

NUTRITION UP 65 – NUTRITIONAL STRATEGIES FACING AN OLDER DEMOGRAPHY: FRAMEWORK AND METHODOLOGICAL CONSIDERATIONS

NUTRITION UP 65 – ESTRATÉGIAS NUTRICIONAIS PARA UMA DEMOGRAFIA ENVELHECIDA: ENQUADRAMENTO E CONSIDERAÇÕES METODOLÓGICAS

A.O.
ARTIGO ORIGINAL

¹ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto, Rua Dr. Roberto Frias, s/n, 4200-465 Porto, Portugal

² EPIUnit do Instituto de Saúde Pública da Universidade do Porto, Rua das Taipas, n.º 135, 4050-600 Porto, Portugal

³ NTNU, Department of Cancer Research and Molecular Medicine of Faculty of Medicine, P.B. 8905, N-7491, Trondheim, Norway

⁴ Serviço de Nutrição e Alimentação da Unidade Local de Saúde do Alto Minho, E.P.E., Estrada de Santa Luzia, 4901-858 Viana do Castelo, Portugal

*Endereço para correspondência:

Teresa F Amaral
Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto, Rua Dr. Roberto Frias, s/n, sala B341, 4200-465 Porto, Portugal
tamaral@fncna.up.pt

Histórico do artigo:

Recebido a 25 de maio de 2016
Aceite a 29 de junho de 2016

Teresa F Amaral¹; Alejandro Santos¹; Ana S Sousa¹; Rita S Guerra¹; Luísa Álvares¹; Rui Valdivieso¹; Patrícia Padrão^{2,3}; Cláudia Afonso¹; Cátia Martins²; Graça Ferro⁴; Nuno Borges³; Pedro Moreira¹

ABSTRACT

INTRODUCTION: Portuguese population is ageing and little is known about the nutritional status of the elderly. Moreover, the scarce available data reveals that health professionals as well as caregivers may benefit from advanced knowledge on nutrition.

OBJECTIVES: Nutrition UP 65 aims (1) to improve knowledge regarding Portuguese older adults' nutritional status (specifically on undernutrition, sarcopenia, frailty, obesity, hydration and vitamin D) and (2) to empower health professionals and caregivers when dealing with older adults' nutritional status.

METHODOLOGY: A cluster sampling approach was used, representing Portuguese older adults' population structure according to age, sex, education level and regional area (NUTS II). Socio-demographic, clinical and anthropometric data were collected. Hydration and vitamin D status was assessed. Health professionals and caregivers received educational sessions regarding nutrition in the elderly.

RESULTS: Data on 1500 older adults were gathered from December 2015 to June 2016. Results will be disseminated nationally and internationally.

CONCLUSIONS: Nutrition UP 65 project findings will provide an evidence-based solution for implementing nutritional guidelines to monitor the nutritional status of Portuguese elderly. Health professionals and caregivers will become more qualified to respond to nutrition-related health problems.

KEYWORDS

Nutritional knowledge, Nutritional status, Nutrition UP 65, Older adults

RESUMO

INTRODUÇÃO: A população portuguesa está a envelhecer e pouco se sabe sobre o estado nutricional dos idosos. Além disso, os escassos dados disponíveis revelam que os profissionais de saúde, bem como os cuidadores, poderão beneficiar de conhecimentos avançados sobre nutrição.

OBJETIVOS: Nutrition UP 65 tem como objetivos (1) melhorar o conhecimento sobre o estado nutricional dos idosos portugueses, especificamente sobre o estado de desnutrição, de sarcopenia, de fragilidade, de obesidade, de hidratação e de vitamina D, e (2) capacitar profissionais de saúde e cuidadores para lidarem com o estado nutricional das pessoas idosas.

METODOLOGIA: Foi utilizado um método de amostragem por *clusters*, representando a estrutura populacional dos idosos portugueses para a idade, o sexo, o nível de escolaridade e a área regional (NUTS II). Recolheram-se dados sociodemográficos, clínicos e antropométricos, sobre o estado de hidratação e de vitamina D. Os profissionais de saúde e cuidadores receberam sessões educativas sobre nutrição para pessoas idosas.

RESULTADOS: Recolheram-se dados sobre 1500 pessoas idosas, de dezembro de 2015 a junho de 2016. Os resultados serão divulgados a nível nacional e internacional.

CONCLUSÕES: Os dados do Projeto Nutrition UP 65 fornecerão evidência científica para a implementação de diretrizes nutricionais para monitorar o estado nutricional dos idosos portugueses. Os profissionais de saúde e cuidadores ficarão assim mais qualificados para responder a problemas de saúde relacionados com a nutrição.

PALAVRAS-CHAVE

Conhecimento nutricional, Estado nutricional, Nutrition UP 65, Idosos

INTRODUCTION

Recent estimates show that the number of people over 60 is expected to double by 2050. In Portugal, data from the last national statistics showed Portuguese population aged 65 years and older represents circa 19% (1). Ageing of the world population is a dividend for all the investment

that has been made in health (2). This successful trend is now a challenge and a reason for concern as major societal changes are required in order to reduce the burden associated with major diseases in adulthood (2).

Nutritional status has been identified as one of the most important modifiable factors determining health and

function in older people (3). Despite the alarming data released during the last decade on the negative influence of nutritional disorders in the health status of the older population, prevalence of undernutrition is still very high in Europe (4, 5). In Portugal, data from a systematic sample of patients admitted to six hospitals showed that undernutrition affects approximately one in three patients on admission. Undernutrition is a prognostic factor associated with higher morbidity, mortality and costs of care, and older age is an indubitable risk factor for undernutrition (6). Consequently, it is necessary to implement and standardize protocols for assessment and monitoring of older adults' nutritional status in Portuguese primary health care institutions.

To worsen this scenario, current trends indicate that the prevalence of obesity and two late life syndromes, sarcopenia and frailty, are also increasing in this age group, reaching unprecedented figures (7-9). Less evident nutrition status disorders are also of concern in this age group. Nutrition UP 65 looked into other priority areas, such as vitamin D deficiency and hydration.

Due to the physiology of aging and other individual factors, older adults produce less vitamin D in their skin than younger people, and they also spend less time in the sun; therefore they have an increased risk of vitamin D deficiency. Data from European populations report a prevalence of vitamin D deficiency up to 40% (10). In Portugal, studies on calcidiol serum levels of hospitalized patients also found high frequencies of vitamin D deficiency. Moreover, as age increases so does vitamin D deficiency (11). However, no population studies exist on the prevalence of these issues, particularly in the community or care institutions, so this study will give an innovative and important contribution to overcome this lack of data.

Dehydration is also a frequent condition among elderly people, leading to a number of medical conditions. Despite the lack of data on hydration status of older people in Portugal, the assessment of fluid intake in a representative sample of Portuguese adult population has shown a low intake of fluids by the older subjects, particularly elderly men that reported a fluid intake 51% lower than the recommended intake (12). In the rest of Europe data on elderly's hydration status are also scarce. However, the difference between their fluid intake and current recommendations show this group is exposed to dehydration, especially the very old ones (13, 14) and those who are institutionalized (15).

The current socio-economic situation in countries experiencing an economic crisis such as Portugal, leads us to predict that the prevalence and consequences of the above mentioned nutritional disorders is increasing (16) and will increase in the forthcoming years. Moreover, the Portuguese seem to have low nutrition knowledge as well as inadequate food habits which is a challenge for the improvement of the nutritional status of the population (17).

In Portugal, the first courses on Gerontology appeared just a little more than a decade ago so there are few highly specialized health professionals targeted at the elderly (18). Additionally, university students seem to be more interested in working with other age groups than with older adults (19). Another key point is that only one of the Portuguese medical schools has a compulsory module on nutrition ("Nutrition and metabolism"); the others have nutritional knowledge scattered among other disciplines or enable it as an optional discipline, from among many others.

Maybe due to this fact, hospital records usually contain little information about the nutritional status of patients (20). So, the empowerment on nutrition of health professionals in representative areas of the whole country, including rural areas is a pressing need. Besides that, it is essential that older adults and their caregivers (formal or informal) are able to recognize early signs of malnutrition by themselves, as

well as the utility of preventive and therapeutic approaches. The improvement of their nutritional status and their knowledge on healthy nutrition will help to prevent major nutritional problems and nutrition related disabilities.

This project expects to improve the aforementioned nutritional disorders through the enhancement of competencies and skills of health professionals and of caregivers on dealing with older adults' nutrition status. This will result in a better nutritional health care in Portuguese health centres and hospitals, with expected health gains and lower costs results.

OBJECTIVES

Nutrition UP 65 is framed with the goal of reducing nutritional inequalities in the Portuguese older population.

The project intends to improve the knowledge on Portuguese older adults' nutritional status, specifically on undernutrition, sarcopenia, frailty, obesity, hydration and vitamin D status. Through outcomes of research data, multidisciplinary education programmes focused on nutrition, tailored to the Portuguese older adults will be developed. The second objective is focused on the empowerment of health professionals on dealing with older adults' nutritional status. This project aims to achieve high quality multidisciplinary and continuous care of older adults and at the organizational level, a good performance of the public health system.

METHODOLOGY

Two different target groups were constituted to achieve these two specific objectives.

1. Older adults' nutritional status:

Using a cluster sampling approach, study sample is composed of 1 500 older adults representing Portuguese older adults population structure according to age, sex, education level and country regional area (1). The study protocol was approved by National Commission for Data Protection and by the Ethical Committee from the department of "Ciências Sociais e Saúde da Faculdade de Medicina da Universidade do Porto". All the participants or their legal guardians provided a written informed consent.

Information was collected about cognitive status (21, 22), socio-demographic data (age, sex, education, present or previous occupation, cohabitation), life styles (physical activity (23), tobacco and alcohol use); adherence to the Mediterranean Diet (24); nutritional status: anthropometry (weight, height, waist circumference, mid acromial-radial and calf circumferences, triceps skinfold); functional indicators (hand grip strength and gait speed); Mini-Nutritional Assessment - Short Form (25, 26); frailty (8); vitamin D status (serum 25(OH)D (calcidiol)); and hydration status (24 hour urine volume, osmolality and density). Data was collected by previously trained nutritionists. A database was anonymously organized for analysis.

2. To develop food and nutrition educational programs:

At the level of primary health care, health units were identified according to regional areas and a randomly selected sample of nationwide hospitals and health units was targeted. Approximately ten percent of health units in each regional area were invited to participate in the study. All professionals from the randomly selected institutions (physicians, nurses, nutritionists and dieticians) in contact with older adults were identified and were invited to participate in this course, named "Estratégias alimentares e nutricionais para pessoas idosas em contexto clínico" [Food and nutritional strategies for older persons

in a clinical setting]. This educational section consists in two sessions of four hours each.

This course was developed by “Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto” (FCNAUP) Nutrition UP 65 team and confers one credit unit (European Credit Transfer System). The program focuses on older adults’ nutritional screening and assessment, nutrition support implementation, managing and monitoring. This course is given by accredited lecturers in each region. A final test is given and all participants receive a diploma.

Older adults, caregivers (formal and informal) and catering delivers are also receiving basic training in healthy nutrition, meal planning and food preparation. This educational program is conducted through a voluntary network of senior undergraduate students and alumni from FCNAUP, which was created to have nationwide coverage.

The candidates to the network must submit an enrolment form with their personal data, motivation, previous training and preferred locations for the training sessions. The selected candidates are then thoroughly informed on the procedures and receive project showcase materials (a letter from the coordination and a project description leaflet), to present to the organizations. The participant organizations are chosen by the volunteers themselves, which is a way of assuring the nationwide coverage, as well as the impact on the community of this activity and to create and endure sustainable bonds between the volunteers and participants.

Upon the organization’s acceptance and scheduling of the sessions, the volunteers receive educational materials (leaflets, posters, presentations). Once the sessions are completed, the volunteers must provide a signed declaration from the organization, together with a report stating the actions and themes that were addressed and the number of participants from each target audience, as well as a brief evaluation of the sessions, on which they can state the main difficulties and suggest improvements for future activities.

Contribution of the project to reduce economic, social and geographic disparities

One of the strategic arms of Portuguese National Health Program (NHP) is the equity of access to health care, being mentioned that health inequalities affect the most vulnerable groups, in particular the older adults. It is well known that frail elders living in the community or institutionalized are at increased risk of nutritional disorders. Their nutritional disorders often go unrecognised and adversely affect their clinical outcomes. Nutrition UP 65 data will give clues for design and implementation of effective preventive public health strategies with expected health gains for this population group.

The representativeness of this older adults’ Portuguese sample according to age, sex, education level and country regional area (1), can be regarded as a strength. Additionally, all health professionals of the randomly selected institutions were invited to join the training program. According to the current NHP, the most aged areas (rural and south) have worse access to health specialty services, and probably this population has more health needs, including nutritionally related ones. In addition, the NHP mentions that investing in primary health care and community services for older adults reduces hospital admissions and costs, improving quality of life and disability-free life expectancy.

Results from two Portuguese Census (2001 and 2011) showed that our country emphasized the pattern of migration from the interior to the coastline and the population has been concentrating in major metropolitan areas of Lisbon and Porto (1, 27). This probably had impact on the access to the health care and consequently on the

health and nutritional status of the population. Nutrition UP 65 is based on an older adults sample widely distributed by the Portuguese regions, allowing an accurate “portrait” of the “ageing country”. It will describe older population nutritional status according to regional area providing a better understanding on nutritional risk contrasts. This baseline nutritional status description will support evidence-based public action considering regional discrepancies. It will be possible to define regional set priorities for nutritional intervention at the level of primary health care, hospitals and community.

Donor entity and research team

Nutrition UP 65 is funded by Iceland, Liechtenstein and Norway through the EEA Grants. These funders contribute to reduce social and economic disparities in Europe as well as strengthen bilateral relations with beneficiary countries. The EEA Grants are managed by “Administração Central do Sistema de Saúde” through the “Programa Iniciativas em Saúde Pública”.

Portugal and Norway have a high proportion of older adults in their population, but have distinct sociodemographic profiles, structures for social support and nutrition surveillance systems; the access to health care by the elderly population is also very different between both countries. Norway spends more on caring for its elderly, has more formal long term care workers and has more models of services available to supply to elderly needs than Portugal.

The Nutrition UP 65 Portuguese team benefits from the good practices examples of Norway regarding support and social structures to the elderly population, nutrition surveillance, and training experiences to health professionals and caregivers.

On the other hand, Nutrition UP 65 foresees the exchange of professional experience between Portugal and Norway. This is very relevant, since both countries face common public health problems regarding nutrition in the elderly, specifically in relation to the high prevalence of obesity, but also as to nutritional inadequacy, namely of vitamin D.

Furthermore, the absence of population-based studies assessing the hydration status is common to the two countries. So, both nations can benefit from the experience of assessing dehydration using more than one parameter and instrument, as well as from the results obtained, in order to validate instruments easily applicable at the population level.

RESULTS

Results of the Nutrition UP 65 project are being communicated within FCNAUP and professional associations of health workers (physicians, nutritionists, dieticians, nurses, and pharmacists). They will also be disseminated in appropriate media in all the country. Since Nutrition UP 65 is in line with the current NHP, Directorate-General of Health will be contacted and provided with project reports. Based on the project findings, nutritional guidelines for monitoring the nutritional status of the senior population will be proposed.

Results concerning the training of health professionals, such as effectiveness and trainees’ satisfaction, are being disclosed individually to the health professional as well in the respective healthy units. According to the extent and significance of the obtained results, medical schools will be presented with proposals on the inclusion of nutrition education in their curricula.

The Nutrition UP 65 website (www.nutritionup65.up.pt) will be kept active and updated in order to promote initiatives, results and to attract new partnerships and investment policies. It will be continuously restructured with information on the topic, serving as a

support to the project stakeholders, namely health care institutions, health professionals, other caregivers or even the elderly themselves. Information will be organized into levels, according to audiences, in order to facilitate their access. Since a large part of the population may not be familiar with new technologies and may not have internet access, we have created a telephone line for giving support to all the interested in this project.

The present project will enable the creation of a network of health professionals in geriatrics. They can communicate through the website, exchanging experiences between themselves and with the research team.

The project will draw attention to awareness and knowledge of health professionals regarding nutritional problems, improving the general health care at regional, continental and insular national areas.

CONCLUSIONS

The international evidences together with the absence of data in Portugal reinforce the relevance of Nutrition UP 65 objectives. Their answers are of utmost importance for planning and implementing primary preventive strategies, as they have already been shown to be economically effective and to increase the awareness of health professionals to these issues.

ACKNOWLEDGEMENTS

The present project was granted by the Public Health Initiatives Programme (PT06), financed by EEA Grants Financial Mechanism 2009-2014.

REFERENCES

1. Instituto Nacional de Estatística IP. Censos 2011 – Resultados definitivos. Lisboa, Portugal: 2012.
2. World Health Organization. World report on ageing and health. Geneva, Switzerland: World Health Organization, 2015.
3. Meijers JM, Halfens RJ, van Bokhorst-de van der Schueren MA, Dassen T, Schols JM. Malnutrition in Dutch health care: prevalence, prevention, treatment, and quality indicators. *Nutrition*. 2009;25(5):512-9.
4. Nykanen I, Lonroos E, Kautiainen H, Sulkava R, Hartikainen S. Nutritional screening in a population-based cohort of community-dwelling older people. *Eur J Public Health*. 2013;23(3):405-9.
5. Kaiser MJ, Bauer JM, Ramsch C, Uter W, Guigoz Y, Cederholm T, et al. Frequency of Malnutrition in Older Adults: A Multinational Perspective Using the Mini Nutritional Assessment. *J Am Geriatr Soc*. 2010;58(9):1734-8.
6. Amaral TF, Matos LC, Teixeira MA, Tavares MM, Alvares L, Antunes A. Undernutrition and associated factors among hospitalized patients. *Clin Nutr*. 2010;29(5):580-5.
7. Prado CM, Wells JC, Smith SR, Stephan BC, Siervo M. Sarcopenic obesity: A Critical appraisal of the current evidence. *Clin Nutr*. 2012;31(5):583-601.
8. Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, et al. Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci*. 2001;56(3):M146-56.
9. Kulmala J, Nykanen I, Hartikainen S. Frailty as a predictor of all-cause mortality in older men and women. *Geriatr Gerontol Int*. 2014;14(4):899-905.
10. Cashman KD, Dowling KG, Skrabakova Z, Gonzalez-Gross M, Valtuena J, De Henauw S, et al. Vitamin D deficiency in Europe: pandemic? *Am J Clin Nutr*. 2016.
11. Santos MJ, Fernandes V, Garcia FM. [Vitamin D Insufficiency in a Hospital Population: A Photograph from the Laboratory Perspective]. *Acta Med Port*. 2015;28(6):726-34.
12. Padez C, Padrão P, Macedo A, Santos A, Gonçalves N. Caracterização do aporte hídrico dos portugueses. *Nutricias*. 2009;9:25-7.
13. Haveman-Nies A, de Groot LC, Van Staveren WA. Fluid intake of elderly Europeans. *J Nutr Health Aging*. 1997;1(3):151-5.
14. Volkert D, Kreuel K, Stehle P. Fluid intake of community-living, independent elderly in Germany - a nationwide, representative study. *J Nutr Health Aging*. 2005;9(5):305-9.
15. Bunn D, Jimoh F, Wilsher SH, Hooper L. Increasing fluid intake and reducing dehydration risk in older people living in long-term care: a systematic review. *J Am Med Dir Assoc*. 2015;16(2):101-13.
16. Programa Nacional para a Promoção da Alimentação Saudável, Direção de Serviços de Informação e Análise. Portugal – Alimentação Saudável em Números – 2015. Lisboa: Direção-Geral da Saúde. 2016.
17. Graça P, Gregório M. Estratégia para a promoção da alimentação saudável em Portugal. *Portugal Saúde em Números*. 2015;4:37-41.
18. Pereira F. Gerontólogo: a construção de uma nova profissão na área da saúde. In: Sociedade Portuguesa de Sociologia. IV Congresso Português de Sociologia. Lisboa, 2008.
19. Gonçalves DC, Guedes J, Fonseca AM, Pinto FC, Martin I, Byrne GJ, et al. Attitudes, knowledge, and interest: preparing university students to work in an aging world. *Int Psychogeriatr*. 2011;23(2):315-21.
20. Matos L, Teixeira MA, Henriques A, Tavares MM, Álvares L, Antunes A, et al. Menções sobre o estado nutricional nos registos clínicos de doentes hospitalizados. *Acta Med Port*. 2007;20:29-35.
21. 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.
22. Guerreiro M. Testes de rastreio de defeito cognitivo e demência: uma perspectiva prática. *Rev Port Clin Geral*. 2010;26:46-53.
23. Craig CL, Marshall AL, Sjoström M, Bauman AE, Booth ML, Ainsworth BE, et al. International physical activity questionnaire: 12-country reliability and validity. *Med Sci Sports Exerc*. 2003;35(8):1381-95.
24. Afonso L, Moreira T, Oliveira A. Índices de adesão ao padrão alimentar mediterrânico – a base metodológica para estudar a sua relação com a saúde. *Revista Factores de Risco*. 2014;31:48-55.
25. Nestlé Nutrition Institute. MNA® Mini Nutritional Assessment MNA® Forms, Portuguese. Available from: http://www.mna-elderly.com/forms/mini/mna_mini_portuguese.pdf. [cited: 2016-27-04].
26. Kaiser MJ, Bauer JM, Ramsch C, Uter W, Guigoz Y, Cederholm T, et al. Validation of the Mini Nutritional Assessment short-form (MNA-SF): a practical tool for identification of nutritional status. *J Nutr Health Aging*. 2009;13(9):782-8.
27. Instituto Nacional de Estatística. Censos 2001 – resultados definitivos. Lisboa, Portugal: 2002.