor function disability is defined in Art. 4 of Decree No. 3.298/99, modified by Decree No. 5.296/2004 as "alterations in whole or in part of one or more segments of the human body, resulting in the impairment of physical function".⁷

The most common causes of physical disability are: amputation - 13.9:100,000 inhabitants per year in Brazil;⁸ stroke (CVA) - 1:6 in the world;⁹ traumatic brain injury (TBI) - annually in Brazil half a million people require hospitalization;¹⁰ spinal cord injury (SCI) - 40 new cases per year per one million inhabitants in Brazil, which is approximately 6 to 8 thousand new cases per year, 80% of which are males and 60% are between 10 and 30 years of age;¹¹ fibromyalgia - studies have reported its prevalence in some 10% of the population in Brazil, being more common among females (80%);¹² Neurodegenerative Diseases - their incidence varies according to the etiology from 1:2500 (peripheral neuropathy) up to 1 to 2.5:100 000 (amyotrophic lateral sclerosis);¹³ and cerebral palsy - 7:1,000 live births in developing countries.¹⁴

Some of these incapacitating diseases are increasingly linked to chronic non-communicable diseases (NCDs) such as diabetes, cardiovascular diseases, chronic respiratory diseases, renal failure, cerebrovascular disease, and cancer. There are also intermediate risk factors in conditions such as

hypertension, dyslipidemia, being overweight, as characterized by a body mass index (BMI) ≥ 25 kg/m², obesity (BMI > 30 kg/m²), and glucose intolerance.^{6,15} However, the risk factors common to all are smoking, physical inactivity, alcohol abuse, and an inadequate diet.¹⁵

Further contributing to the NCDs and their risk factors are poor eating habits: the excessive intake of fats - especially saturated fat - and refined foods - those rich in sugar and poor in fiber. Nutritional therapy is thus essential in the treatment and prevention of these diseases.¹⁶

Nutrition, in addition to nutritional therapy, also has the function of assisting the gastrointestinal system in patients with physical disabilities, since reduced mobility or immobility can compromise intake, digestion, and elimination. As a result, these very common alterations may lead to clinical constipation, which can be related to improper food and fluid intake, decreased peristalsis, atrophy of the intestinal mucosa, use of medications, and social factors.¹⁷

It is worth mentioning that the nutritionist in these situations has nutritional education as one of the alternatives for the promotion of health, which, by itself, using only the biological point of view, does not promote desired changes. This needs to happen in a comprehensive manner taking into account the needs felt by the public, considering the psychological, socio-cultural, and economic characteristics of society and/or the individual.^{18,19}

It is seen that to achieve its goal, nutritional education should promote the knowledge of appropriate and healthy habits, not forgetting the pleasure of feeding ourselves, of preparing food, and enjoying its flavors, always encouraging the autonomy of the individual, valuing and respecting the cultural and regional particularities. The expected outcome of this intervention is that every human being may develop the ability to better select and use available food resources to meet their nutritional needs, as well as the capacity to analyze and search for alternatives when there are food inadequacies.^{18,19}

Due to this entire nutritional and socio-cultural context, with the scarcity of studies in nutrition in rehabilitation, the present study is based on the need to have a perception of the population treated within a rehabilitation center.

OBJECTIVE

General

To describe, in overview, the profile of the patients seen by the nutrition service at the Institute of Physical Medicine and Rehabilitation (IMREA) - Vila Mariana Unit, São Paulo, between February of 2012 and September of 2015.

Specifics:

- Categorize patients by age and gender;
- Classify patients into groups according to the underlying disease;
- Analyze the patients according to associated diseases;
- Assess the body mass index at the beginning and at the end of the nutrition program;
- Evaluate and compare the bowel habit in the period assisted by the nutrition service;

METHOD

This is a descriptive study with data obtained from medical records of patient visits carried out by the Nutrition Service of the Institute of Physical Medicine and Rehabilitation (IMREA) - Lucy Montoro - Vila Mariana Unit, São Paulo, in the period from February 2012 to September 2015, with data from 506 patients.

The nutrition service is part of the multidisciplinary team of the institute, it participates in all care teams performing an assessment at the beginning and at the end of the program, guiding the patient and caregiver regarding the functioning of the gastrointestinal tract; teaching the food pyramid specifying the groups, food, importance, and portions of each one; teaching how to build a healthy dish by using the groups in the food pyramid; working on the cause, prevention, and diet therapy for diabetes, hypertension, and dyslipidemia; teaching the reading of food labels/industrialized products; guiding the diet therapy for diseases such as anemia, decreased intake of vitamin K, uric acid, and others.

Data collected: gender, age, medical staff (according to the etiology); associated diseases such as hypertension, diabetes and dyslipidemia; body mass index at the beginning and end following the classification criteria for the body mass index from the World Health Organization^{20,21,22,23} and the Pan American Health Organization;²⁴ initial and final bowel habit, classified according to the criteria of Rome III.²⁵

These data were submitted to statistical study and analyzed via both absolute and relative frequencies.

RESULTS

In this period 506 patients were treated by the nutrition service, and data from 321 of these patients were analyzed, 158 patients were excluded from the analysis by reason of discharge from hospital before the completion

of the treatment, and 27 patients due to incomplete data.

Of these 321 patients, 138 were males (43%) and 183, females (57%). The average of visits was equivalent to 18.07. When divided by age groups, the following classification according to male and female, respectively, was obtained: children (5%) 9 and 8, adolescents (1%) 3 and 1, young adults (17%) 37 and 19, adults (41%) 41 and 90, and elderly (35%) 47 and 66. Ages ranged from 1 to 88 years, with an average of 44.7 years (Table 1).

The patients were treated in groups according to teams based on etiology: Brain Injury (BI) - patients who have had some brain injury due to a stroke (CVA), tumor, head trauma, or other cause -108 (33.6%); Amputees (AMP) - those who have had amputation of any limb due to decompensated diabetes, peripheral vascular disease, traumas, neoplasia, infectious or skin diseases, or others -31 (9.7%); Fibromyalgia (FIBRO) -77 (24%); Spinal Cord Injury (SCI) - caused by car accidents, falls, violence, or other type of injury to the spinal cord -52 (16.2%); General patients with neurodegenerative or neuromuscular diseases -27 (8.4%); Individual - a person with any etiology cited in need of individualized care -10 (3.1%); Children - children with cerebral palsy, delayed psychomotor development, myelomeningocele, malformation of the lower or upper limbs -16 (5%). In addition to the etiology, some patients had associated diseases and risk factors or even chronic non-communicable diseases (NCDs) associated with hypertension (HTN) 153 (47.7%), dyslipidemia (DLP) 135 (42.1%) and/or diabetes (DM) 68 (21.2%), without any associated disease (no disease) 96 (29.9%) (Figure 1).

The initial and final body mass index (BMI) was calculated at the beginning and at the end of the nutrition program, respectively classified as: underweight 24 (7.5%) and 17 (5.3%); eutrophic 131 (40.8%) and 146 (45.5%); overweight 87 (27.1%) and 78 (24.3%); class I obesity 57 (17.8%) and 62 (19.3%); class II obesity, 16 (5%) and 14 (4.4%); class III obesity 6 (1.9%) and 4 (1.2%). The Chi-square test comparing initial and final values showed a significant difference of $p < 0.001$ (Figure 2).

The bowel habit of patients in the nutrition program was evaluated and found 213 with normal bowel habit at the beginning and 284 at the end of the program, in addition to 108 constipated people at the beginning and 37 at the end of the program. A significant difference ($p < 0.001$) was found between the initial and the final data by the Chi - square test (Figure 3).

Table 1. Classification of gender by age

Age Bracket/Gender	Male	Female
Children (0 to 11)	9	8
Adolescents (12 to 18)	3	1
Young adults (19 to 40)	37	19
Adults (19 to 60)	41	90
Elderly (>60)	47	66

DISCUSSION

In this study the predominance was female (57%), which was also observed by the 2010 Brazilian Census,²⁶ in the population of persons with physical disabilities, supporting the findings of the WHO report on disability.²⁷

The average age of the patients seen was 44.7 years and that is within the age range found in the literature. In the 2010 Census, the largest contingent of people with at least one deficiency occurred in the population between 40 and 59 years of age.²⁶ The 2000 Census also reported that the largest number of people with disabilities in the population was between 40 and 49 years of age.²⁸

The predominant etiology in the population studied was that of a brain injury, the highest incident disease among those treated.⁹ This was also noticed by the Institute Lucy Montoro through the Tasy hospital management software in its indicators from July 1 to December 31, 2015, which treated 67,943 cases of people with physical disabilities, with 28.31% of that population treated for brain injury.

However, the high prevalence of patients found with hypertension (47.7%), proved to be a little high when compared with the data from the World Health Organization (WHO) in 2008, which estimated 30% of hypertensive patients in the European region and 23% in the region of the Americas.²⁹ That agrees with the data of the Brazilian Society of Hypertension that estimated 25% of people to be hypertensive in 2010.³⁰ It is worth emphasizing that in 2006 the Ministry of Health published that there were approximately 17 million people with hypertension, that this number was growing, and it emphasized that due to it being mostly asymptomatic, its diagnosis and treatment are often neglected.³¹

Dyslipidemia had an incidence of 42.1% in the population studied, it was found at the intermediate level of research made. In the city of São Paulo, in the period of 2008-2009, 59.7% of the population was found with some type of dyslipidemia.³² However, the BREATHE testing held in 51 training centers in different regions found 36.7% with the same comorbidity.³³

The last associated disease was diabetes, with 21.2%, slightly more than the population data (collected from the Surveillance of Risk and Protective Factors for Chronic Diseases by Telephone Survey) that, in Brazil, show that the prevalence of self-reported diabetes in the population over 18 years old had increased from 5.3% to 5.6%, between 2006 and 2011.³⁴

It should be emphasized that the population studied is more likely to have NCDs and risk factors such as hypertension, dyslipidemia, and overweight, than people without disabilities, which would justify higher results than in the general population.^{35,36}

In relation to the initial and final BMI of the patients, most of the population was found to be overweight 51.7% and 49.2%, followed by the eutrophic population 40.8% and 45.5%, and finally underweight 7.5% and 5.3%, respectively. This predominance of overweight BMI (overweight and obesity grades I, II, and III) has become increasingly common. In Brazil, between 1975 and 2009, overweight in men and women between 20 and 59 years of age increased, respectively, from 18.5 to 50.1% and from 28.7 to 48%, while the prevalence of obesity in the adult population increased from 2.8 to 12.4% in men and 8.0 to 16.9% in women.³⁷ It is more common to find overweight people with disabilities than without disabilities as seen in a study conducted in the United States where the prevalence was 1.35 times greater in persons with disabilities.³⁸ Another study conducted with students with disabilities at a school in Tokyo showed that students with physical disabilities had a delay in growth and a prevalence of obesity.³⁹

It was seen that the bowel habits of the patients were improved at the end of the program. One can presume that this was the result of the encouragement of healthy eating habits such as fractioning of meals, greater ingestion of liquids such as water, consumption of whole grains, adequate intake of fruits and vegetables, reduction in the consumption of fried foods, fats, sweets, and industrialized products during the nutrition program.¹⁷

It was observed that nutrition is becoming a modifiable factor for NCD prevention,¹⁶ and

Associated diseases

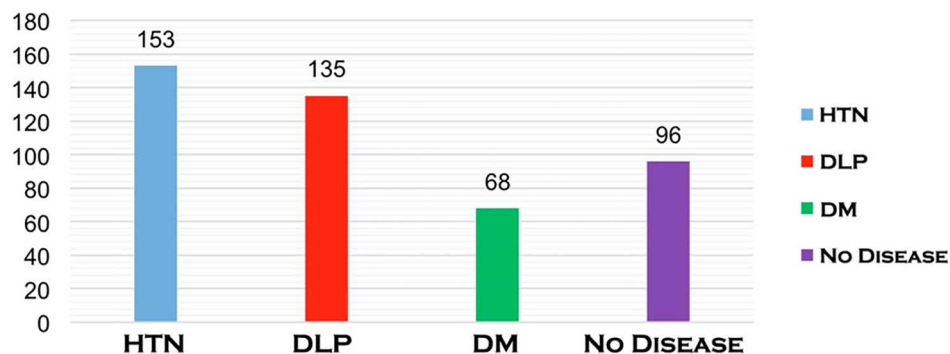


Figure 1. Classification of the patients according to associated diseases

Body Mass Index

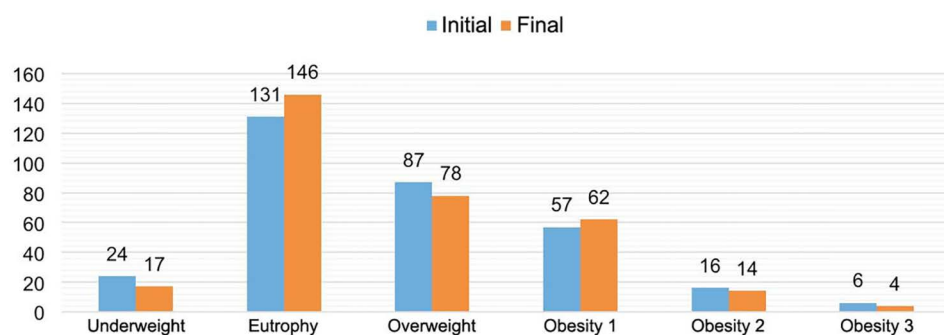


Figure 2. Classification of initial and final Body Mass Index of the patients treated

Bowel Habit

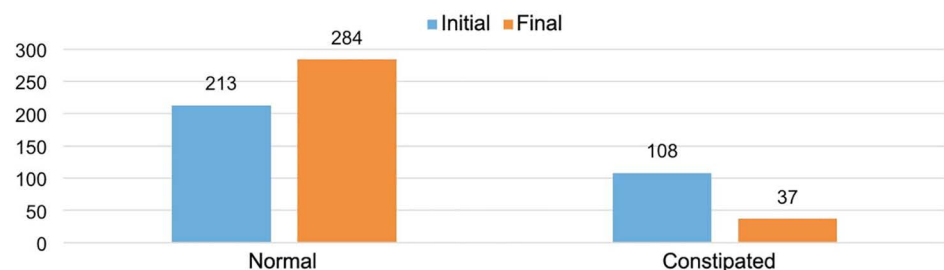


Figure 3. Classification of initial and final bowel habit of the patients treated

that it directly impacts on the change of body composition, and may be assessed by BMI and change in bowel habit. Based on these data, the best form or approaching nutrition and the planning of a nutritional education program should focus on the main demands of people with physical disabilities.

CONCLUSION

The population studied has the following characteristics:

- Predominance of female gender and adults;

- Brain injury is the main etiology;
- Hypertension is the prominent associated disease;
- Most are overweight;
- Improvement of the bowel habit after nutritional guidance.

Thus, the overall profile of the population studied was obtained. However, further studies with more detailed data for greater support of the literature and specificity of this public are necessary.

The differences found in relation to the literature, regarding the prevalence of associated diseases reflect the reality of our specific population and should be used to better prepare the programs of prevention and treatment of these patients.

Nevertheless, further studies are required to better elucidate these findings and to identify new targets for the treatment and prevention of pathological disorders in people with physical disabilities.

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