



8<sup>th</sup> International Conference on

## Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

# Posters

Geriatrics 2018

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## The effects of aroma therapy on agitation in patients with dementia: A systematic review and meta-analysis

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The aim of this study was to systematically review the literature to explore the effectiveness of aromatherapy for treating agitation in patients with dementia. The EMBASE, CINAHL, Ovid-MEDLINE, PubMed, KMBase, KoreaMed, National Assembly Library, RISS, Kiss, and DBpia databases were searched until November 2017 using the search terms dementia/Alzheimer disease/cognition disorders, aroma/aromatherapy, and lavender/Melissa/lemon oil. Of the 419 unique studies identified in a systematic search, the full texts of 13 studies meeting the criteria for inclusion were reviewed systematically and 3 studies were used for the meta-analysis. A meta-analysis of the 3 studies revealed that aromatherapy is an effective treatment for agitation in patients with dementia (ES = -0.63, 95% CI=-1.17 to -0.09, p=0.02). However, only a few studies were included in the analysis. Further studies using strict randomization, blinding, and concealment should be conducted.

### Biography

Heeok Park interest area is the behavioral and psychological symptoms in patients with dementia and she has been doing research to develop the application program to reduce caregiver's burden and do meta-analysis of caregiver's burden in patients with dementia.

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8<sup>th</sup> International Conference on

# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Improving outcomes for older patients discharged early using a home assessment scheme

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**Background:** With increased delayed discharges from acute NHS hospitals, especially for older patients, solutions like the discharge to assess (D2A) scheme aim to facilitate quicker discharge and improve experiences for patients and carers. Once patients are identified as medically fit, the D2A scheme supports patients to be discharged home or to another community setting where they have their care and social needs assessed and provided for. During this period of rehabilitation, the patient's longer-term continued care needs can then be assessed in a more appropriate environment and at the right time.

**Setting:** This report examines the quality process from the patient perspective of the D2A scheme (now re-named Home First) implemented by a team in a London Northwest Healthcare NHS Trust (LNWHT). A retrospective audit was conducted using the first cohort of patients discharged through this pilot scheme from April to July 2017.

**Question:** A brief study to explore patient views of their experience of the D2A scheme; to detect any change in their perception between what was agreed and what was delivered; and to explore how the discharge process might be improved for patients.

**Methods:** An opportunistic audit comprised of brief telephone interviews with patients following discharge from hospital through the D2A scheme.

**Results:** 30 patients who had been discharged with the D2A scheme, agreed to participate in the evaluation exercise. Overall, patients were positive about their experience and valued the support and services provided. However, there were concerns on the issue of communication, which caused some patients to be concerned. The scheme effectiveness from the patient's perspective improved over the duration of the evaluation.

**Discussion:** Patients' views about their experiences changed over time, which included patients' perceptions of the discharge process, patients' expectations and the way in which they were able to access services.

### Biography

Lucy Meehan is an Imperial GP trainee working in Northwest London, England, and is pursuing a GP specialist interest in healthcare of the elderly in primary care. She has worked with Dr Ricky Banarsee and public health colleagues to evaluate patient experience of an innovative scheme, discharge to assess, which aims to improve hospital discharge and provide rehabilitation and social support in the community, once older patients are deemed medically fit. By focusing on qualitative evaluation of patient experience, this offers greater insight into the patient journey through the discharge scheme and offers suggestions for improvement. As she trains to be a GP and with a special interest in healthcare of the elderly, schemes such as discharge to assess are widely welcomed to address current NHS issues such as delayed discharges from hospitals and managing the aging population in the community.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Effectiveness of a dog-assisted therapy programme to enhance quality of life in institutionalized dementia patients

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**Background:** In recent years, animal-assisted therapy (AAT) has been the subject of a number of studies to determine its effectiveness in treating aspects of dementia such as psychobehavioural, relational and/or cognitive disorders. However, there remains a significant shortfall in knowledge about the impact of these therapies on patients' quality of life or their effect on the use of psychotropic medication. The aim of this study was to assess the effectiveness of a dog-assisted therapy with regard to the use of psychotropic medication and quality of life in persons with dementia institutionalized in a public care home.

**Methods:** A dog-assisted therapy intervention was designed, in which 34 residents of a public residential aged care facility in Cuenca (Spain) participated. The participants were assigned to two groups, one experimental group and one control group. The programme consisted of one weekly 50-minute session during nine months. Analysis of covariance (ANCOVA) was used to compare post training values between groups, using baseline values as covariates.

**Results:** Pre- and post-intervention measures of various physical and psychological variables were obtained. Although we found no significant differences in any of the groups, we did find enhancements in quality of life in both, intervention and control group, but no improvements in relation to the use of psychotropic medication.

**Conclusions:** Animal-assisted therapies may enhance quality of life in dementia patients in aged care homes, but it is not a substitute of the pharmacological treatment.

### Biography

María Ángeles Briones Peralta has obtained her Bachelor's degree in Psychology from the Autonomous University of Madrid, Master's degree in Socio Sanitary Research from the Center for Socio-Health Studies (CESS) of the UCLM, Master in Gender Equality at the UCLM and currently she is a PhD student in Socio Sanitaria Research and the Physical activity. She has professional experience with older people since 1988 and from 2000 she is the Director of Nursing Home of the Diputación de Cuenca and currently Coordinator of Social Services of this deputation.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Brazilian elderly affective disorders and suicide: Trends on morbi-mortality and health service costs

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Statement of affective disorders (AD) including depression has important epidemiological impact on elderly morbi-mortality. It has also been associated to elevated suicide rates. However, AD impact on trends elderly mortality, morbidity and Brazilian health service cost (hospitalization and outpatient care) need to be more deeply investigated. Therefore, this study evaluated the trends of AD and suicide mortality in Brazilian elderly population (1996-2015) and in use of health services (hospitalization and outpatient care) and their costs in 2009 to 2015 period by a socio-ecological analysis using databank evaluable for Health Unit System (DATASUS, Brazil Ministry). The study was performed just in elderly subjects (> 60 years old) considering as co-variables: sex and age. Linear, joint point and multivariate regressions were used to detect change in the trends of AD and suicide mortality. Total AD mortality was slightly higher in women (1.2/100.000) than men (1.0/100.000). At contrary, suicide mortality rate was higher in men (13.5/100.000) than females (2.5/100.000). In both mortality causes, occurrence was age-dependent, with higher rates in oldest-old group (> 80 years). Hospitalizations by AD were also higher in older group, in both sexes. However, hospitalization costs trend to decrease in the last four years. The whole of results suggests the necessity to construct specific preventive and treatment programs for elderly people, since this population presents important biological, functional, health and social specificities that are different of find in adults.

### Biography

Raquel de Souza Praia has completed her Bachelor of Science in nursing (2007) and in Biological Sciences (2000). She has experience at ICU, Emergency and Urgency Sector, and Public Health. She completed her Master in Gerontology and pursuing PhD in Public Health. She worked in the Women's Health Program of Mobile Care Units. She is a Professor at School of Nursing at the Federal University of Amazonas. She has coordinated a project developed at home for the elderly over 70, bedridden or impaired mobility at Open University of the Third Age / University of the State of Amazonas. She was the organizer and author of the book launched in 2018 in Brazil "Fundamentos de Psicogerontologia". Currently she conducts research involving psychiatric disorders in aging.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Barbatimão, a Brazilian wound healing plant, restores markers of senescent human dermal fibroblasts

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Modification of body tissues, such as skin, over time leads to reduced tissue integrity due to decreased cell functions, among which the fibroblast is highlighted. Despite the many changes caused by cellular senescence, the most notable is the decrease in tissue healing capacity. In the search for therapies that improve biological functions, the barbatimão (*Stryphnodendron adstringens* (Mar.) Coville) is a plant native to Brazil with a well-known cicatrization capacity, but little explored. Using the aged human fibroblast cell line (HFF-1), this study sought to demonstrate the potentialities of barbatimão extract in the modulation of cellular senescence genes, in anti-inflammatory action, proliferation, apoptosis and morphology. The results demonstrated the ability of the extract to increase the expression of senescence marker genes without, however, significantly altering cell proliferation, in addition to reducing mortality rates. Our results suggest that barbatimão is capable of restoring the metabolism of senescent skin cells.

### Biography

Fernanda Barbisan holds Bachelor's degree in Biological Sciences, Master and PhD degree in Pharmacology. Currently, she holds a Postdoctoral degree in Gerontology. She is a Professor at the Federal University of Santa Maria-Brazil. She acts as a Researcher on projects that studies genetic-environmental interactions on the human aging and diseases associated with aging. She has experience in the areas of cellular aging and immunosenescence, toxicogenetics, nutrigenetic and pharmacogenetics, involving tests of modulation of oxidative stress, apoptotic and inflammatory cascade by toxic agents, functional foods and pharmacies. She has worked with molecular biology techniques for the evaluation of genetic variability, genetic polymorphisms, real time PCR, DNA damage, epigenetics, cell culture and biochemical, spectrophotometric and fluorimetric analyzes. She has participated in a Phase I clinical trial, using the drug Rosuvastatin and she has already designed and executed studies with humans, mainly with the elderly.

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8<sup>th</sup> International Conference on

# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## *In vitro* neuroprotective effect of avocado oil supplementation on neural aged-cells exposed to cortisol

Verônica Farina Azzolin<sup>1</sup>, Ivo Emilio da Cruz Jung<sup>1</sup>, Fernanda Barbisan<sup>1</sup>, Raquel de Souza Praia<sup>2</sup>, Euler Esteves Ribeiro<sup>2</sup>, Ednéa Aguiar Maia Ribeiro<sup>2</sup>, Marta Medeiros Frescura Duarte<sup>3</sup> and Ivana Beatrice Mânica da Cruz<sup>1</sup>

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**Background & Objective:** Aging brings with it its own age concerns; they are often associated with stress and the development of emotional issues such as anxiety and depression. Many authors have described stress as a possible trigger for the development of a series of psychiatric and metabolic pathologies, and the hormone cortisol at high levels seems to be the link between stress and the development of dysfunctions. In view of the context already presented that older people, due to biological and psychosocial issues, are more stressed, that stress is a trigger for chronic diseases and that this population in most cases consumes a great quantity of drugs, it is justified the search for nutritional elements that can contribute to the fight against stress. One of the potent nutritional elements is a much-consumed fruit in America's avocado (*Persea americana*). It contains a rich nutritional matrix with functional properties, which makes it relevant to carry out *in vitro* studies on the potential effect of supplementation with avocado oil in a stress neuronal model. Therefore, the objective of this study was to evaluate *in vitro*, the potential neuroprotective effect of avocado against neural aged-cells (SH-SY5Y) exposed to cortisol.

**Methods:** The effect of supplementation of SH-SY5Y neural cell culture with avocado pulp oil exposed to cortisol was evaluated. The following parameters were analyzed in 24 and 72 hours: viability, rate of cell proliferation and variables associated with oxidative stress and apoptotic markers.

**Results:** Avocado showed a protective effect against exposure of neural cells to cortisol. Increasing their viability and proliferation and reversing apoptosis caused by cortisol, observed in the decline of the protein levels of BAX, BCL-2 and caspase 3 and 8, as well as the genotoxic effect observed on 8-hydroxy-2'-deoxyguanosine as an increase in antioxidant enzymes such as SOD, CAT and GPX.

**Conclusion:** Despite the methodological *in vitro* protocol limitations, results suggested that avocado oil could have neuroprotective effect against neural aged-cells exposed to cortisol. These data could be relevant to development of a supplement that helps to decrease stress consequences, mainly in the elderly.

### Biography

Verônica Farina Azzolin holds a degree in Biomedicine from the Santo Angelo Higher Education Institute in 2013 and Master's degree in Pharmacology from Federal University of Santa Maria. She is a PhD student in Pharmacology at Federal University of Santa Maria. She conducts research in the Laboratory of Biogenomics in the area of toxicogenetics, nutrigenetics and pharmacogenetics. She has experience with cell culture of cancer cells and stem cells, with techniques of molecular biology, real time PCR, flow cytometry, DNA damage, and biochemical, spectrophotometric and fluorimetric analyzes for the evaluation of oxidative stress. She has also worked with the *in vivo* model of *Drosophila melanogaster* with electromagnetic fields. She has experience in the area of clinical analysis.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## The effect of physiological ageing on Minimally Delayed Oculomotor Response (MDOR) task performance

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**Statement of the Problem:** The minimally delayed oculomotor response (MDOR) task provides a means of measuring behavioural inhibitory control (BIC). Physiological ageing has been suggested cause a decline in inhibition affecting cognition and BIC. The aim of this study was to investigate the effects of ageing on MDOR task performance in healthy adults.

**Methodology:** Healthy participants aged >50 years were recruited and screened with the Addenbrooke's Cognitive Examination (ACE III). Participants completed 2x120 MDOR and 1x32 calibration trials, and saccade latency and amplitude were measured. In the MDOR task participants were instructed to respond to target offset, not target onset. In the calibration task participants made simple prosaccade responses to targets. MDOR performance (latencies of correct responses and error rates) in healthy elderly adults was compared with pre-existing data from younger participants.

**Findings:** Young group (N=56, mean age: 22±2 years, range: 19yrs-27yrs) and old group (N=22, mean age 62±7yrs, range 50-72yrs, mean ACE III score: 96±3) MDOR saccade latencies were much longer than longer than calibration latencies. Latency and error in the old group were significantly increased relative to the young group. Latency and error rate were significantly increased in the old group (repeated measures ANOVA, group treated as a between subjects factor; latency F1, 76=95, p<0.001; error rate F1, 76=228, p<0.001). When latencies from the calibration task were used to correct MDOR latencies in young and old groups, the group difference for latency was abolished. The distribution of error timing strongly supported the hypothesis that errors were inhibition failures.

**Conclusion & Significance:** While in normal ageing latency increases in the MDOR task, this is a feature of general age-related slowing. However, the raised MDOR error rate confirms the presence of an inhibition deficit in the healthy elderly population.

### Biography

Nikitha Pasunuru is an intercalating medical student at the University of Liverpool, undertaking the Master of Research Programme in Clinical Sciences.

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8<sup>th</sup> International Conference on

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July 30-31, 2018 | Barcelona, Spain

# Accepted Abstracts

Geriatrics 2018

8<sup>th</sup> International Conference on

# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Quality of life based on level of physical activity among elderly residents of urban and rural areas

**Cezar G Ribeiro**

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**Statement of the Problem:** Quality of life and physical activity have been studied in population aging. To know these two factors in urban and rural environments in Brazil has not been the object of research. This research is relevant to the Brazilian reality because most municipalities (about 75%) have rural characteristics. Knowing the characteristics between the quality of life and levels of physical activity in these environments is fundamental to create a profile of the Brazilian elderly and establish efficient public policies in both contexts. The purpose of this study was to analyze the quality of life according to the level of physical activity of elderly living in urban (UA) and rural (RA) areas considering the income.

**Methods:** A descriptive cross-sectional study was developed in the municipality of Palmas, state of Paraná, southern Brazil. Face-to-face interviews were carried out in the residence of the elderly by a previously trained staff. Quality of life, physical activity and economic condition were analyzed by statistical tests.

**Findings:** Better scores were found in the RA population for physical activity and perception of quality of life, especially in the specific issues of old age. Being active showed better results compared to being insufficiently active in both contexts. The mean/low income characterized the majority of the elderly population and was higher than 99% in RA.

**Conclusion & Significance:** Evidences was found that a better perception of quality of life is positively influenced by higher levels of physical activity especially for RA residents. Low income may be a factor that influences low levels of physical activity especially in UA. Therefore it is important to establish public policies that allow an active aging with better levels of health and quality of life that attend urban and rural environments.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Development and validation of a prognostic index for 6 and 12 month mortality in hospitalized older adults

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**Background:** Estimation of mortality in elderly patients is difficult yet very important when planning care. Previous tools are complicated or do not take into account some major determinants of mortality (i.e., frailty). We designed a simple, accurate, and non-disease specific tool to predict individual mortality risk after hospital discharge in older adults.

**Methods:** Patients admitted to the Acute Geriatric Unit were assessed at admission and at discharge and contacted 6 and 12 months later. Determinants of mortality were obtained. Using multivariable analysis, beta coefficients were calculated to build 2 scores and able to predict mortality at 6 and 12 months after discharge. The scores were tested on a sample comprising 75% of the patients, who were randomly selected; they were validated using the remaining 25%. Discrimination was assessed using ROC curves. Scores were calculated for each patient and divided into tertiles. Survival analysis was performed.

**Results:** Determinants of mortality at 6 months were dependent ambulation at baseline, full dependence at discharge, length of stay, pluripatology, pressure ulcers, low grip strength, malignancy, and male gender. At 12 months the determinants were: dependent ambulation at baseline, full dependence at discharge, pluripatology, low BMI, low grip strength, heart failure, malignancy, and male gender. Discrimination and calibration were excellent. Survival analysis demonstrated different survival trajectories ( $p < 0.001$ ) for each tertile in both scores.

**Conclusions:** Our indices provide accurate prognostic information in elderly patients after discharge. They can be calculated easily, quickly and do not require technical or laboratory support, thus endorsing their value in daily clinical practice.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Dementia-related agitation: A review of non-drug interventions and analysis of risks and benefits of drug therapy

**Ezekiel O Ijaopo**

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Unsurprisingly, the subject of dementia has been a rising matter of public health concerns as people now live longer. World Alzheimer Report 2015, estimate that about 46.8 million people worldwide have dementia. These numbers are projected to almost double every 20 years, reaching 74.7 million in 2030 and 131.5 million in 2050. The modality for treating agitation and other behavioral symptoms in dementia patients has been a challenge. Many years on, there has been no FDA-approved drug therapy in treating dementia-related agitation. This review discusses the current knowledge of non-drug interventions and analyzes the risks and benefits of drug therapy in the management of dementia-related agitation, as well as providing an anecdotal of the author's clinical experience. This article aims to provide opportunity for increase awareness for clinicians; particularly those with no specialty training in elderly care medicine, but, see dementia patients with agitation and other behavioral symptoms from time to time. Likewise, it hopefully will benefit the readers of medical journals to update their existing knowledge on matters relating to the management of dementia-related agitation.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## The effect of gate ball exercise on peripheral neuropathy of the elderly

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**Purpose:** We designed and implemented a gate ball exercise program for elderly patients with peripheral neuropathy. This was to provide and increase physical activity to improve social participation and prevent secondary complications.

**Methods:** The program was held in a private gate ball field three times a week from April to November 2016. We hired a professional technical coach with help from the Association of Goheung gate balls and the patients participated in a total of nine local community competitions. In order to investigate the satisfaction of the patients, we made a questionnaire. The questionnaire consisted of 8 items: technical guidance, exercise facility, exercise equipment, frequency, quantity, change of life (activity), help to maintain health, and eliminate bias. The questionnaire was administered twice, in April and November. Statistical analysis was performed using IBM SPSS Statistics 21 and paired t-test.

**Results:** All 23 patients participated in the program and 20 completed the questionnaire. Satisfaction was improved in most of the questionnaire items and this was statistically significant.

**Conclusion:** The patients increased their social participation by experiencing competition through exercise and by interacting with others. For the elderly patients with inactive peripheral neuropathy, gate ball exercise was an easy and entertaining activity. The presence of a professional technical coach and the use of specific exercise programs and private gate ball fields' furtherly enhanced patient participation and satisfaction. We have found that gate ball exercise has brought a positive change in the physical and mental condition of the patients and is suitable as a sustainable exercise.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Performance of older adults with different educational background in cognitive digital tasks

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Due to the increasing number of older adults in society, as well as the prevalence of cognitive impairment in that population, accurate instruments to evaluate cognitive abilities are necessary. It is known that most of the traditional neuropsychological tests are influenced by individual's educational background. However, there are few studies regarding digital tests usage among the elderly with low schooling. In this study, we aimed to do a systematic literature review to analyze the interaction between older adults' years of education and digital evaluations; also, we proposed comparing the performance of Brazilian older adults with different educational background in a digital change detection test. The first study, a systematic literature review, analyzed the role of educational level on cognitive digital tests. After the justified exclusions, seven papers from the previous five years were selected. Associations between older adults' performance on digital tests and educational background were not found. In the second study, the aim was to verify the performance of older adults in a cognitive digital test. Participants were assigned into three different groups according to their years of education. There weren't differences between the illiterates and lower-education groups; however, it was observed a difference between these two groups and the higher-education group regarding digital test's responses.

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8<sup>th</sup> International Conference on

# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Development of an application for mobile devices to evaluate the balance and risk of falls of the elderly

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**Abstract:** Aging is defined as a natural and physiological process that progressively accompanies the life cycle. As well as psychosocial complications, physical losses also occur, resulting in slow reasoning, depression, functional disability, loss of strength, inactivity and physical degeneration. The application of the functional tests is intended to aid clinical evaluation by providing data on the patient's mobility capacity and revealing possible balance deficits. The use of smartphones in health is growing as it provides professionals with more agility and flexibility in their work, from the time of data collection to the use of applications that assist with patient evaluation. The sensors embedded in these devices are increasingly being used in the evaluation of balance and gait. One of these sensors is the accelerometer, which has the potential to aid clinical procedures, offering quantitative data for assessment and balance and gait training.

**Objective:** to develop an application for mobile devices to evaluate the balance and risk of falls of the elderly.

**Method:** A cross-sectional study with a sample composed of 54 elderly individuals with an average age of 71 years submitted to three balance and risk of falls evaluation tests, was performed. The Timed Up and Go (TUG) and Performance Oriented Mobility Assessment (POMA) tests were employed.

**Results:** The results were closely correlated, identifying three groups of volunteers: low, medium and high risk of falls. When these values were compared with the analyzes performed by the application, some of the variations in the results generated by the application were not related to the classic tests, as the software could discriminate between individuals with a high and low risk of falls.

**Conclusion:** The developed application was able to verify the oscillations present in the maintenance of static balance of the elderly and could differentiate the results into two groups of high and low risk of falls.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Heart failure in the elderly: What is different?

**Manuel Oliveira Carrageta**

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Chronic heart failure (HF) is a major and growing public health problem with high morbidity and mortality. HF is the leading cause of hospitalization in older adults. Hypertension is the most common risk factor in heart failure and coronary heart disease (CHD) the most common etiology. Older patients with HF are more likely to be women and more likely to have preserved LV systolic function. (HFpFE). These patients should be approached with a clear understanding of some unique clinical, laboratory, imaging, and pharmacokinetic differences that can alter their management and outcomes. Elderly patients have more atypical presentations of HF, especially in more frail or cognitively impaired individuals, with comorbid diseases. They are more likely to present with symptoms of decreased cardiac output, such as fatigue (most common), weakness, dizziness, and altered mentation. Exertional dyspnea may not be an early symptom. Echocardiogram is an essential diagnostic modality and B-type natriuretic peptide (BNP) and N-terminal pro-BNP (NT-proBNP) are valuable in establishing the diagnosis of volume overload due to HF and, in particular, in distinguishing shortness of breath due to HF from non-cardiac causes. Extreme low-sodium diets have been linked to worse outcomes in several clinical trials. Contrary to HFpEF, no trials have demonstrated a clear reduction in mortality with any pharmacologic intervention in patients with HFpEF. Palliative care should be instituted in elderly HF patients when they have a very advanced disease and aggressive treatment is deemed ineffective. Optimal management of these patients usually involves a multidisciplinary approach. In the last moments of life, treatment should be focused on maximizing patient comfort. The choice of the best treatment should be personalized, considering more aspects beyond HF such as comorbidities, frailty, social and economic background.

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# Geriatrics Gerontology & Palliative Nursing

July 30-31, 2018 | Barcelona, Spain

## Senior travelling and its link to an active and healthy ageing

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The silver market is a driving force in the tourism and hospitality industry and one of its fastest growing and most evolving segments. The United Nations (2015) has recognized the fact that the numbers of the older population are growing rapidly, and it has estimated that over two billion people will be aged 60 years and over by the year 2050, which will account for 22% (or one out of five) of the world's population, compared to 10% in 2000. The increased importance of the senior market is not only the result of demographic changes and a worldwide trend towards an ageing population but is also caused by behavioral shifts on the part of increasingly active older adults. Different regions of the world – and even different countries within regions have experienced the demographic ageing of their population in significantly different ways. As people age, the demand situation and patterns of consumption will change significantly. According to Ferrer et al., it is generally accepted that holiday tourism is a positive and healthy pursuit to follow in leisure time providing many benefits to mental and physical health. Very little attention has been given in the literature of the impact of travel behavior on the health and well-being of senior tourists. This paper has a double fold aim: a deeper comprehension of the senior market segment regarding trends, their needs and wants and of how seniors may behave in the coming years when travelling and a step further towards a deeper comprehension on the benefits from leisure travelling linked to an active ageing and wellbeing. Findings generated by this approach may help create innovative ways to address some of the gaps identified in the literature.

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# Geriatrics Gerontology & Palliative Nursing

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## Religion as a coping mechanism for health problems and depression among aging Puerto Ricans on the mainland

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This paper examines the role of religion as a coping mechanism for health among aging Puerto Ricans in the Boston area through the analysis of in-depth qualitative interviews. The findings indicate that religion is a very significant health coping resource for Puerto Ricans dealing with specific health issues, including depression, nerves, high blood pressure, alcohol, tobacco and other addictions, and recovery from illness; as well as an orientation that promotes healthy behaviors. The main forms of coping revolved around the power of faith and prayer, the communal experience, meaning and morality, which were perceived as promoting well-being and improving one's health. Overall, religion had a positive influence on the respondent's sense of wellbeing; however, a few subjects also reported conflicts between a religious orientation and the secular culture within their community. Some also reported possible manipulation by some clergy. An understanding of religious coping experiences among aging Puerto Ricans, and other ethnic minority groups, is essential for clergy, health, and human service professionals working to develop strategies to address their spiritual and health care needs.

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## Tau protein aggregation induces cellular senescence in the brain

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**Statement of the Problem:** Tau protein accumulation is the most common pathology among degenerative brain diseases, including Alzheimer's disease, progressive supranuclear palsy, chronic traumatic encephalopathy and over twenty others<sup>1</sup>. Mechanisms mediating tau toxicity are not well understood resulting in few treatment options and poor patient prognosis. Tau-containing neurofibrillary tangle (NFT) accumulation is the closest correlate with cognitive decline and cell loss. NFT-containing neurons do not die, which suggests secondary mechanisms are driving toxicity.

**Methodology & Theoretical Orientation:** We evaluated gene expression patterns of NFT-containing neurons microdissected from Alzheimer's disease patient brains, brain tissue from patients with supranuclear palsy and four independent Alzheimer's disease mouse models. The tau transgenic Alzheimer's disease mouse models were treated with a well-characterized pharmacological approach to remove senescent cells. The effects of drug treatment on tau pathology, brain structure and function were determined with careful histology and brain MRI analyses.

**Findings:** Neurons with NFTs from human Alzheimer's disease brain develop an expression profile consistent with cellular senescence. This complex stress response induces a near permanent cell cycle arrest, adaptations to maintain survival, cellular remodeling, and metabolic dysfunction. Moreover, senescent cells induce chronic degeneration of surrounding tissue through the secretion of pro-inflammatory, pro-apoptotic molecules termed the senescence-associated secretory phenotype (SASP). Using transgenic mouse models of tau-associated pathogenesis we found that NFTs induced a senescence-like phenotype including DNA damage, karyomegaly, mitochondrial dysfunction and SASP. Cdkn2a transcript level, a hallmark measure of senescence, directly correlated with brain atrophy and NFT load. We found this relationship extended to postmortem brain tissue from humans with progressive supranuclear palsy to indicate a phenomenon common to tau toxicity. Treatment of tau transgenic mice with drugs to remove senescent cells had decreased NFT burden, preserved neuronal and glial brain cells and improved brain structure and function.

**Conclusion & Significance:** Collectively, these findings indicate that NFTs induce cellular senescence in the brain, which contributes to neurodegeneration and brain dysfunction. Moreover, removing senescent cells offers a new therapeutic approach for the dozens of neurodegenerative diseases arising from pathogenic tau accumulation. Given the prevalence of tau protein deposition among neurodegenerative diseases, these findings have broad implications for understanding, and potentially treating, dozens of brain diseases.

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## Study of the C-reactive protein and tumor necrosis factor- $\alpha$ levels in the elderly before and after resistance exercise training

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Aging results in chronic low grade inflammation that is associated with an increased risk disease, poor physical functioning and mortality. The biomarkers that are mostly related to inflammation such as tumor necrosis factor- $\alpha$  (TNF  $\alpha$ ) C-reactive protein (CRP) are created to stimulate and activate the immune system in response to inflammation. Strategies that reduce age-related inflammation may improve the quality of life in older adults. The benefits of regular exercise for the elderly are well established, whereas less is known on the impact of low-intensity resistance exercise on chronic low-grade inflammation in elderly. The aim of this work was to study the level of TNF  $\alpha$  and CRP before and after programmed resistance exercise in elderly individuals. This study was done on thirty healthy elderly individuals aged 60 years or older of both sexes, participated in four weeks of resistance training (RET). Circulating levels of TNF  $\alpha$  and CRP were measured before and after exercise training. Results of this study that both inflammatory markers TNF  $\alpha$  and CRP, were statistically significantly decreased ( $P=0.036$ ,  $0.009$ ) respectively, in comparison with the previous starting level measured before the exercise in the same individuals. There was negative correlation between both TNF  $\alpha$  and CRP levels and RET, which indicated that RET represents a low-cost strategy that may reduce age-related inflammation and may thus improve the quality of life in older adults.

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## Use of Mancala/Sungka to reduce cognitive decline in institutionalized elderly in Metro Manila

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**Introduction:** As people age, their mental and physical functions diminish due to their inactivity. The purpose of this study is to use Sungka to reduce cognitive decline and enhance cognitive aspects (memory and retention, attention and concentration, executive function, and mood) among institutionalized elderly in Metro Manila.

**Methods:** The playing of Sungka was incorporated into a structured routine program, entitled COMPLY: communicate-move-play (which includes social, physical and cognitive activities). The subjects were 12 elderlies, who came from an elderly institution in Metro Manila, selected under purposive sampling. The study was conducted for 45 minutes to one hour, once a week for four weeks. Quasi-experimental design was utilized through a pre- and post-intervention test using mini mental state exam (MMSE). Two researcher developed tools were used in determining the effect of the structured routine program. The consent of the institution and the subjects were obtained and was assured that their privacy, confidentiality, and anonymity were secured. Measure of pre-and post MMSE scores of were analyzed through dependent T-Test, while, cognitive aspects under the research developed tool were analyzed through repeated measures ANOVA.

**Results:** Findings revealed that there is a significant difference between the pre- and post- MMSE ( $p=0.001$ ). The results suggest that Sungka is effective in reducing cognitive decline in geriatric subjects. Further, attention and concentration were shown to have a significant change ( $F=4.600$ ,  $p=0.030$ ) indicating that the subjects were being taught lesser every session has transpired. However, memory and retention ( $F=1.882$ ,  $p=0.169$ ), executive function ( $F=0.792$ ,  $p=0.502$ ) and mood ( $F=1.0000$ ,  $p=0.339$ ) had no significant change.

**Discussion:** The significant difference in the pre- and post- MMSE shows that the use of Mancala/Sungka can reduce cognitive decline among institutionalized geriatric subjects in Metro Manila. Further research is needed to extend the length of application of the said structured program.

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# Geriatrics Gerontology & Palliative Nursing

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## Attitudes of elderly persons and professionals towards intergenerational exchanges

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**Statement of the Problem:** Understand the multidimensionality of attitudes from the exchange between different generations is essential for the establishment of intergenerational cooperation.

**Objective:** To describe and compare the responses of elderly persons and professionals involved in permanent education programs in the state of São Paulo, Brazil, using the intergenerational exchanges attitude scale (IEAS), considering the variables living with children, for the elderly persons, and work with intergenerational groups or only with the elderly, for the professionals.

**Method:** The convenience sample consisted of 148 elderly persons and 52 professionals. The participants responded to the IEAS and a questionnaire to delineate their profile in terms of age, gender and educational level. Comparative analysis, using the Mann-Whitney test, weighted each factor of the IEAS and the averages by items and by factors.

**Results:** Compared to the professionals, the elderly had more negative perceptions of the attitudes of children towards the elderly ( $p < 0.001$ ) and more positive perceptions of the attitudes of the elderly towards children ( $p < 0.001$ ). Elderly persons who did not live with children had more negative perceptions of the interaction between children and the elderly than those who lived with children ( $p = 0.003$ ). Professionals working with intergenerational groups had more positive perceptions of the interaction between children and the elderly than professionals who worked only with older age groups ( $p = 0.015$ ).

**Conclusion:** Intergenerational activities can be an important mediator of attitudes regarding the interaction between children and the elderly, as well as a form of training and professional renewal for those who work or intend to work in intergenerational activities.

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## Patients-family communication about end-of-life care wishes in Korea

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**Statement of the Problem:** End-of-life care communication is important in cancer care. Having patients' wishes on end-of-life care set out in advance can ensure their wishes are honored at the end of life. However, little is known about how many Korean patients with terminal cancer share their wishes with family and what influences on their communication. The purpose of the study was to investigate the prevalence of patient-family communication about end-of-life cancer care wishes in Korea and the factors influencing end-of-life communication.

**Methodology:** In this cross-sectional study, data were collected from 102 family members who had participated in end-of-life cancer decision making at a university hospital in South Korea.

**Findings:** The results indicated that 32.4% of the participants answered that they knew about patients' wishes on end-of-life care. Logistic multiple regression analyses demonstrated that patients' functional status and family functioning had significant influences on patient-family communication about end-of-life care. Patients with better functional status and better family functioning were more likely to share end-of-life wishes with family. However, patients' age, gender, income, and education had no significant influence on end-of-life communication.

**Conclusion:** Facilitation of patient-family communication on end-of-life cancer care necessitates consideration of patient's functional status and family functioning.

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## Mapping the Knowledge Structure of Frailty in Journal Articles by Text Network Analysis

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**Background:** This study was to understand the trends of frailty research and networking features of keywords from the academic articles focusing on frailty in the last four decades.

**Method:** Keywords were extracted from articles (n = 6,424) retrieved from Web of Science, from 1981 to April 2016, using Bibexcel, and a social network analysis was conducted using Net Miner.

**Results:** The core-keywords of research on frailty are constantly changing over the last 40 years. The keywords were tended to focus on impact in the 1980s, and moved to the determinants (i.e., malnutrition) in the 1990s and the 2000s, and in the 2010s, most of keywords were about determinants and measurement of frailty. In the early stages of frailty research, individual behaviour modifications were emphasized as intervention. Keywords with the highest degree centralities were 'impact' (1980s), 'frailty' (1990s), 'home care' (2000s), and 'dementia' (2010s). Keywords with the highest betweenness centralities were 'model' (1980s), 'frailty' (1990s), 'chronic disease' (2000s), and 'malnutrition' (2010s). Discussion: This study provides a systematic overview of frailty knowledge development. 'Dementia' was found to be the keyword with the highest degree centrality, showing that studies on cognitive function are those being most actively conducted in recent decade. In the 2000s frailty research, sub-themes were sarcopenia, dementia and disability, indicating that frailty was investigated from the view of disease. In the 2010s, obesity, nutrition, prevention, evaluation, and ADL (activities of daily living) were sub-themes of the research network that focused on frailty prevention.

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