Bayesian analysis showed more evidence for apathy than for depression being associated with cognitive functioning in nursing homes

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Progress in Global Mental Health for Elders

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Public health Response to Dementia

Tarun Dua

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Prevention of Late-Life Depression & Anxiety in Low & Middle Income Countries: An Intervention Development Project (DIL)

Charles Reynolds

Symposia

S1: International Psychogeriatrics' Papers of the Month: Class of 2016 or Where Do Knowledge Advances Lead Us Next?

Psychotic symptoms in frontotemporal dementia: a diagnostic dilemma?

Maria Landqvist Waldö; Lars Gustafson; Ulla Passant; Elisabet Eglund

Background: Frontotemporal dementia (FTD) constitutes a spectrum of neurodegenerative disorders associated with degeneration of, predominantly, the frontal and temporal lobes. The clinical heterogeneity is evident, and early diagnosis is a challenge. The primary objectives were to characterize psychotic symptoms, initial clinical diagnoses and family history in neuropathologically verified FTD-patients and to analyze possible correlations with different neuropathological findings.
Methods: The medical records of 97 consecutive patients with a neuropathological diagnosis of frontotemporal lobar degeneration (FTLD) were reevaluated. Psychotic symptoms (hallucinations, delusions, paranoid ideas), initial diagnosis and family history for psychiatric disorders were analyzed.
Results: Psychotic symptoms were present in 31 patients (32%). There were no significant differences in age at onset, disease duration or gender between patients with and without psychotic symptoms. Paranoid ideas were seen in 20.6%, and hallucinations and delusions in 17.5% in equal measure. Apart from a strong correlation between psychotic symptoms and predominantly right-sided brain degeneration, the majority of patients (77.4%) were tau-negative. Only 14.4% of the patients were initially diagnosed as FTD, while other types of dementia were seen in 34%, other psychiatric disorders in 42%, and 9.2% with other cognitive/neurological disorders. The patients who were initially diagnosed with a psychiatric disorder were significantly younger than the patients with other initial clinical diagnoses. A positive heredity for dementia or other psychiatric disorder was seen in 42% and 26% of the patients respectively.
Conclusions: Psychotic symptoms, not covered by current diagnostic criteria, are common and may lead to clinical misdiagnosis in FTD.

International Psychogeriatrics (2015), 27:4, 531–539.

Prevalence and incidence of dementia among indigenous populations: a systematic review

Laura A. Warren; Qiyun Shi; Kue Young; Amy Borenstein; Alexandra Martiniuk

Background: Indigenous populations may be at increased risk, compared with majority populations, for the development of dementia due to lower education levels and socio-economic status, higher rates of diabetes, hypertension, cardiovascular disease and alcohol abuse, an aging population structure, and poorer overall health. This is the first systematic review investigating the prevalence and incidence of dementia in indigenous populations worldwide.
Methods: This systematic review was conducted in accordance with PRISMA guidelines. We searched MEDLINE, Embase, and PsycInfo for relevant papers published up to April 2015. Studies were included if they reported prevalence or incidence, the disease typically occurred after the age of 45, the study population included indigenous people, and the study was conducted in the general population.
Results: Fifteen studies representing five countries (Canada, Australia, the USA, Guam, Brazil) met the inclusion criteria. Dementia prevalence ranged from 0.5% to 20%. Retrospective studies relying on medical records for diagnoses had much lower prevalence rates and a higher risk of bias than population-based prospective studies performing their own diagnoses with culturally appropriate cognitive assessment methods.
Conclusions: The prevalence of dementia among indigenous populations appears to be higher than it is for non-indigenous populations. Despite a building body of evidence supporting the need for dementia research among indigenous populations, there is a paucity of epidemiological research, none of which is of high quality.

International Psychogeriatrics (2015), 27:12, 1959–1970.

Dementia and intentional and unintentional poisoning in older people: a 10 year review of hospitalization records in New South Wales Australia

Rebecca J. Mitchell; Lara A. Harvey; Henry Brodaty; Brian Draper; Jacqueline C. T. Close

Background: Medicinal substances have been identified as common agents of both unintentional and intentional poisoning among older people, including those with dementia. This study aims to compare the characteristics of poisoning resulting in hospitalization in older people with and without dementia and their clinical outcomes.

Methods: A retrospective cohort study involving an examination of poisoning by intent involving individuals aged 50+ years with and without dementia using linked hospitalization and mortality records during 2003–2012. Individuals who had dementia were identified from hospital diagnoses and unintentional and intentional poisoning was identified using external cause classifications. The epidemiological profile (i.e. individual and incident characteristics) of poisoning by intent and dementia status was compared, along with clinical outcomes of hospital length of stay (LOS), 28-day readmission and 30-day mortality.

Results: The hospitalization rate for unintentional and intentional poisoning for individuals with dementia was double and 1.5 times higher than the rates for individuals without dementia (69.5 and 31.6 per 100,000) and (56.4 and 32.5 per 100,000). The home was the most common location of poisoning. Unintentional poisoning was more likely to involve individuals residing in aged care facilities (OR 5.44; 95% CI 4.43–6.67) or health service facilities (OR 4.56; 95%CI 4.06–5.13). There were higher mortality rates and longer length of stay for unintentional poisoning for individuals with dementia.

Conclusions: Clinicians need to be aware of the risks of poisoning for individuals with dementia and care is required in appropriate prescription, safe administration, and potential for self-harm with commonly used medications, such as anticholinesterase medications, antihypertensive drugs, and laxatives.

International Psychogeriatrics (2015), 27:11, 1757–1768.

Editor's Note: This abstract includes typographical corrections published in a subsequent issue. See *International Psychogeriatrics* (2015), 27:12, 2101.

A comparison of delirium diagnosis in elderly medical inpatients using the CAM, DRS-R98, DSM-IV and DSM-5 criteria

Dimitrios Adamis; Siobhan Rooney; David Meagher; Owen Mulligan; Geraldine McCarthy

Background: The recently published DSM-5 criteria for delirium may lead to different case identification and rates of delirium than previous classifications. The aims of this study are to determine how the new DSM-5 criteria compare with DSM-IV in identification of delirium in elderly medical inpatients and to investigate the agreement between different methods, using CAM, DRS-R98, DSM-IV, and DSM-5 criteria.

Methods: Prospective, observational study of elderly patients aged 70+ admitted under the acute medical teams in a regional general hospital. Each participant was assessed within 3 days of admission using the DSM-5, and DSM-IV criteria plus the DRS-R98, and CAM scales.

Results: We assessed 200 patients [mean age 81.1±6.5; 50% female; pre-existing cognitive impairment in 63%]. The prevalence rates of delirium for each diagnostic method were: 13.0% (n=26) for DSM-5; 19.5% (n=39) for DSM-IV; 13.5% (n=27) for DRS-R98 and 17.0%, (n=34) for CAM. Using tetrachoric correlation coefficients the agreement between DSM-5 and DSM-IV was statistically significant (ρtetr=0.64, SE=0.1, p<0.0001). Similar significant agreement was found between the four methods.

Conclusions: DSM-IV is the most inclusive diagnostic method for delirium, while DSM-5 is the most restrictive.

In addition, these classification systems identify different cases of delirium. This could have clinical, financial, and research implications. However, both classification systems have significant agreement in the identification of the same concept (delirium). Clarity of diagnosis is required for classification but also further research considering the relevance in predicting outcomes can allow for more detailed evaluation of the DSM-5 criteria.

International Psychogeriatrics (2015), 27:6, 883–889.

S2: IPA Member Forum (Long Term Care): Teaching Nursing Homes around the Globe: Current State and Future Opportunities

Symposium Overview

The Teaching Nursing Home (TNH) movement developed in the 1980s in the United States with support from the National institute on Aging and the Robert Wood Johnson Foundation.
This resulted in the growth of formal linkages between Nursing School programs, Academic Medicine and nursing homes. A number of goals for TNHs have been articulated including the creation of an environment that models a culture of learning, educating the next generation of leaders and care providers, transforming perceptions regarding the academic potential of nursing homes and their ability to provide exemplary care and foster quality of life, and testing / dissemination of evidence-based practices (Mezey et al. 2008). Several countries around the world have also developed programs to enhance education, training and research in nursing homes. Recent developments in Australia, Canada and the Netherlands will be outlined followed by discussion and updates from other countries represented within the IPA Long Term Care Shared Interest Forum. Future opportunities and current challenges will be considered.

The Development of Academic Nursing homes in the Netherlands

Raymond Koopmans

Teaching and Research Aged Care Services in Australia: Wicking Teaching Aged Care Facilities Program

Kate-Ellen Elliott; Kate Barnett; Andrew Robinson

Presented by: David Conn

In 2012, the Australian Federal Government funded 16 partnerships under the Teaching and Research Aged Care Services initiative to apply the Teaching Nursing Home model. The funding was part of a broad focus on aged care services reform to strengthen the workforce to ensure that older people continue to receive quality care. This presentation will provide an overview of the national evaluation, and focus on examples of successful outcomes from the TNH model applied to the Australian context. While funding for TRACS has ceased, a limited number of partnerships have remained in operation. The Wicking Teaching Aged Care Facilities Program currently implements an evidence-based model of interdisciplinary student placements across four sites in Australia. The principles that underpin the sustainability of the WTACFP and expansions into new disciplines such as clinical psychology and opportunities for care re-design will be discussed.

Centres for Learning, Research and Innovation in Long-Term Care in Ontario, Canada

David Conn; Raquel Meyer; Melissa Donskov; Josie d'Avernas

Launched by the Ontario Ministry of Health and Long-Term Care (MOHLTC) in 2011, the Ontario Centres for Learning, Research and Innovation in Long-Term Care (CLRI) Program aims to enhance the quality of care in the long-term care sector through *education, research, innovation, evidence-based delivery of resident care and knowledge transfer.* The Government of Ontario funded the initial mandate until March 2016. The three host organizations are Baycrest Health Sciences in Toronto, Bruyère on Ottawa and Schlegel based in Waterloo. Accomplishments include: More than 60% of the LTC Homes in the province have been reached, over 3,400 staff trained, 29 research projects launched or completed, creation of a central website and information hub and annual conferences. The Ministry has provided additional funding for 2016/17 while it evaluates a proposal from the 3 Centres for an expanded second phase of the project.

S3: Psychological and neurobiological factors associated with cognitive performance and neurodegenerative disorders: Importance for early diagnosis and treatment

Symposium Overview:

The neurodegenerative disorders such Alzheimer's disease (AD) cause suffering in millions of individuals worldwide. Although traditionally conceptualized as neurochemical diseases it is now clear that psychosocial factors also have a profound impact on the risk and severity of dementia, and even milder neurocognitive disorders. This session will join both areas of research by presenting the latest psychiatric and biological science on late-life cognition in older adults from the community, older psychiatric patients, and among older adults with AD. First, Dr. Beaudreau will present findings delineating the potential role of worry symptoms on cognitive performance in older community-residing adults without dementia. Her study is the first to show that worry moderates associations between anxiety and depression on cognitive performance, and offers a glimpse into the complexity regarding how a constellation of different psychological symptoms might be associated with better or worse cognitive performance. Second, Dr Rothenberg will describe her work with obsessive compulsive disorder (OCD) and dementia risk. She has observed that as many as 22% of institutionalized dementia patients exhibited symptoms of OCD before developing dementia. Her observations suggest that symptoms of OCD may be an early sign of for developing dementia and could be an additional psychological and behavioral symptom of dementia that has not been previously considered. Third, with regard to the biology of dementia, Dr Gasiorowski will present on the chromosomal instability of neurons in AD. This instability is a strong independent predictor of neurodegeneration. Dr Diniz will describe possible biomarkers placing individuals with late-life depression (LLD) at risk for developing AD and vascular dementia. He and his research group have identified novel targets for prevention and treatment of LLD and dementia. Dr Leszek will provide an overview of the emerging field of nanomedicine and its biomedical and pharmaceutical applications as related to neurodegenerative diseases. Specifically, he will present on how different nanocarriers show great potential for diagnosis, but also for the treatment of many CNS disease such AD. The Chair and Co-Chair will frame all of these findings within a translational research model of neurodegenerative disease and discuss their implications for a personalized medicine approach to treatment.

Neurocognitive Profiles of Late-life Anxiety and Depressive Symptoms

Sherry Beaudreau; Nathan Hantke; Christine Gould; Ruth O'Hara

The neurocognitive profiles of late-life psychiatric symptom dimensions are poorly understood. Milder anxiety and depressive symptoms have been shown to be associated with worse memory and cognitive control in some studies. Other investigations, however, show no association at all. The key to understanding these symptoms could depend upon the presence of clinically significant worry, which to date has received little attention with regard to cognitive performance. This presentation will describe an investigation that aimed to disentangle patterns of cognitive performance associated with anxiety, depression, and clinically significant worry in community-residing older adults. The study identified distinct patterns of cognitive performance in relation to psychiatric symptom dimensions. Together, results implicated state-associated improvements for effortful cognitive abilities (i.e., memory and cognitive control) due to worry, potentially through increased self-monitoring. A novel hypothesis will be discussed regarding the intriguing possibility that among older adults with milder anxiety and depressive symptoms, worry symptoms increase engagement in cognitive tasks in which performance might otherwise be reduced.

Obsessive-compulsive disorders in aging brain-symptoms, comorbidity or risk for neurodegenerative diseases. Diagnostic challenge, role of biomarkers and benefit of early interventions

Kasia Rothenberg

Introduction: Obsessive Compulsive Disorder (OCD), a debilitating psychiatric disorder characterized by obsessive thoughts and/or compulsive behaviors [1], has been associated with dysfunction in the frontal lobes of the brain, particularly the orbito-frontal cortex (OFC)[2]. OCD has an estimated lifetime prevalence of 2–3% worldwide. The disease has newly been separated from the class of anxiety disorders in the revised Diagnostic and Statistical Manual of Mental Disorders.

Frontal lobe dysfunction characterizes OCD as well as dementia [4,5] It is consider a core symptom of frontotemporal dementia (FTD) but may be an element of cognitive impairment observed in Alzheimer's disease (AD). It remains unclear if OCD increases the risk of developing dementias, as there is a lack of data to support this.

Interestingly late onset, geriatric OCD seems to be highly uncommon [6] Moreover obsessive compulsive symptoms in geriatric population were occasionally reported as FTD prodrome or even clinical manifestation of stroke [4,7]
Observational studies have found that 22% of institutionalized dementia patients exhibited hoarding behaviors[3], although it is unclear if this population had a prior diagnosis of OCD before developing dementia. There have been isolated cases reporting late-onset OCD with semantic dementia[4] and AD[5]. To complicate diagnostic debate further very little is known about natural course of OCD. It is than highly probable that comorbid neurodengenerative process may change a clinical presentation and complicate the management of OCD elderly population

Case Reports: We report a case of a 69-year-old female with a 40 years history of OCD who presented with recent memory impairment. Cerebrospinal fluid analysis was however equivocal for Alzheimer's disease biomarkers it was also negative for paraneoplastic diseases. Further diagnostic procedures including genetic studies as well as PET scan turned out to be consistent with AD. Patient benefited from ACHI trial.

Observational Studies: 8 patients with long history of OCD who complained of change in the profile of OCD symptoms were examined. Clinical profile of OCD was retrospectively analyzed based on Yale-Brown Obsessive-Compulsive Scale (Y-BOCS). In all the cases increased severity of compulsions expressed as overall increase in time spent on them as well as increased distress with decreased controlled was associated with comorbid development of FTD. Decrease in intensity of obsession parallel to decreased resistance to compulsions was observed in Patient's with emerging, comorbid Alzheimer's disease.

Discussion: It remains unclear if long lasting OCD, may increase this patient's risk for developing dementia. Changing profile of obsessive compulsive pattern should be considered a significant although week signal and should grant further exploration. Based on current knowledge, recent studies and clinical experience the use of imaging and CSF biomarkers may be useful in appropriate diagnosis and grant appropriate treatment and ultimately result in improvement beneficial for the Patients.

Chromosomal instability in aging brain and in neurodegeneration

Kazimierz Gąsiorowski

Chromosomal instability could lead to aneuploidy, i.e. to gain or loss of whole chromosomes in cells. Aneuploidy is consistently found in 2-5 % of neurons in healthy adult human brain. An individual combination of aneuploid and euploid cells (mosaic aneuploidy) contributes to functional complexity and diversity of the brain. However, as people age, the numer of aneuploid neurons and glial cells increases. Aneuploidy impairs neuronal and glial cells homeostasis and, finally, could lead to neurodegeneration. While at early age both neuronal and glial cells are equally affected, the age-related increase of aneuploidy is restricted to dividing cells: glia and neuronal stem cells (neuronal precursor cells present in the subventricular zone and the dentate gyrus).

Instead, in postmitotic, fully differentiated neurons the source of genomic instability and aneuploidy could be the aberrant cell cycle re-entry. Such, fully differentiated neurons, reactivated to DNA replication, contain some parts of their genome being non-replicated (disomic) and adjacent parts replicated (tetrasomic). Aberrant cell cycle is probably a major cause of neuronal loss in Alzheimer's disease, as reactivated cycle dependent kinases stimulate (phosphorylate), pro-apoptotic BAX and BAD proteins. However, reactivated cell cycle in neurons goes rather slowly, usually continues for weeks and even for months before it gives rise to cell death; it means that neurons with partially multiplicated/replicated genome for several months keep functioning in regular neuronal circuitries.

Another source of chromosomal instability of brain cells could be the neuronal progenitor cells in the dentate gyrus of the hippocampus, which are able to undergo full replication of their DNA and to complete mitotic division. Significant proportion (about 4%) of tetraploid neurons are consistently identified in this region of the brain. Tetraploid cells usually survive for months before they die, meanwhile they operate in regular neural circuitries.

Noteworthy, some authors documented very low level of aneuploid cell frequency in neurons and in glial cells from Alzheimer's disease frontal cortex, as analysed with the new whole genome sequencing method. However, the study should be extended to vulnerable regions of the diseased brain, especially to hippocampus, which includes proliferating neuronal progenitor cells and would contain significant number of aneuploid neurons.

Undobtedly, chromosomal instability in neurons and glia worth further exploration as it could be a major cause of neurodegeneration.

Neurobiological Links between Major Depression and Alzheimer's Disease in older adults

Breno Diniz

Cognitive impairment is a common symptom in mood disorder and is linked to worse functioning and poorer treatment outcomes at all ages. In older adults, the association between cognitive impairment and mood disorders can significantly increase the risk of dementia and mortality. In a recent study, we carried out a comprehensive analysis of biomarkers related to cognitive impairment in late-life depression (LLD+CI). We used a data-driven comprehensive proteomic analysis (multiplex immunoassay including 242 proteins), along with measures of structural brain abnormalities (gray matter atrophy and white matter hyperintensities volume via magnetic resonance imaging), and brain amyloid-β (Aβ) deposition (PiB-positron emission tomography). We found that a biosignature including the abnormal expression of 24 proteins in plasma and structural brain changes are significantly associated with LLD+CI. The analysis of the molecular and biological pathways related to this biosignature revealed the association with greater cerebrovascular disease along with reduced neurotrophic support, abnormalities in immune–inflammatory control, cell survival, intracellular signaling, protein and lipid homeostasis, clotting processes, nutrient sensing and mitochondrial dysfunction. These results demonstrated that subjects with LLD+CI bear multiple neurobiological abnormalities that can render them more vulnerable to accelerated brain aging and progressive brain changes. Our findings shed light on possible mediators of the elevated risk for progression to dementia, in particular to Alzheimer's disease and vascular dementia, among these subjects. Finally, we provide novel targets for prevention and treatment of LLD+CI, as well as, for its downstream negative outcomes, including the development of dementia and related disorders.

Nanotechnology-based drug delivery systems in Alzheimer's disease – anti-Beta-amyloid and inflammatory efficacy of dendrimers

Jerzy Leszek

The lack of effective treatment for Alzheimer's disease (AD) stems mainly from the incomplete understanding of AD causes. Currently there are several hypothesis which try to explain the early molecular mechanisms of AD pathogenesis. The current pathophysiologic approach is based on a number of common mechanisms of neurodegeneration, including accumulation of abnormal proteins tau and ABeta), mitochondrial dysfunction, oxidative stress, impaired insulin signaling, calcium homeostasis dysregulation, imbalance of neurotransmitters, early synaptic disconnection and late apoptotic cell death. Considering that AD is a multi-factorial disease with several pathogenic mechanisms and pathways, a multifunctional nanotechnology approach may be needed to target its main molecular culprits. There are still no effective treatments to prevent, halt or reserve AD. To very early diagnosis of AD we need to have an affordable, ultrasensitive and selective molecular detection methods. Nanomedicine as a biomedical and pharmaceutical application of nanotechnology for making nanocarriers for instance dendrimers has shown great potential not only for diagnosis but the treatment of many CNS diseases such AD. Ultra-low concentrations of protein biomarkers (eg.ADDL-amyloid-Beta-derived diffusible ligands) which have been implicated in the pathogenesis of AD, is possible to detect, owing to carrier dendrimers. Dendrimers are polymeric molecules chemically synthesized with well -defined shape size and nanoscopic physicochemical properties reminiscent of proteins.

Recently an increasing number of studies have been focused on the potential dendrimers to prevent aggregation and fibrillation of proteins involved in neurodegenerative disorders such as AD. Some of dendrimers were demonstrated to cross blood-brain barrier, which legitimized research on these compounds as potential drugs for neurological disorders. Recent our studies have revealed that dendrimers possess the intrinsic ability to localize in cells associated with neuroinflammation (activated microglia and astrocytes) and thus can be used in neuroinflammation therapy.

Above/mentioned findings may be significance in the context of potential application of dendrimers as drug carriers or active compounds per se. According to opinion the authors of this presentation, they are promising macromolecules for further investigations on their applicable in neurodegenerative disorders, for instance AD.

S4: Late-Life Suicidal Behavior and Suicide: Where Are We and Where to We Need To Be?

Symposium Overview

Suicide in late life occurs at a disturbingly high rate, with rates higher in older adults than in the general population. Moreover, suicide rates are expected to increase along with the projected growth of the older segment of the population. By evaluating current research findings on late-life suicidal behavior and suicide and highlighting future directions and the vital importance of intervention and prevention efforts, we will provide evidence and practical insights that will help to define priorities for suicide prevention in late life. During our session, Dr. Byers will present epidemiological evidence, including prevalence estimates and assessment of risk factors for late-life suicidal behavior as well as findings on the use of mental health services in older community-dwelling adults at high risk of suicide. Dr. Conwell will present the current understanding of risk factors for late-life suicide and how this understanding has influenced the determination of targets for prevention. Dr. Van Orden will then describe the complex and important issues to consider when embarking on research involving late-life suicidality. After setting the stage with an overview of where we are with current research on late-life suicidal behavior and suicide, Drs. Kasckow and Barry will present examples of important and novel research directions in the study of late-life suicidality. Dr. Kasckow will discuss data concerning late-life suicidal behavior and the role of cognitive impairment. Dr. Barry will present innovative work on one of the most vulnerable populations when it comes to suicidality, i.e., older prisoners. In the final presentation, Dr. Unutzer will wrap things up by describing innovative models of care that support much needed suicide prevention efforts in older adults. The discussion will focus on the value of current and prior research to inform prevention of late-life suicide, and the necessity for more innovative research and methods of care in the future.

Epidemiology and Late-Life Suicidality: Prevalence, Risk Factors, and Important Research Issues to Consider

Amy Byers

Late-Life Suicidal Behavior and the Potential Role of Cognitive Impairment

John Kasckow

Intervening on Suicidal Ideation: What We Have Learned from PROSPECT and Other Studies

Martha Bruce

Preventing Suicide in Older Adults: Innovative Treatments

Craig Nelson

S5: IPA Junior Research Awards

Multi-modal MRI investigation of volumetric and microstructural changes in the hippocampus and its subfields in mild cognitive impairment, Alzheimer's disease, and dementia with Lewy bodies

Elijah Mak; Silvy Gabel; Su Li; Guy Williams; Robert Arnold; Luca Passamonti; Patricia RodrÍguez; Ajenthan Surendranathan; W. Richard Bevan-Jones; James Rowe; John O'Brien

Background: Volumetric atrophy and microstructural alterations in diffusion tensor imaging (DTI) measures of the hippocampus have been reported in people with Alzheimer's disease (AD) and mild cognitive impairment (MCI). However, no study to date has jointly investigated concomitant microstructural and volumetric changes of the hippocampus in dementia with Lewy bodies (DLB).
Methods: 84 subjects (23 MCI, 17 DLB, 14 AD, and 30 healthy controls) were recruited for a multi-modal imaging (3T MRI and DTI) study that included neuropsychological evaluation. Freesurfer was used to segment the total hippocampus and delineate its subfields. The hippocampal segmentations were co-registered to the mean diffusivity (MD) and fractional anisotropy (FA) maps obtained from the DTI images.
Results: Both AD and MCI groups showed significantly smaller hippocampal volumes compared to DLB and controls, predominantly in the CA1 and subiculum subfields. Compared to controls, hippocampal MD was elevated in AD, but not in MCI. DLB was characterised by both volumetric and microstructural preservation of the hippocampus. In MCI, higher hippocampal MD was associated with greater atrophy of the hippocampus and CA1 region. Hippocampal volume was a stronger predictor of memory scores compared to MD within the MCI group.
Conclusions: Through a multi-modal integration, we report novel evidence that the hippocampus in DLB is characterised by both macrostructural and microstructural preservation. Contrary to recent suggestions, our findings do not support the view that DTI measurements of the hippocampus are superior to volumetric changes in characterising group differences, particularly between MCI and controls.

A randomized controlled trial of Kundalini yoga in mild cognitive impairment

Harris Eyre; Prabha Siddarth; Bianca Acevedo; Kathleen Van Dyk; Parrharee Paholpak; Linda Ercoli; Natalile St. Cyr; Hongyu Yang; Dharma Khalsa; Helen Lavretsky

Background: Global population aging will result in increasing rates of cognitive decline and dementia. Thus, effective, low-cost and low side-effect interventions for the treatment and prevention of cognitive decline are urgently needed. Our study is the first to investigate the effects of Kundalini yoga (KY) training on mild cognitive impairment (MCI).
Methods: Older participants (≥ 55 years of age) with MCI were randomized to either a 12-week KY intervention or memory enhancement training (MET; gold-standard, active control). Cognitive (i.e. memory and executive functioning) and mood (i.e. depression, apathy and resilience) assessments were administered at baseline, 12 weeks and 24-weeks.
Results: At baseline, 81 participants had no significant baseline group differences in clinical or demographic characteristics. At 12-weeks and 24-weeks, both KY and MET groups showed significant improvement in memory, however only KY showed significant improvement in executive functioning. Only the KY group showed significant improvement in depressive symptoms and resilience at week 12.
Conclusion: KY group showed short- and long-term improvements in executive functioning as compared to MET, and broader effects on depressed mood and resilience. This observation should be confirmed in future clinical trials of yoga intervention for treatment and prevention of cognitive decline.

Proxy rated quality of life care home residents with dementia: A systematic review

Sarah Robertson: Claudia Cooper; Juanita Hoe; Olivia Hamilton; Aisling Stringer; Gill Livingston

Background: Quality of life (QoL) is an important outcome for people with dementia living in care homes. Ratings are usually obtained from a proxy rater as many residents cannot report their own QoL. However, we have limited understanding of whether proxy reports differ according to whether the proxies are relatives or paid carers. Differences may raise important questions about the validity of QoL measurements. For the first time, we conducted a systematic review and meta-analysed data to investigate whether paid caregiver and family caregiver proxy reports of QoL differ and the factors associated with each rating.

Methods: We systematically reviewed the literature from the following databses: Medline, Embase, PsychInfo and CINAHL in October 2015, using the following search terms: *dementia* and *quality of* life and *proxy* and *care home*. We included studies that either compared proxy QoL ratings or investigated the factors associated with them and meta-analysed data comparing staff and family proxy rated QoL.

Results: We identified 105 references and included 17 papers that met criteria. We found no significant differences between staff and relative-rated global ratings of QoL in 4 studies using the QOL-AD (n = 1290; pooled effect size 0.06 (95% CI= -0.08 to 0.19)). Studies investigating staff and relative assessements of QoL (n = 3,537) found both ratings correlated with the resident's physical and mental health but ratings differed when analyses considered institutional factors. Staff who were more distressed rated resident QoL lower and relatives rated it lower when residents had lived in the nursing home for longer, when they observed more restraint, and contributed more to nursing home fees.

Conclusion: Relatives and staff proxy QoL ratings share a clear relationship to resident health. Their overall ratings for the QOL-AD were similar. Rater-specific factors were also associated with the scores that they gave. Understanding how these influence ratings and why different raters may evaluate life quality of the same person differently is an important consideration when evaluating the meaning of proxy-rated QoL.

S6: Severe Behavior Response Teams – Addressing the unique needs of individuals with very sever BPSD, through a person-centered biopsychosocial perspective

Symposium Overview

Marie Alford

The capacity of the residential aged care sector to support people with behavioural and psychological symptoms of dementia (BPSD) has been a major consideration within aged care policy, research and service delivery over recent decades within Australia. In 2015 a new national approach to the management of severe, very severe and extreme behaviours of concern in residential care was announced by the Australian government with the program awarded to HammondCare for implementation.

The Severe Behaviour Response Teams (SBRT) commenced national operations across Australia in November 2015 led by HammondCare. Key components of the service, believed to be the first of its type in the world, include rapid and responsive in reach to residential aged care facilities, and an emphasis on expert behavioural (rather than primarily pharmacological) management.

Comprising a multidisciplinary workforce of aged care nurses; allied health and specialist medical staff the Severe Behaviour Response Teams (SBRT), and working across Australian beyond state and territory boundaries the team have been providing expert assessment and management of high-level behavioural disturbances within residential aged care facilities across Australia.

Supporting the aged care workforce to understand on a practical level the complex interplay between the person with dementia, the disease, the environment and the interaction of staff, residents and family has also been an important focus within the program. Pharmacological management alone would not create long term sustainable results so the practical aspect of SBRT being present "on the ground" and providing a range of additional interventions leads to longer term change. The program is to demonstrating efficacy and changes to both quality of life for the person with dementia and the care network (staff/family and friends) and hospital avoidance.

A detailed description of the service model and an evaluation of the first 12 months of operations of the service will be provided. It is anticipated that if the SBRT model can be successful in a country as large and diverse as Australia, it may prove worthy of replication in other jurisdictions.

S7: Dementia Challenges and Solution for the Middle East

Symposium Overview

Though Dementia has devastating effect on millions of patients and carers in the Middle East, it has traditionally been a hidden condition that receives little attention from medical, social and political organisations. In the Middle Eastern countries a rise in the elderly population is expected leading to higher disease burden. For instance, in Egypt, 5% of the population was over the age of 60 years in 1950 that rose to 6.3% by 2000, but it is predicted to increase rapidly to 11.5% by 2025 and 20.8% by 2050. This would account to more than 300% increase in a 50 year period. If it is presumed that the pattern of prevalence for dementia in the Middle East is similar to the UK, it would be estimated that in Egypt alone 500,000 people will have a diagnosis of dementia in 2025. But, the official figures are much lower than estimated figures due to low detection rates caused by multiple factors which include stigma, lack of culturally appropriate cognitive tools, lack of accessible dementia training programme, ill prepared work force and some cultural believes. In the Middle East, most of the dementia care falls on family members due to lack of care homes and presence of stigma. But the changing demographics in the Middle East including family structure and work force could lead to a real challenge in arranging care to people with dementia especially in the presence of behavioural problems. Hence, the pressing need to raise awareness, influence policy makers, prepare work force, increase training opportunities and enhance research capabilities.

Many counties in the Middle East seem not be well prepared to deal with this coming challenge for many reasons. This symposium will cover three main areas: the size of the dementia challenge in the Middle East, the advances and gaps in using culturally appropriate cognitive tools for Arabic Speaking countries and development of care pathways and work force in the Middle East. It will not only increase awareness, but will also update knowledge, offer solution and pave way for collaboration suing strategy developed between Cairo University, Aston University and Chester University.

The Dementia Challenge in the Middle East: An opportunity for collaborative solutions

<u>George Tadros</u>

Diagnostic Challenges in the Middle East: Clinical and Cognitive assessment tools for Arabic Speaking countries

<u>Osama Refaat Elsayed</u>

The population structure in Egypt is moving toward an increase in the elderly population. This demographic transition is expected to be accompanied by significant rise in dementia patients and will affect priorities of health care needs as well. There has been an increasing awareness regarding the importance of early detection of mental health problems of the elderly specially dementia.

The currently used diagnostic tools for neurocognitive disorders are not satisfactory. Most of the available tests were developed in English-speaking populations, with versions in other languages (including Arabic) mostly using direct translation rather than culturally specific adaptation.

This presentation will highlight the current gap in the cognitive assessment tests and the suggested needs to meet the demands in clinical practice. It is expected that such modifications for these tools might help to increase their validity.

Population based approach to developing culturally appropriate care pathways

<u>Noha Sabry</u>

S8: Recent Progress in Imaging and Neuropathology in Dementia with Lewy Bodies

Symposium Overview

This symposium brings together experts in dementia with Lewy bodies (DLB) from two major European research centres (Newcastle University in the UK and Milan University in Italy). Each speaker will present new data on aspects of imaging and neuropathology in people with dementia with Lewy bodies. Pietro Tiraboschi (University of Milan, Italy) will present data on the inter-relationship of the neuropathologies of Alzheimer's disease and Lewy body disease in the context of DLB. Using 64 cases of subjects who had had probable DLB clinically and autopsy confirmed Lewy body disease it was found that diagnostic accuracy was directly related to Lewy body pathology and weakly negatively related to neuritic Alzheimer's pathology but there was no relationship to amyloid deposition. Cristina Muscio (University of Milan, Italy) will then discuss recent data from the Italian SCILLA study comparing the utility of MIBG cardiac and FP-CIT striatal imaging in the differential diagnosis of DLB from other causes of dementia. In a comparison of 59 subjects (30 with DLB and 29 with non-DLB) both imaging methods showed good accuracy and reliability, but MIBG was more accurate and more reliable than FP-CIT. Paul Donaghy (Newcastle University, UK) will speak on "FP-CIT Imaging and DSM-5 Diagnosis in Mild Neurocognitive Disorder" using data from a prospective cohort of prodromal DLB at Newcastle. He will present findings from 62 subjects (44 DLB, 18 Alzheimer's disease (AD)) and discuss the utility of FP-CIT imaging in such MCI-stage disease and the clinical characteristics of such patients compared with prodromal AD. Finally Alan Thomas (Newcastle University, UK) will report on a recently completed autopsy study of 55 subjects who had had FP-CIT imaging in life (title: "Autopsy Validation of FP-CIT Imaging in DLB"). This is the largest such study using the gold standard validation of neuropathological assessment and we report that FP-CIT is a valid biomarker assessment which adds substantial value to the clinical diagnosis but importantly that about 10% of subjects with autopsy confirmed DLB have a normal FP-CIT scan at initial presentation.

Inter-relationship of the neuropathologies of Alzheimer's disease and Lewy body disease in the context of DLB

Pietro Tiraboschi; Johannes Attems; Alan Thomas; Evelyn Jaros; Robert Perry; Lauren Walker; Cristina Muscio; Ian McKeith

A series of 64 cases with autopsy-proven dementia with Lewy bodies (DLB) was used to determine whether its pre-mortem identification was affected by the extent of concurrent Alzheimer neuritic and β-amyloid pathology. To explore this, the clinical diagnosis considered was subjects' last diagnosis prior to death. The pathologic diagnosis of DLB was made according to 2005 Consensus criteria. A-synuclein immunostaining was used for identifying Lewy bodies and, based on their distribution, for assigning each case to the brainstem, limbic, or diffuse neocortical category. Aβ immunostaining was used to evaluate the extent of β-amyloid deposition. The CERAD criteria and the method of Braak were applied for semiquantitative grading of neuritic plaque and neurofibrillary tangle pathology. The prevalence of the core clinical features (fluctuations, visual hallucinations, and spontaneous parkinsonism), and the accuracy of the clinical diagnosis, of DLB were first determined for the entire cohort. Then, the clinical characteristics and clinical diagnostic accuracy were evaluated in relation to the extent of α-synuclein pathology, amount of β-amyloid deposits, density of neuritic plaques, and distribution of neurofibrillary tangles, as expressed by Braak stage. Overall clinical diagnostic accuracy for the entire DLB cohort was high (80%), reflecting the high prevalence of core clinical features [fluctuations (81%), spontaneous parkinsonism (77%), visual hallucinations (70%)]. Lower frequencies of the core clinical features of DLB, resulting in lower accuracy of its clinical diagnosis, were associated with decreasing Lewy body distribution ($p < 0.0001$) and with increasing neuritic plaque pathology ($p = 0.035$), but not to the amount of β-amyloid plaque deposition. In conclusion, the likelihood of the occurrence of the DLB clinical syndrome is positively related to the extent of Lewy body pathology and weakly negatively related to the severity of Alzheimer neuritic pathology, while β-amyloid load has no effect.

Recent data from the Italian SCILLA study comparing the utility of MIBG cardiac and FP-CIT striatal imaging in the differential diagnosis of DLB from other causes of dementia

Pietro Tiraboschi; Angelo Corso; Ugo Paolo Guerra; Flavio Nobili; Arnoldo Piccardo; Maria Lucia Calcagni; Duccio Volterrani; Diego Cecchin; Mauro Tettamanti; Simone Vidale; Leonardo Sacco; Maria Merello; Stefano Stefanini; Anna Micheli; Paola Vai; Selene Capitanio; Sara Vincenzina Gabanelli; Riccardo Riva; Patrizia Pinto; Ave Maria Biffi; Cristina Muscio

Objectives: (i) To compare the diagnostic value of ^{123}I-FP-CIT SPECT and ^{123}I-MIBG myocardial scintigraphy in differentiating DLB from other types of dementia (non-DLB), and (ii) to determine inter-rater agreement for visual assessment for each of the two methods.

Methods: Our analysis included 30 patients with a clinical diagnosis of DLB and 29 patients with non-DLB dementia (AD, n=16; bvFTD, n=13), who underwent ^{123}I-FP-CIT SPECT and ^{123}I-MIBG myocardial scintigraphy within few weeks of clinical diagnosis. All diagnoses at each centre were agreed upon by the local clinician and an independent expert, both unaware of striatal and myocardial images, and re-evaluated after 12 months. All images were visually classified as either normal or abnormal by independent nuclear physicians blinded to patients' clinical data. Sensitivity and specificity to DLB, as well as inter-rater agreement for visual assessment of each method, were then calculated.

Results: DLB and non-DLB subjects were comparable for sex, age at onset, and age and global severity of dementia at first visit, but the former expectedly had a greater frequency of all core features (visual hallucinations, spontaneous parkinsonism, and fluctuations) and significantly worse performances on tests of visuospatial/constructional and attentional abilities. Overall, sensitivity and specificity to DLB were respectively 93% and 100% for ^{123}I-MIBG myocardial scintigraphy, and 90% and 76% for ^{123}I-FP-CIT SPECT. Lower specificity of striatal compared to myocardial imaging was due to decreased ^{123}I-FP-CIT uptake in seven non-DLB patients (three with parkinsonism) who had normal ^{123}I-MIBG myocardial uptake. Inter-reader agreement was higher for myocardial (Cohen's kappa between 0.89 and 0.96) than for striatal (Cohen's kappa between 0.82 and 0.86) images.

Conclusions: abnormalities (low uptake) of striatal and myocardial imaging are equally sensitive to DLB, but the latter appears to be more specific for excluding non-DLB dementias, especially when parkinsonism is the only "core feature" exhibited by the patient. Notably, myocardial imaging in our non-DLB subjects was normal even in those (n=7) with concomitant comorbidity (diabetes and/or heart disease) known to potentially interfere with ^{123}I-MIBG uptake, suggesting that the potential confounding effects of these illnesses on diagnostic accuracy of myocardial imaging might have been overestimated.

FP-CIT Imaging and DSM-5 Diagnosis in Mild Neurocognitive Disorder

Paul Donaghy; John O'Brien; Sean Colloby; Jim Lloyd; Georgios Petrides; Alan Thomas

Objective: The DSM-V criteria for Mild Neurocognitive Disorder (MND) include the subtype of MND with Lewy bodies. These criteria are essentially identical to the 2005 International Consensus Criteria, with the exclusion of striatal dopaminergic imaging (e.g. FP-CIT SPECT) as a biomarker. The Newcastle LewyPro study seeks to characterise the clinical and biomarker phenotype of prodromal dementia with Lewy bodies. We hypothesised that those with MND with Lewy bodies would be more likely to have a positive FP-CIT scan than those with MND due to Alzheimer's disease.

Methods: Patients with MND and symptoms suggestive of Lewy body disease were recruited. Each patient had a comprehensive clinical and neuropsychological assessment and striatal dopaminergic ^{123}I-FP-CIT imaging. Following this, subjects were classed as probable MND with Lewy bodies (MND-LB) if two or more core or suggestive symptoms of DLB were present or MND due to Alzheimer's disease (MND-AD) if no core or suggestive symptoms were present.

Results: 75 subjects have completed their baseline assessment. 22 subjects were classified as MND with Lewy bodies and 24 as MND-AD. 55% of the MND-LB group had a positive FP-CIT SPECT scan compared with 13% of MND-AD. Semi-quantitative assessment of FP-CIT imaging found lower striatal FP-CIT binding, greater binding asymmetry and a lower putamen:caudate binding ratio in the MND-LB group compared with the MND-AD group.

Conclusion: MND-LB is associated with lower striatal FP-CIT binding and a higher likelihood of a visually abnormal FP-CIT scan when compared with MND-AD. FP-CIT SPECT would appear to be a specific biomarker for Lewy body disease, although we do not yet know the sensitivity and specificity of DSM-V criteria to identify Lewy body disease in the MND phase. The accuracy of the DSM-V criteria and FP-CIT to predict the later development of dementia with Lewy bodies will be investigated in longitudinal clinical follow-up of these subjects.

Autopsy Validation of FP-CIT Imaging in DLB

Alan Thomas

S9: IPA Member Forum (Young-Onset Dementia): Young-onset frontotemporal dementia – the challenges for families of a distinctive diagnosis

Symposium Overview

Background: Studies from various countries show that assessment in an early stage of dementia in younger persons (< 65 years) are not done, especially not when frontotemporal dementia (FTD) is the cause of dementia. In FTD the memory impairment, the core symptom in dementia, is not the primary symptom, but changes of personality traits. It can take up till six or more years after the onset of the first symptom to a diagnosis is made in younger FTD patients. The reasons for the delayed diagnosis are seldom due to poor diagnostic instruments. In most cases a low awareness and knowledge of FTD among the public and among general practitioners and psychiatrist is probably the reason. Therefore, we need to know the barriers and facilitators for conducting a diagnostic assessment in persons with FTD. Their close family are affected in a special way since they are not yet retired and some of them have teenager/young children. Clearly, there is a need for more competence among health care personnel. They should be trained to detect and diagnose younger persons with FTD at an earlier stage. In addition, provide tailored services for these families.
Content of the Session: We will organize four presentations with speakers from, United States, The Netherlands, England, and Norway. The lectures one will focus on prevalence and the diagnostic work-up and the general awareness of FTD with debut in younger age. The second lecture will contain compared findings from two follow-up studies in Netherland and Norway: the Needs in Young-onset Dementia (NeedYD)-study on care needs and neuropsychiatric symptoms in young onset FTD. The third and forth lecture will report findings drawn from four in-depth qualitative studies, in which younger persons with FTD, their spouses, and families as a whole have been interviewed.
Scientific Purpose: To contribute to the development of knowledge and understanding of the situation of younger persons with FTD and their families based on scientific studies.

The prevalence and the diagnostic work-up and the general awareness of FTD with debut in younger age

Howard Rosen

Consequences of Young-onset Dementia on Daily Living and Important Predictors of Quality of Life – Results from a European Multicenter Assessment

Lara Hvidsten; Joany Millenaar; Hege Kersten; Knut Engedal; Geir Selbaek; Torgeir Brunn Wyller; Aud Johannessen; Per Kristian Haugen; Christian Bakker; Deliane van Vliet; Youlande Pijnenburg; Raymond Koopmans; Frans Verhey; Marjolein de Vugt

Background: Since there is no cure available, an important aspect of care for persons with dementia is promoting adaptation and well-being and maintaining an optimal quality of life (QOL). A shift in focus from symptoms and disability towards the capacity and potential of the person with dementia can contribute to an optimal QOL, which has become a major topic of interest within dementia research. However, no previous studies specifically investigated QOL in persons with young onset dementia (YOD), who develop symptoms of the disease before the age of 65.
Objective: The aim of the current study is to identify important predictors of QOL in persons with young onset Alzheimer's disease (YO-AD) and frontotemporal dementia (FTD).
Methods: 169 persons with YO-AD and 79 persons with FTD were included from two prospective cohort studies in Norway and the Netherlands. To assess QOL, the Quality of Life in Alzheimer's Disease questionnaire (QoL-AD) was used. Sociodemographic background and context variables including age, gender and educational level were included as predictor variables as well as variables related to the dementia diagnosis such as dementia severity, depressive and other neuropsychiatric symptoms, and number of unmet needs. The relationship between relevant predictors and QOL was explored using multiple linear regression analyses. In addition, differences between persons with YO-AD and FTD on the specific domains of the QoL-AD questionnaire were calculated with t-tests.
Discussion: Identifying persons with YOD who have an increased risk of reduced quality of life allows for tailored health-care and early intervention. The results will be presented at the symposium.

Living with a diagnosis of behavioural-variant frontotemporal dementia: The person's experience

Jan Oyebode; Julie Griffin; Jenny LaFontaine; Michael Larkin

Background: Although published research has explored the experience of living with dementia, most participants have been people with diagnoses of Alzheimer's disease, vascular or mixed dementia. Very few studies have considered how people living with bvFTD make sense of their difficulties, apparently partly due to an assumption that people with bvFTD may not be able to reflect with insight on the effects of their diagnosis.

Aim: To present findings that explore how people living with bvFTD make sense of, and adapt to living with the diagnosis and its impact; and some of the influences on adjustment.

Methods: The paper takes a social constructionist qualitative approach to integrating findings from two qualitative studies. The first involved one to two cross-sectional interviews with each of five people living with bvFTD, with reflection and the second involved interviews over 2-3 years with seven families, including the person with bvFTD.

Findings: Emergent themes from the first study reflected *bewilderment, threats to sense of self (blame others or avoid them)* and *challenges to relationships with family and friends.* Most participants had an intellectual but not an emotional lived experience of their dementia and hence wrestled with understanding its impact on, for example, employment and relationships. In this context of partial awareness, the consequences of diagnosis appeared to be experienced as threats to self, with participants responding by avoiding others or blaming them. This led to tensions in close relationships with participants feeling that, although they had not changed, others were responding differently to them. Findings from the second study contextualise and enrich these themes, illustrating some of the wider personal and relational influences on the experience, adjustment and adaptation of the people living with bvFTD.

Conclusions: Our findings, which have implications for service provision, illustrate that the experience of living with bvFTD is often bewildering for the person themselves, and family acceptance and adaptation are crucial to supporting and maintaining the person's well-being.

Experiences and needs for assistance among spouses of people with young-onset frontotemporal dementia: A qualitative study

Aud Johannessen: Anne-Sofie Helvik; Knut Engedal; Kirsten Thorsen

Background: Two of the most common types of young-onset dementia (YOD) (< 65 years old) are Alzheimer's disease (AD) and frontotemporal dementia (FTD). It is estimated that of the approximately 3,000 Norwegian people who have YOD, about half of them have FTD. So far, only a limited number of studies focus on the coping efforts of spouses to handle living with a person with young-onset FTD and how this illness influences their lives. Against this background, we have carried out the present study aiming to examine the experiences of spouses of those with young-onset FTD and the spouses needs for assistance in daily life.

Method: Qualitative interviews with 16 informants (aged 51–69 years; nine wives, six husbands, and one male cohabitant) were conducted in 2014 and 2015. The data was analysed with a modified version of the grounded theory method.

Findings: From the body of the interviews, three main themes with subthemes emerged: The first and the second main themes concentrate on the early and later stages of young-onset FTD as it was recounted by spouses. The first main theme, concentrating on the early stages, covers two subthemes: *incomprehensible early signs* and *lack of self-insight.* The second main theme, dealing with the later stages, covers three subthemes: *torment, interference with work,* and *vanishing social relations.* The third main theme, *needs for assistance*, is described under three subthemes: *relief of diagnosis, support at home,* and *the path to the nursing home.*

Conclusion: The final conclusion will be presented at the congress.

S10: CAGP Symposium: Innovations in Geriatric Psychiatry focusing on Simulation, Public Education, Physician Health, and Online Education

Innovations in Geriatric Psychiatry Education: Blending Online, Didactic, and Skills-based Approaches

Mark Rapoport

The Canadian Academy of Geriatric Psychiatry developed initiatives with the goal of consolidating and expanding knowledge and skills in geriatric psychiatry, while overcoming limitations of traditional educational approaches. A reduction of faculty time and its implications were addressed by Thibault et al and highlight the need to reflect on achievement and approach in a changing world.

A traditional review course was presented for two years, followed by a practical update in the third year, and a skills-based series of workshops or master-classes. This was complemented by an online asynchronous course in which additional topics were covered for two weeks each over ten months, with interactive questions, cases, and controversies discussed among peers and expert faculty.

The presentation will describe these initiatives and their evaluations, as well as approaches to increasing interactivity and deeper learning.

Teaching Electroconvulsive Therapy Skills using Simulation: A New Standard for Credentialing

Kiran Rabheru

Simulation has become a standard tool for training in many areas of education, including aviation, the military, law enforcement, and more recently in health care. Improved patient safety by learners' ability to have multiple attempts at improving skills in high-risk procedures prior to actually performing it on live patients is the key value proposition. Objective evaluation of learner's skills, as well as knowledge and confidence in performing an intrusive procedure such as electroconvulsive therapy (ECT), is imperative. Traditional methods of teaching ECT, compared to simulation-based ECT teaching, falls short on imparting the skills necessary to perform ECT. The University of Ottawa's evidence-based, world's first simulation-based ECT course meets the criteria for all seven CanMEDS roles, with 30 hours of Section 3 Maintenance of Certification credits, and has now been offered to four cohorts of ECT practitioners nationally. This paper will summarize the experience of these four cohorts of practitioners and discuss the advantages and disadvantages of such a training modality becoming a standard for credentialing for ECT practitioners in Canada and abroad.

Teaching an Old 'doc' New Tricks: Burnout and Coping with Changes to the Health Care System

Shabbir Amanullah

Advancing age poses a unique set of challenges to all humans regardless of educational qualification, financial status or well being. Its impact on mind and body are impossible to ignore. In physicians the implications are significant with revalidation but also the notion of life long learning and yet there is sparse evidence on how best to get physicians to 'enjoy' learning.

While group learning is the most commonly use method in adults, there are factors one needs to keep in mind when the older individual is part of the group. Burnout is an issue amongst doctors and a source of significant distress for teams and the doctor themselves.

It is also important to keep 'learning perspectives in mind when teaching adult groups especially when introducing concepts that may seem novel.

S11: Magnetic Seizure Therapy and New Findings in the Clinical Practice of Electroconvulsive Therapy in the elderly

Symposium Overview

Introduction: This symposium will include topics relevant to the clinical practice of ECT in geriatric psychiatry including mechanism of action, effectiveness of ECT in the treatment of neurological disorders, and recent research findings from a multisite federally funded project on Preventing Relapse in Depressed Elderly (PRIDE). This symposium will also include the discussion of a newer neuromodulation therapy and its potential as a treatment for elderly patients.
Discussion: Electroconvulsive Therapy (ECT) is the most efficacious treatment in geriatric patients with mood disorders. It has been reported that elderly patients have a higher immediate response rate and are treated more often with ECT than younger patients. Elderly individuals have more medical comorbidities making them more vulnerable to side effects and drug–drug interactions from pharmacotherapy; in addition, they tend to have higher rates of medication intolerance and are physically more frail, prompting a quicker referral to ECT. While ECT has been the gold standard brain stimulation strategy, the field of neuromodulation is evolving with the introduction of newer and more precise tools to induce focal seizures. Magnetic Seizure Therapy (MST) is an experimental neuromodulation therapy with potential benefits for the older population.
Conclusions:
ECT remains a major therapeutic intervention for the elderly with treatment resistant psychiatric conditions. In fact, it is the most effective treatment in severely depressed geriatric patients. It is a treatment modality that can be considered even in the context of neurological disorders and it is effective not only in the acute phase when a rapid response is needed but also in the maintenance phase, offering patients a better chance to avoid relapse following ECT. Newer focal therapies are promising for the older population vulnerable to cognitive side effects.

The session is intended for both the ECT practitioner as well as practitioners who are referring patients for ECT.

The use of ECT in neurological disorders in the geriatric population

Adriana Hermida

Introduction: Elderly patients referred to ECT for medication resistant depression often present with comorbid neurodegenerative disorders including mild cognitive impairment (MCI), dementia, Parkinson's disease and stroke. Electroconvulsive therapy has been demonstrated to be effective in treating mood disorders with comorbid neurological conditions and improving affective symptoms as well as agitation, motor deficits and even cognition.
Discussion: Dr. Hermida will discuss the available evidence regarding the use of ECT on the treatment of neurological disorders such us Parkinson's Disease, dementia with agitation, post-stroke depression and other neurological disorders.

Historical Overview and latest theories of the mechanisms of action of ECT

George Petrides

Introduction: Despite the robust evidence outlining the effectiveness of ECT in the treatment of depression, the exact mechanism by which ECT acts as an antidepressant is not entirely clear. Psychological, psychodynamic, and biological theories have all been postulated as being responsible for its antidepressant action. Most recent theories have focused on the wide-ranging impact of ECT on the neurophysiological system. ECT is known to affect almost all neurotransmitters, a multitude of hormonal systems, and neurogenesis.
Discussion: Dr. Petrides will present the proposed mechanisms of action of ECT with an historical overview of theories that evolve according to our conceptualization of mental illness since the introduction of ECT in the 1930s. More specifically he will discuss the "incompatible illness theory" theories based on psychodynamic interpretations, neurotransmitter and neuroendocrine theories etc. Finally, Dr. Petrides will discuss the latest theories and the data supporting them i.e. the neurotrophic and brain-connectivity theories.

The PRIDE Study: Efficacy Results

Charles Kellner

Introduction: Depression is a chronic and recurring illness, maintenance treatment is important to sustain remission after a successful course of acute ECT. Even though the remission rates from ECT have been described as high as 80 % relapse rates are high. Evidence from RCTs has shown that symptom remission can be prolonged after an acute course of ECT if patients receive continuation/maintenance treatment with pharmacotherapy and/or ECT.

Discussion: Dr. Kellner will discuss findings from a large NIMH-sponsored multicenter trial: the Prolonging Remission in Depressed Elderly (PRIDE) study. Geriatric patients with major depressive disorder who had remitted after acute right unilateral ultrabrief pulse ECT 3X weekly combined with venlafaxine, were randomized to receive venlafaxine plus lithium or a flexible maintenance ECT schedule plus those medications. Results at 24 weeks show patients in the continuation ECT plus pharmacotherapy group had significantly lower depression scores than patients in the pharmacotherapy alone group. The ratio of relapse was 1.7 times higher for patients in the pharmacotherapy alone group and there was a tendency toward shorter time to relapse for pharmacotherapy alone compared to the ECT plus pharmacotherapy group. Additional ECT in the continuation phase is a valuable treatment option to prevent relapse.

Magnetic Seizure Therapy

Mustafa Husain

Introduction: Magnetic Seizure Therapy (MST), which is still an experimental modulation therapy, specifically applies high intensity rTMS to induce a seizure. MST does not involve impedance of the skull, which allows for a more focal seizure restricted to the superficial cortex. Seizures are elicited under general anesthesia by a magnetic field. MST has been shown to produce fewer cognitive side effects compared to RUL brief pulse ECT, as demonstrated by faster orientation, attention and retrograde memory recovery from treatments. According to available data, reorientation time after MST may take as little as two minutes, showing potential as a treatment for elderly patients prone to post-ECT memory impairment.

Discussion: Dr. Husain will present data from the Pilot Study of MDT and recently conclude MST/ ECT Trial in MDD.

S12: The Art of Becoming a Leader in Geriatric Psychiatry: Learn from the Experts

Symposium Overview

Tatyana Shteinlukht; Luanne Thorndyke

Strong leadership skills are needed by geriatric psychiatrists for multiple reasons: to advocate for their patients, trainees and colleagues; to preserve and expand the field of geriatric psychiatry; and to realize individual goals and impact. The need for leadership training in geriatric psychiatry is an imperative for the field and for those committed to the discipline.

This leadership development workshop is intended to increase participants' skills in interpersonal communication, including advocating for oneself and one's work in order to raise one's visibility and perception as a leader.

This session is an interactive workshop that provides a unique leadership training opportunity by two prominent leaders: Dr. Luanne Thorndyke, MD, Vice Provost of Faculty Affairs at the University of Massachusetts Medical School and immediate past Chair of the American Association of Medical Colleges Group on Faculty Affairs, and Dr. Tatyana Shteinlukht, MD, PhD, Director of ECT service in the Department of Psychiatry, University of Massachusetts Medical School.

An interactive discussion format will elucidate the differences between "self-promotion" and bragging, and the ways that individuals can strategically gain visibility for themselves and their work within an organization. Through small group exercises and role-play, participants will work on tools for effective interpersonal communication, graceful self-promotion, and leadership. This workshop has been conducted in many venues, and has shown improvements in skills and confidence of participants.

At the conclusion of this session, participants will be able to:

1. Demonstrate effective interpersonal communication skills to interact with others about ourselves and our accomplishments.
2. Explore preferences and styles of interacting with others to enhance leadership "presence:" the ability to impress others as a leader.
3. Utilize several tools for presenting one's accomplishments with self-confidence and integrity.

S13: AAGP Symposium: Risk Factors and Biomarkers for Neurodegeneration

Symposium Overview

Neurodegenerative diseases are the most common causes of mental impairment in older populations, and innovative methods for early detection of these conditions will facilitate prevention treatments that would protect brain health prior to extensive and irreversible damage. This symposium will highlight new research on risk factors and biomarkers of neurodegeneration that offer promise of facilitating this strategy.

Gary Small, MD, UCLA (Professor of Psychiatry and Aging, Director of Geriatric Psychiatry) will chair the symposium and present the first report of brain in vivo tau and amyloid protein signals in military personnel with suspected chronic traumatic encephalopathy (CTE). [F-18]FDDNP-PET binding was significantly higher in military personnel with concussion and/or blast injury histories and cognitive and/or mood symptoms compared to controls in several cortical and subcortical regions (p<.01-.0001). Compared with Alzheimer's disease patients, military personnel showed higher binding in the midbrain (p=.0008) and pons (p=.002) and lower binding in temporal and parietal regions (all p=.02).

Dr. D.P. Devanand, Columbia University (Professor of Psychiatry and Director of Geriatric Psychiatry) will present four-year longitudinal data on olfactory identification deficits (University of Pennsylvania Smell Identification Test [UPSIT]) from a large multi-ethnic community cohort. Lower UPSIT scores were associated with cognitive decline (Odds Ratio 1.07 per point interval, 95% CI 1.04, 1.10, p < .0001). UPSIT, but not Selective Reminding Test-total immediate recall or delayed recall, predicted cognitive decline in participants without baseline cognitive impairment.

Janina Krell-Roesch, PhD, (Research Fellow) and Yonas E. Geda, MD, (Professor of Neurology and Psychiatry) Mayo Clinic Scottsdale, Arizona, will present results from the population-based Mayo Clinic Study of Aging. Amyloid-β (Aβ) and neuropsychiatric symptoms are independent risk factors for cognitive impairment. In a cohort of 950 cognitively normal elderly participants, they demonstrated a positive synergistic interaction between cortical Aβ and depression in further elevating the risk of incident mild cognitive impairment (HR [95% CI], 4.52 [2.06, 9.91]). Similar patterns were observed for apathy and agitation. Therefore, research investigating presymptomatic Alzheimer's disease biomarkers may need to account for neuropsychiatric symptoms in both observational studies as well as clinical trials.

[F18]FDDNP-PET Brain Binding Patterns in Military Personnel with Suspected Chronic Traumatic Encephalopathy

Gary Small; Prabha Siddarth; David Merrill; Rebecca Van Horn; Jaqueline Martinez; Natacha Emerson; Jie Liu; Koon-Pong Wong; Nagichettiar Satyamurthy; Christopher Giza; Sung-Cheng Huang; Robert Fitzsimmons; Julian Bailes; Bennet Omalu; Jorge Barrio

Background: [F-18]FDDNP-PET studies of retired professional football players with cognitive and mood symptoms demonstrate binding patterns consistent with brain tau deposition identified at autopsy in chronic traumatic encephalopathy (CTE). To assess other at-risk populations, we used [F-18]FDDNP-PET to measure tau and amyloid deposition in military personnel and compared results to those of retired National Football League (NFL) players, Alzheimer's dementia (AD) patients, and cognitively intact controls.

Methods: PET scans of subjects (7 military [5 retired, 2 active] with concussion and/or blast injury histories and cognitive and/or mood symptoms, 15 retired players, 28 controls, 24 AD) were used to generate [F-18]FDDNP distribution volume (DVR) images, using Logan graphical plots (cerebellum as reference region). Regions of interest (ROIs) included striatum, medial thalamus, hypothalamus, midbrain, pons, amygdala, medial temporal lobe (MTL; hippocampus with parahippocampal gyrus and entorhinal), frontal lobe, anterior cingulate gyrus (ACG), parietal lobe, posterior cingulate gyrus (PCG), lateral temporal lobe (LTL) and occipital areas. ROIs were drawn bilaterally, except for the midbrain where only one ROI was located, and striatum (average of caudate nucleus and putamen). Non-parametric ANCOVAs (controlling for age) with Tukey-Kramer adjusted post-hoc comparisons were used to test for statistically significant differences in regional [F-18]FDDNP binding (DVR values) among the four subject groups.

Results: [F-18]FDDNP binding levels were significantly higher in military personnel compared to controls in the amygdala, midbrain, medial thalamus, pons, frontal, ACG, and PCG regions (p<.01-.0001). Binding patterns in the military personnel were similar to those of the retired football players except for the amygdala and striatum, where the players had higher binding than the military personnel (p=.02-.003). Compared with the AD group, the military personnel showed higher binding in the midbrain (p=.0008) and pons (p=.002) and lower binding in the MTL, LTL and parietal regions (all p=.02) (Figures).

Conclusions: This first study to report in vivo tau protein signals in military personnel with suspected CTE shows binding patterns similar to those of retired football players and distinct from AD and normal aging. These results suggest that [F-18]FDDNP-PET has the potential to be a valuable tool for early detection and treatment monitoring in varied at-risk populations.

Olfactory Identification Deficits, Cognitive Decline and Alzheimer's Disease

Devangere Devanand; Seonjoo Lee; Gregory Pelton; Edward Huey; José Luchsinger; Jennifer Manly; Nicole Schupf; Yaakov Stern; Richard Mayeux

Background: Olfactory identification deficits in dementia of the Alzheimer's type (DAT) are associated with neurofibrillary tangles in the olfactory bulb and secondary projection pathways to limbic regions. Odor identification impairment is a characteristic feature of DAT.

Objective: To determine the predictive utility of odor identification deficits for future cognitive decline, defined as 0.5 SD decline in composite score over 2 years, and the diagnosis of dementia, including dementia of the Alzheimer's type (DAT), and mortality.

Methods: In a multi-ethnic community cohort, 1037 participants without dementia were evaluated with the 40-item University of Pennsylvania Smell Identification Test (UPSIT). In 757 participants, follow-up occurred at 2 years and 4 years.

Results: Lower UPSIT scores were associated with cognitive decline (Odds Ratio 1.07 per point interval, 95% CI 1.04, 1.10, $p < .0001$), and remained significant ($p < .0001$) after including covariates. UPSIT, but not Selective Reminding Test-total immediate recall or delayed recall, predicted cognitive decline in participants without baseline cognitive impairment. During follow-up, 101 participants transitioned to DAT. Lower baseline UPSIT scores were associated with transition to DAT (Hazards Ratio HR=1.10 per point interval, 95% CI 1.07, 1.13, $p < .0001$), and remained significant (HR 1.07 per point interval, 95% CI 1.04, 1.1, $p < .0001$) after including demographic, cognitive and functional covariates. High UPSIT scores were associated with a low 2-3% annual rate of transition from MCI to AD. No participant with high UPSIT scores and age < 70 years transitioned to AD during 4 years of follow-up. Lower UPSIT scores were also associated with increased mortality during follow-up, with hazard ratios increasing from 1.58 to 3.81 across quartiles.

Conclusions: Odor identification impairment was superior to deficits in verbal episodic memory in predicting cognitive decline in cognitively intact participants. In participants with intact odor identification ability, the lack of transition from MCI to AD suggests that odor identification testing may have potential utility to screen individuals with subjective cognitive complaints, particularly because of lack of clarity about the next steps to take when minimal to no deficits are identified with currently used cognitive screening instruments in patients with subjective cognitive complaints.

Amyloid-B, Neuropsychiatric Symptoms and the Risk of Incident Mild Cognitive Impairment: The Mayo Clinic Study of Aging

Janina Krell-Roesch

Background: Amyloid-β (Aβ) and neuropsychiatric symptoms (NPS) are independent risk factors for cognitive impairment. In this study, we examined whether they interact in further elevating the risk of incident mild cognitive impairment (MCI). This timely research question is consistent with the contemporary emphasis by the field of aging to use biomarkers to investigate presymptomatic AD.

Methods: We conducted a prospective cohort study derived from the population-based Mayo Clinic Study of Aging in Olmsted County, Minnesota. We followed 950 cognitively normal participants (439 females; aged ≥ 50 years) for a median of 28 months to the outcomes of incident MCI or censoring variables. Participants underwent PiB-PET scans and neuropsychiatric assessment using Neuropsychiatric Inventory Questionnaire (NPI-Q). Cognitive diagnosis was made by an expert consensus panel. We used a global cortical to cerebellar ratio cutpoint to classify participants as PiB+ (≥1.4) or PiB- (<1.4). We calculated hazard ratios (HR) and 95% confidence intervals (95% CI) using Cox proportional hazards models after adjusting for age, sex and education.

Results: Participants who were PiB+ and depressed had a more than 4-fold increased risk of incident MCI (HR [95% CI], 4.52 [2.06, 9.91]) as compared to the reference group (PiB-, non-depressed). Similarly, the risk of incident MCI is significantly elevated for participants who are PiB+ and have apathy (4.74 [1.63, 13.7]), appetite change (4.94 [1.71, 14.3]), or nighttime behavior (2.76 [1.15, 6.61]). There was a marginally significant effect for PiB+ and agitation (3.70 [0.87, 15.7]). We also observed a dose-response pattern: Being PiB+ and having one NPS increased the risk of incident MCI by more than two folds (2.68 [1.47, 4.89]), being PiB+ and having two or more NPS increased the risk by more than three times (3.57 [1.63, 7.81]), and being PiB+ and having three or more NPS increased the risk by more than six times (6.33 [2.19, 18.3]).

Conclusions: Cortical amyloid deposition and depression synergistically interact in further elevating the risk of incident MCI. Similar patterns were observed for apathy, appetite changes, nighttime behavior and agitation. Research investigating presymptomatic Alzheimer's disease biomarkers may therefore need to account for neuropsychiatric symptoms in both observational studies as well as clinical trials.

S14: IPA Member Forum (BPSD Shared Interest): Crisis in patients with extreme BPSD

Symposium Overview

BPSD is very common in patients with dementia. Very useful guidelines has been developed to treat patients with BPSD by psychological and/ or pharmacological interventions. In some patients the BPSD is so excessive that general advice from guidelines is not effective. Sometimes extreme BPSD can lead to a crisis for both patient and nursing staff. Little is known on how to define group of patients with excessive BPSD leading to a crisis, and how this crisis should be addressed. This may or may not be dependent on the way long-term care is organized in various parts of the world

The goal of the scientific program of the SIF BPSD is to exchange ideas on underlying patient and environmental factors leading to excessive BPSD / crisis and to learn from best practices in which crisis could be adequately managed.

A seven-tiered model on BPSD

Brian Draper

TIME – Targeted Interdisciplinary Model for Evaluation and Treatment of Neuropsychiatric Symptoms (NPS)

Bjørn Lichtwarck; Sverre Bergh

TIME is an interdisciplinary multicomponent intervention based on the theoretical framework of cognitive behavioural therapy and person-centred care. TIME was developed in nursing homes in Norway by the first author, BL. The intervention integrates pharmacological and nonpharmacological treatments. It consists of three overlapping phases:

In the registration and assessment phase, the nursing home physician performs an examination of the patient and the patient's previous medical records and medications are critically reviewed. The staff gather personal background information, pain is assessed, behaviour and symptoms are registered in detailed 24-hour daily records, and behaviour and symptoms are monitored with established clinical instruments. In the guided reflection phase, one or more case conferences for the entire group of staff, including the physician, are conducted. Systematic reflection based on cognitive therapeutic principles is carried out. The goal is to create a mutual understanding of the actual NPS and to tailor a detailed treatment plan. The last stage is the action and evaluation phase where each treatment measure in the plan is put into action and systematically evaluated.

The TIME trial is an ongoing effectiveness-implementation cluster randomized trial designed to assess effects of TIME on NPS in persons with dementia and a high level of agitation. The study protocol is recently approved for publication in BMC psychiatry.

Waalbed-III study, determinants of extreme agitation and factors leading to a crisis

Debby Gerritsen

How to Manage a Patient with a BPSD Crisis: Diagnosis and Treatment for the BPSD-patient bringing Dignity to the Patient and to the Caregivers

Inger-Marie Tjernaes

There may be many reasons to such a BPSD crisis. There has been an increasing concern both in our hospital and in the community about these patients the last years and how to meet their needs in the best way.
The reasons:
I will use examples and show different causes that may have influence on the patients situation. In addition to the development/worsening of the dementia-condition itself, other conditions also can occur. These may be environmental changes for instance moving to another place or meeting other people. There may be too demanding care-givers or conflict. Physical conditions may occur with infections, cancer, painful fractures after falls.
Such conditions may also be responsible of delirium that is often difficult to differentiate form the dementia condition itself. A core point is to have as precise as possible the physical and psychiatric diagnoses and the history of the patient.

It is especially demanding to conclude with a precisely interpretation of the PBSD crisis in the patient who has no longer the ability to express him/herself in an understandable way or has less understanding of the situation. We need in these situations to observe and listen carefully to the patients using time to interpret the patients needs. This is what I have understood some of the central issue of “Person centered care”.
Patients with early onset Alzheimer`s dementia are likely to have a development into the advanced stage of the disease after a shorter time than those with late onset dementia.-There are different dementia diseases; among them Vascular dementia, Frontal lobe dementia and Levy Body dementia.
Some patient examples, assessment and treatment of these will illustrate some of our routines coping with these complicated cases. I give examples of the assessment and neuro-imaging (CT/MR) and give examples of treatment and interventions with references to updated literature.
Our experience is that “Person Centered Care” is important together with careful medication with cholinesterase -inhibitors, memantin, small amounts of anti-psychotics and perhaps short term use of benzodiazepines.
There may be challenging work, however, by understanding and empathy with the patient and cooperation with the familiy and teamwork in the hospital we often achieve a better situation for the patient.
In this way we may succeed in bringing dignity to the patient and the caregivers.

S15: The Depressed-Frail Phenotype: A Subtype of late-life depression that calls for action!

Symposium Overview

Recently, a consensus paper conceptualized physical frailty as “an important medical syndrome with multiple causes and contributors that is characterized by diminished strength, endurance, and reduced physiologic function that increases an individual’s vulnerability for developing increased dependency and/or death” (Morley et al, 2013). Frailty may thus be a clinical marker of biological aging explaining heterogeneity in health outcomes of apparently healthy persons of the same chronological age.

The conceptualization proposed in the consensus paper, however, also applies to major depressive disorder, especially late-life depression. Therefore, it might seem reasonable that in a hallmark paper of the Cardiovascular Health Study in which the development of the physical frailty phenotype has been described, patients with significant depressive symptoms or antidepressant drug use were excluded (Fried et al., 2001). Excluded simply “to prevent classifying a person as physically frail due to the presence of one disease, i.e. depression”.

We argue that excluding depressed patients from research on physical frailty is a missed opportunity to identify a vulnerable subsample of depressed older persons and subsequently, withhold them treatment strategies targeted at frailty and preventing disability or even dead. Meta-analysis conducted by our group showed a prevalence of 9.9% (95% CI: 9.6 – 10.2%) for physical frailty among community-dwelling older people (Collard et al., 2011). Within the Netherlands study of Depression in Older persons (NESDO), we found that 27.2% of depressed patients (according to DSM-IV-TR criteria) can be classified as physically frail, significantly more than the 9.1% in the non-depressed comparison group (Collard et al., 2013).

The present symposium will show the impact of metabolic dysregulation (a proxy for vascular aging) as well as physical frailty on the course and consequence of late-life depression, based on both community-based (Health ABC study) and clinical cohort studies (NESDO) on late-life depression. The symposium will be introduced by a short presentation of the results of a systematic review on how geriatric characteristics, especially physical frailty, are taken into account in pharmacological studies on late-life depression and concluded with a short wrap-up integrating the results on the metabolic dysregulation and physical frailty.

Frailty, a neglected geriatric syndrome in the treatment of late-life depression

Richard Oude Voshaar; Carolien Benraad

Objective: Recently, a meta-analysis of randomised, placebo-controlled trials evaluating antidepressants for late-life depression, showed that increasing chronological age predicts a worse outcome. Since the prevalence of geriatric characteristics, among which physical frailty, increase with age and are associated with depression, these geriatric characteristics may modify the antidepressant drug treatment in late-life depression.

Methods: Within a systematic literature review, we examined how geriatric characteristics, i.e. frailty, disability, medical comorbidity, malnutrition, and cognitive impairment, are taken into account in Randomised Controlled Trials (RCTs) with antidepressant drugs for major depressive disorder in patients aged 60 years or above. Searching PubMED, PsychInfo and EMBASE yielded a total of 27 RCTs, encompassing 6 356 patients (median age 71 years). We assessed whether the geriatric characteristic was considered as in- or exclusion criterion, descriptive variable, stratification variable, covariate, outcome, or included side-effect monitoring.

Results: We had to conclude that frailty was not taken into account in any study. Moreover, studies including the oldest adults were also underrepresented.

Conclusion: These findings stresses the need for more clinical trials in the oldest old as well as evaluation for the need to adjust treatment strategies in frail patient groups.

The Depressed-Frail Phenotype: a role for metabolic dysregulation?

Radboud Marijnissen; Hannie Comijs; Richard Oude Voshaar

Objective: Growing evidence suggests an association between inflammatory and metabolic dysregulation in patients suffering depression. Recently, the concept of "metabolic depression" has been introduced, showing an association between metabolic dysregulation and a higher incidence of elevated depressive symptoms as well as a protracted course of elevated depressive symptoms (Vogelzangs et al, 2011). Within the Netherlands Study of Depression in Older persons (NESDO), we examined whether metabolic dysregulation is restricted to specific subgroups (cross-sectional) as well as whether metabolic dysregulation predicts the two-year course of late-life depression.

Methods: NESDO is a clinical cohort study including 378 depressed older persons (according to DSM-IV-TR criteria) and 132 non-depressed controls. Depressive disorders were assessed according to DSM-IV-TR criteria using the Composite International Diagnostic Interview (CIDI, version 2.0). All patients received postal questionnaires including, among others, the Inventory of Depressive Symptoms (IDS) to assess depressive symptom severity, and a clinical site visit at two years for detailed assessment, including the CIDI. Inflammatory markers (C-reactive protein, interleukin-6) and metabolic factors (waist circumference, triglycerides, HDL cholesterol, blood pressure, fasting glucose) were measured. The Metabolic Syndrome was defined according the to NCEP-ATP III criteria.

Results: Contrary to our expectations, the cross-sectional baseline data showed an overall downregulation of inflammatory and metabolic functioning in older depressed persons compared to non-depressed controls. The subgroup of patients with atypical depression, however, presented with metabolic upregulation compared with other depressed persons. Interestingly, the metabolic syndrome, adjusted for potential confounders, predicted non-remission at two-years ($OR_{per\ component}$=1.26 [95% CI: 1.00 – 1.58], p=.047), which was driven by the waist circumference and HDL cholesterol. Linear mixed models on the IDS subscales, showed an association with the somatic symptom subscale score over time (interaction time x somatic subscale, p=.005), driven by higher waist circumference and elevated fasting glucose level. Antidepressant use was not clearly associated with inflammatory or metabolic functioning.

Conclusion: We conclude that metabolic dysregulation predicts a poor course of late-life depression, supporting the concept of 'metabolic depression'.

The Depressed-Frail Phenotype: Results from the Health ABC study

Patrick Brown

Objective: Depression affects between 8-25% of older adults and is the leading cause of morbidity and mortality in this population. The diagnosis and treatment of late life depression (LLD) is complicated by increased risk of comorbid disability, medical disorders, and cognitive impairment. Frailty, a biological syndrome associated with increased depressive symptoms and disability in later life, is a clinical marker for disease and/or physiological decline, yet until recently there has been little research focused on the intersection between LLD and frailty. In a series of studies our group has demonstrated that depression alone may not denote increased mortality risk in later life, but rather it is a subset of elders within the *Depressed Frail Phenotype* (and in particular, those adults with LLD with comorbid fatigue and/or slow gait) that suffers increased morbidity and mortality risk. The presence of these characteristics in the context of a depressive illness identifies a subset of elders at risk for deleterious trajectories. We believe that the presence of frailty in older adults with LLD represents the *clinical manifestation of greater biological aging* – that is, systemic aging beyond that which is expected for one's chronological age. Human aging is associated with chronic, low-grade inflammation (*inflammaging*). Inflammaging has adverse affective, cognitive, motor, and neurostructural consequences for older adults. In addition to these direct pathological changes in later life, inflammation is associated with morbidity and mortality by contributing to syndromes such as depressive illness and frailty.

Methods: Longitudinal data from the Health Aging and Body Composition study will be presented to 1) deconstruct the relationship between frailty and depression, specifically focusing on slow gait and fatigability in later life, and 2) to evaluate the role that inflammation plays in the development of the Depressed Frail phenotype.

Conclusion: This line of research will result in better patient identification and the personalization of interventions to maximize treatment effectiveness to alter deleterious clinical trajectories and improve outcome in complex geriatric patients.

The Depressed-Frail Phenotype: Results from a clinical cohort of depressed older patients

Matheus Arts; Hannie Comijs; Rose Collard; Richard Oude Voshaar

Objective: Physical frailty and depressive symptoms are reciprocally related in community-based studies. The prevalence of physical frailty is also increased among older persons suffering from major depressive disorder, but its impact on outcome and course of late-life depression, the main objective of the present presentation, is unknown yet.
Methods: Within the NESDO study, we included 378 depressed older persons (≥60 years) according to DSM-IV-TR criteria. Depressive symptom severity was monitored every 6 months using the Inventory of Depressive Symptoms (IDS) and a diagnostic interview at two-year follow-up (n=285). Frailty was based on the physical frailty phenotype, including a symptom count of muscle weakness, slowness, weight loss, exhaustion, and low physical activity (range 0 – 5) as well as two dimensional measures based on principal component analyses (performance-based and vitality-based physical frailty).
Results: Logistic regression analyses adjusted for relevant confounders showed that the odds ratio (OR) for non-remission was 1.21 [95% CI=0.99-1.49] (p=.064) per frailty component and 1.37 [1.04 – 1.87] (p=.027) for performance-based physical frailty. Linear mixed models showed a positive association between frailty severity and depression severity (p=.001). All depressive symptoms dimensions were positively associated with depression severity over time (p’s <.001), but only the motivational and somatic symptom dimensions improved significantly more over time with increased frailty severity level (p<.001 and p=.003, respectively).
Conclusion: We conclude that physical frailty negatively impacts the course of late-life depression. Since improvement of mood symptoms seems to be independent of frailty severity (in contrast to somatic and motivational symptoms), one might argue that frailty and residual depression can be easily mixed-up in daily practice. Therefore, a multidisciplinary diagnostic team as well as multi-facetted interventions for treatment of late-life depression should receive more attention.

S16: Program of All-Inclusive Care for the Elderly for Chinese immigrant population: an alternative model for keeping elderly at home

Symposium Overview

Jay Luxenberg; Benjamin Kao; Dandan Liu

On Lok is a comprehensive provider of both medical and long-term care to persons who otherwise would be eligible for nursing home placement. It developed from a perception of the San Francisco Chinese-American community that nursing homes poorly served the elders of that community. This model has thrived, and has now been replicated at more than 140 programs in the United States as well as influencing models of care for frail elders around the world.
The mainstream Western medical paradigm, with its disease-centric model, is not always the best fit for all geriatric populations. In diverse San Francisco, On Lok serves a high percentage of Chinese immigrants. Their dementia care must take into account their culture, history, families, and communities if it is to be successful. The now accepted model of “person-centered care” is descriptive of what On Lok has been providing for 45 years. Our comprehensive, interdisciplinary approach provides wrap-around care for the dementia patients in collaboration with their family members within their community-cultural context. The results are higher levels of satisfaction with care than those found in isolated “silo” models.
Traditional Chinese culture often believe that memory decline and associated behaviors are part of normal aging and views dementia as “becoming a child again.” Caring for a Chinese person with dementia requires a contextual understanding of that person within their family and culture, in order to treat the now “childlike” elder with respect and dignity. This cultural construct can be challenging when it conflicts with prevalent western notions of dignity with aging.
Care provided from a Western medical model may fail to grasp the importance of relationships and context. This may lead to inappropriate treatment recommendations or even offending patients if the role of culture is not understood. This presentation will explore cultural norms and biases, from the perspectives of both mainstream Western medicine and traditional Chinese culture. We will illustrate challenges and best practices for providing culturally-sensitive care to the aging frail Chinese immigrant population.

S17: Depression and cognition across boundaries: what can we learn from epidemiological studies?

Symposium Overview:

This symposium explores the nature of the association between depression, cognitive functioning, and regional brain volumes across 3 epidemiological studies of ageing, based across different world regions (South America, Europe, Asia, Australia). The first presentation will focus on the association between baseline depression and incident dementia. This will include findings from a meta-analytic study conducted as part of the World Alzheimer Report 2014, as well as findings from the 10/66 population-based cohort study, which is based in low and middle income countries. This presentation will also include findings on the bi-directional temporal relationship between depression and cognitive performance using cross-lagged analysis.

Using data from the Personality & Total Health (PATH) Through Life project, a longitudinal cohort study of ageing in the Australian Capital Territory, the second presentation will address the association between depression and regional brain volumes, and on how these depression-related regional volumes are related to cognitive function. Findings presented are based on data from the older PATH cohort (aged 60+) at wave three (12 year follow-up).

The last presentation will focus on the longitudinal association between depression symptom dimensions (i.e., depressed affect, somatic symptoms, and low positive affect) and various domains of cognitive functioning using data from the Longitudinal Aging Study in Amsterdam. We used cross-domain latent growth curve modelling for a simultaneous investigation of several competing hypotheses in an attempt to clarify whether depression symptoms are a risk factor for cognitive decline, a psychological reaction to cognitive decline, or whether there are dynamic influences between changes in depression symptoms and changes in cognitive functioning overtime. The final presentation will be followed by a discussion lead by the chair, to highlight the strengths and limitations of using epidemiological studies to investigate the relationship between depression and cognition.

The relationship between depression and cognition across countries: findings from the 10/66 study

Matthew Prina; Lena Johansson; Anamaria Brailean; Mariella Guerra; Martin Prince

Objective: Depression and dementia often co-occur, however, the nature of this association is still not entirely understood. We aimed to assess the evidence relating to the association between depression and incident dementia, and to explore the relationship in a large sample of older adults living in a range of low and middle income countries.

Methods: The existing evidence was assessed by conducting a systematic review of studies that investigated the longitudinal relationship between depression and dementia was conducted as part of the World Alzheimer Report 2014 (*Prince et al. 2014*). Estimates from individual studies were pooled together using a random effect meta-analysis. This was followed by a meta-regression to explore the effect of length of follow-up on the estimates. Further analyses were subsequently carried out in the 10/66 population-based cohort study (*Prina et al. 2016*). This is a longitudinal study of 15,901 older adults aged 65 and over living in low and middle income countries (China, Cuba, Dominican Republic, India, Mexico, Peru, Puerto Rico and Venezuela). The median follow-up period ranged from 2.8 to 5.0 years by site, with a total of 53872 person years of observation. Competing risk models were used to investigate the relationship between depression at baseline and incident dementia. Moreover, cross-lagged models examining the association between depression symptomatology and specific cognitive tasks (verbal fluency, immediate recall and delayed recall) were also carried out.

Results: 32 studies were included in our meta-analysis including a total of 62,598 participants and a median follow up of 5 years. Those with depression or depressive symptoms at baseline were twice as likely to have experienced an onset of dementia by follow-up (pooled effect size 1.97, 95%CI:1.67-2.32).

Similar findings were reported in the 10/66 sites, where ICD-10 depression was associated with increased hazards of dementia (pooled Hazard Ratio across sites=1.62, 95%CI:1.55-2.33), after adjustment for age, sex, education and cardiovascular risk factors.

In the cross-lagged models, bi-directional temporal relationships were found between depression and cognitive performance.

Conclusion: The data presented will provide further evidence on the relationship between depression and cognition across a range of countries.

Late-life depression dimensions and cognitive functioning in the Longitudinal Aging Study Amsterdam: A cross-domain latent growth curve analysis

Anamaria Brailean; Maria Aartsen; Graciela Muniz-Terrera; Martin Prince; Matthew Prina; Hannie Comijs; Martijn Huisman; Aartjan Beekman

Objective: Depression and cognitive impairment often co-occur in late-life. The aetiological mechanisms underlying this association may depend on the specific symptoms experienced and the cognitive functions affected. Existing evidence does not allow to conclude whether depression is a risk factor for cognitive decline, a psychological reaction to cognitive decline, or whether changes in depression levels correlate with changes in cognitive performance overtime *(Gale et al., 2012; Jajodia and Borders, 2011; Panza et al., 2009; van den Kommer et al., 2013; Vinkers et al., 2004*). Our study aims to simultaneously examine these competing hypotheses and to provide evidence for the effect magnitude and direction of influence between specific domains of cognitive functioning and specific dimensions of late-life depression.

Methods: The study sample comprised 1506 community-dwelling older adults aged 65 and above from the Longitudinal Aging Study Amsterdam (LASA). We conducted cross-domain latent growth curve analyses to examine the longitudinal association between late-life depression dimensions (i.e., depressed affect, positive affect, and somatic symptoms) and cognitive abilities (i.e., processing speed, inductive reasoning, immediate recall, and delayed recall).

Results: Poorer delayed recall performance at baseline predicted a steeper increase in depressed affect overtime. Baseline depression symptoms were not associated with the course of cognitive decline. Steeper decline in processing speed correlated with a steeper increase in somatic symptoms of depression overtime.

Conclusion: Our findings suggest a differential longitudinal association between depression symptom dimensions and cognitive abilities in old age. An increase in depressed affect may develop as a psychological reaction to poor memory function. Common neurodegenerative processes may underlie the association between changes in processing speed and changes in somatic symptoms of depression overtime. Our findings do not support the hypothesis that depression symptoms may be a risk factor for cognitive decline in the general population. These findings carry implications for the diagnosis and treatment of depression in late-life and for the prognosis of cognitive outcomes.

S18: Innovative approaches to modeling geriatric mental health data

Symposium Overview

Objectives: Conventional approaches to statistical analysis of psychogeriatric data are time-tested but have limitations. In this symposium, we provide examples of innovative approaches to analyzing the longitudinal population-based data obtained from investigating the effects of risk factors on cognitive decline and incident dementia. These examples illustrate the methods to effectively adjust for various forms of bias, taking into account the inherent heterogeneity of naturally occurring populations, and to use the rich and complex information imbedded in the data more efficiently.

Methods:

In the first talk we will demonstrate the use of dual latent group-based models to identify the homogeneous subgroups of longitudinal patterns of cognition and the homogeneous subgroups of longitudinal depression trajectories. Subsequently we characterize the relationship between depression trajectory groups and patterns of cognition. In the second talk we will show the use of a competing risks regression model for investigating the effect of smoking on incident Alzheimer disease. The results were compared to those obtained from a widely used Cox proportional hazards model which naively treating the competing event of death as independent censoring. In the third talk, we propose the use of generalized additive mixed model to find the optimal range of pulse pressure and the optimal range of systolic and diastolic blood pressure combination for cognition. In the last talk we will demonstrate the use of weighted regression model to generalize the results obtained from a neuroimaging research where participants were non-representative samples drawn from the target population. The weights, constructed from a series of propensity score models, are used to construct pseudo-representative samples of the population in order to adjust for selection, volunteer, and attrition biases.

Results: Using the innovative approaches, all four studies successfully overcome the inherent limitations of the conventional methods in analyzing longitudinally assessed data obtained from a community-based cohort study.

Conclusions: Geriatric mental health data usually have complex features, and methods of collecting these data are often observational not experimental, which could pose a challenge to data analysis. The use of innovative approaches discussed above can help researchers avoid various biases also obtain more accurate estimations and draw appropriate inferences.

Latent group-based trajectory modeling of depression and cognitive function

Julie Graziane; Joanne Beer; Beth Snitz; Chung-Chou Chang; Mary Ganguli

Objective: Depression and cognitive function show consistent cross-sectional associations, however their causal relationships are complex and not well understood. Findings have been inconsistent regarding whether depression predicts subsequent cognitive decline or vice versa. In this study we sought to characterize the relationships between latent longitudinal trajectories of depression and cognitive function in several domains using an innovative approach to group-based trajectory modeling.

Methods: A population-based sample of 1978 randomly selected individuals ages 65+ at recruitment were followed up to 5 years and assessed annually. We obtained repeated measures of depressive symptoms on the modified Center for Epidemiologic Studies-Depression Scale and composite scores in the cognitive domains of attention, executive function, memory, language, and visuospatial function. Latent class trajectories were identified for depression and for each cognitive domain, and their associations investigated using dual trajectory modeling. Cognitive trajectories with z scores below -1 were designated as persistently low.

Results: Five depressive symptom trajectories were found: rarely depressed (60.5%); low-grade, decreasing symptoms (18.5%); low-grade, increasing symptoms (9.6%); moderate-grade symptoms (7.4%); and consistent higher-grade symptoms (4.0%). Six trajectories were found in each cognitive domain. The rarely depressed and low-grade decreasing symptom groups were the least likely to have persistently low cognition. The symptom trajectory most strongly associated with persistently low functioning in each domain was not the higher-grade group, but rather the low-grade increasing group in the case of attention, and the moderate-grade trajectory in the other four domains.

Conclusion: Consistently higher-grade depressive symptoms are less strongly associated with poor cognitive functioning than with either moderate or low-grade increasing depressive symptom trajectories, over time and across different domains. Examining both depression and cognition longitudinally allows heterogeneity of both to be addressed, revealing latent groups with potential diagnostic and prognostic implications. Our innovative approach to trajectory modeling results in findings that are interpretable and easily understood by a wide audience.

Statistical analyses addressing competing risks in Alzheimer Disease research

Tianxiu Wang; Chung-Chou Chang; Youngyun Zhao; Ching-Wen Lee; Mary Ganguli

Objective: In epidemiological studies, competing risks often arise and lead to biased results if not properly handled in the analyses. The aim of our study is to examine the effect of smoking on the risk of developing incidence Alzheimer disease (AD) in presence of competing risks due to death.

Methods: In a completed, population-based aging cohort, we investigate the effect of smoking status at baseline on the incidence of AD in later life using two modeling techniques, the Cox proportional hazard model (PH), in which death without developing AD is treated as independent censoring, and a propensity score-modified Fine and Gray (FG) proportional subdistribution hazard model, in which death without AD as a competing risk is taken into account. Given that age is the main confounding variable, we stratify the analyses by two age groups (<75y and >=75y) and covariates are sequentially added to three different models.

Results: In this approximately 13-year cohort study of 1,242 participants, smoking is associated with a lower hazard of incident AD and the association is statistically nonsignificant but consistent across all statistical models and both age groups. The resulted hazard ratios are similar in unadjusted (PH) and adjusted models (modified FG) in participants aged less than 75. However, data suggests that, in older age group, the adjusted models yield higher hazard ratios than the unadjusted models.

Conclusion: In general, when we recruit an elderly cohort, we will underestimate the negative effect of smoking on incident AD unless we can adjust for survival bias in the selected sample. Statistical approaches accounting for competing risks can help provide relatively unbiased estimates of the risk of disease associated with chronic exposure.

Modeling the non-linear effects of blood pressure on longitudinal cognitive performance in elderly: perspectives and tools

Zhaowen Sun; Eric MaDade; Chung-Chou Chang; Mary Ganguli

Objective: Relationships between blood pressure and cognition are inconsistent in the literature. We addressed the possibility that these relationships are not linear. In this study, we explored the range of optimal pulse pressure (PP) and the optimal combination of systolic and diastolic blood pressures (SBP/DBP), for longitudinal cognitive performance in a population-based cohort of older adults free of dementia.

Methods: A sample of 1,982 subjects from the Monongahela-Youghiogheny Healthy Aging Team (MYHAT) was followed for an average of 4 years. Generalized additive mixed models (GAMMs) were fitted to incorporate varying functional forms of BP effects on cognitive performance in five domains (memory, attention, executive function, language and visuospatial function) controlling for age, gender, race, education, vascular risk factors and anti-hypertensive drug use, and stratified by baseline SBP.

Results: Among hypertensive subjects, PP between 60-80 mmHg was associated with worsening cognition. In the normotensive and hypotensive subgroups, PP showed the opposite effects. PP < 60 mmHg was associated with worsening cognition in the former; and PP either < 50 mmHg or > 90 mmHg was associated with improvement.

Also among baseline hypertensive subjects, an SBP of 120-160 with a DBP of 70-90 were associated with the highest predicted cognitive function. The lowest predicted outcome was associated with SBP circa 110 with a DBP of 40-45. In the hypotensive subgroup, an SBP from 100-120 with a DBP either around 60-80 would render an optimal outcome.

Conclusion: In this population we found significant non-linear relationships between blood pressure and cognitive performance that varied by baseline blood pressure. Pulse pressure, as a simple measurement of vascular stiffness, provides us with useful information regarding risk of cognitive decline in the elderly with important “tipping points” identified. Excessively tight blood pressure control might not be optimal in older adults.

Estimation of the effects of brain regional volumes on cognitive state accounting for sampling biases

Mary Ganguli; Ching-Wen Lee; Tiffany Hughes; Beth Snitz; Jennifer Jackubcak; Ranjan Duara; Chung-Chou Chang

Objective: Neuroimaging research is typically conducted in clinical samples, where participants have volunteered or been referred. There is always a concern about how selection factors may influence study results. In this study we aimed to compare the estimated effects of atrophy in different brain regions on cognitive state with and without adjusting for sampling biases.
Methods: A population-based cohort study of 1,982 older adults, we asked 1,702 active participants about their interest in undergoing a research brain scan. In 48 of the 915 interested individuals, we conducted a previously reported pilot structural magnetic resonance imaging (sMRI) study modelling Clinical Dementia Rating (CDR)=0.5 vs. CDR=0, as a function of sMRI atrophy ratings. We also compared these 48 individuals (1) with all interested participants, to assess selection bias; (2) with all who had been asked about their interest, to assess volunteer bias; and (3) with the entire study cohort, to assess attrition bias from those who had dropped out before the question was asked. Using these data in propensity score models, we generated weights and reanalyzed the data from the pilot sMRI study.
Results: In the unweighted models (n=48), atrophy in the following regions of interest was significantly greater among those with CDR=0.5: left and right perirhinal cortex, left and right entorhinal cortex, left and right medial temporal cortex. When weighted back using propensity scores to the 915 participants potentially interested in MRI, only left perirhinal cortex was significant; when weighted back to the 1,702 participants who were asked about potential interest, both left and right perirhinal regions were significant; and when weighted back to the entire baseline cohort of 1,982 participants, both left and right perirhinal and left medial temporal regions were significant.
Conclusion: Statistical adjustment for selection bias may render study results less dramatic, but might also make them more realistic and representative of the community at large. Further, where feasible, information about the characteristics typically under-represented among neuroimaging study participants could be used to weight the sampling frame for recruitment in future studies, thus facilitating the a priori selection of a minimally biased sample.

S19: Diagnosis and Management of Cognitive Complaints in the Cognitively Normal Older Adult Patient

Symposium Overview

Those who treat older adults with cognitive complaints are aware of the confluence of several societal and demographic shifts. These include an increase in the number of older adults as a proportion of the total population, growing awareness of neurocognitive disorders, and a more medically sophisticated and educated population. These trends have lead to the emergence of a patient population who present with clinically significant cognitive complaints, but for whom the neuropsychiatric work-up does not suggest an underlying dementing illness (major or minor cognitive disorder), but rather a psychiatric based condition, most consistent with conversion disorder. These patients often present clinicians with significant challenges in their assessment, diagnosis, and management.
The goal of this symposium is to provide geriatric mental healthcare providers with the tools necessary to recognize, assess, and treat older adult patients who present with non-neurodegenerative cognitive impairment, based upon the experiences of an interprofessional university based memory clinic program. This symposium will present perspectives from geriatric psychiatry, psychology, and social work in how to manage the complex social, functional, and psychiatric needs of this emerging patient population.

All That Forgets is not Dementia: Understanding the Patient with Conversion Disorder with Cognitive Features

Steven Huege

Neuropsychological Testing Profiles of Patients with Non-neurodegenerative Based Cognitive Complaints

Kathleen Breslin

Addressing the Social Needs of Patients with Conversion Disorder with Cognitive Symptoms

Anna Van Dien

S20: Person Centred Care for Persons with Dementia – effect, understanding and implementation – Challenges and possibilities from nurses' perspective

Symposium Overview

It seems to be a consensus that person centred care (PCC) is synonymous with good quality care for persons with dementia. Even though most services today claim to be person centred it is not clear everywhere, what is really meant by the term person centeredness. PCC is not a method for how or what to do, but a care philosophy that gives directions for attitudes and approaches in dementia care.

During the last decade a number of methods and tools to implement PCC has been developed, tested and published. Examples of such "tools" are Dementia Care Mapping; VIPS practice model; different teaching programs and new care models such as "Eden Alternative". Some of these approaches have been systematically evaluated, even in randomized controlled Trials (RCT). The outcomes in the RCTs have been agitation, depression, quality of life and the use of restraints. The results are not conclusive. Even though most of the published studies show some effect of the intervention tested, the effect sizes are generally low and some studies are not able to show statistically significant effect. However, most qualitative studies conclude that efforts to introduce PCC leads to better quality of care.

There are several challenges associated with introducing PCC for persons with dementia in a service. These challenges are connected to clarifying and understanding the concept of PCC, to document the effect of PCC and convince the decision makers, and to implement PCC in real life practice. In addition the research and documentation of complex intervention as the introduction of PCC raise several questions about methodological issues.

Person-centred care: what it is and what it is not?

David-Edvardsson

The literature on person-centred care indicates that this is more than a set of techniques, skills or procedures, and rather a personal way of approaching, connecting and partnering with patients and families that build on social and interpersonal ethics and skills inasmuch as professional skills. It seems to require a true interest in others' personal understandings, decisions and priorities relating to health, as well as on professional expertise and skills in assessing health and the subjective experiences thereof to understand and integrate these into ethical and successful professional practice. Successful practice meaning positive patient outcomes, experiential as well as biomedical. Person-centred care can be interpreted to mean attending to the relational aspects of life inasmuch as the biological aspects, and using narratives to complement 'what' with 'who' in nursing practice. This may then facilitate the development of Buberian I-Thou relations instead of I-it relations, and by that integrating the relational 'being with' together with the task-based 'doing for' in nursing. Person-centred care means bringing back the person into care, and by that reinforcing the ethical demand to uphold dignity, autonomy, choice and control, respecting shared decision making and doing good. It is very difficult to conclude what person-centred care is, perhaps easier to define what it is not. Person-centred care is not reductionist, detached and task-based. Not unless the person wants it to be. This presentation will problemise and discuss the philosophical concept of person-centred care, its historical origin, current use, and future value.

The effects of interventions aiming to implement person-centred dementia care in nursing homes

Anne Marie Rokstad

The effect of methods to implement person-centred dementia care in nursing homes has been studied with several outcome measures and reveals various results. Five randomized controlled studies, all assessor blinded, have been identified. The trials are of different durations, different methods of staff training are used and the effects of the interventions are assessed on a patient level. The studies, design, sample, intervention, outcome and results are summarized in the following table. Two recent quasi-experimental studies on the effect of PCC staff training have been published; one showing positive effect of a two years "culture change" intervention on the occurrence of residents' agitation and behavioural symptoms (4) and the other reveal no significant effect of DCM interventions on QoL or NPS (Dichter et al., 2015).

Study	Design and sample	Intervention (time period)[1]	Outcome	Result
(1)	RCT-crossover 15 nursing facilities (5+5+5) 73 included 69 completed the study	T1: staff training in person-centred towel bath and shower T2: reverse order C: no intervention (6 + 6 weeks)	Agitation: CAREBA Discomfort: Discomfort Scale for AD	Significant decline in agitation and in discomfort scores in both treatment groups compared to control
(2)	Cluster RCT 12 specialist nursing homes (6+6) 346 patients were included in the analysis	T: PCC staff training focusing on alternatives to drug treatment for the management of agitated behaviour C: no intervention (10 months)	Proportion of residents who used drugs Agitation: CMAI QoL: DCM	Significant lower proportion of residents using antipsychotics in intervention group compared to control No difference in CMAI or DCM ratings of well-being
((3)	Cluster RCT 15 tasked-focused care facilities (5+5+5) 289 residents with were included 236 completed the study	T1:PCC staff training T2: DCM C: no intervention (4 months)	Agitation: CMAI NPS: NPI QoL: QUALID Use of physical restraints and use of drugs	Lower CMAI scores in both intervention groups at follow-up compared to control No significant differences in NPI scores, QUALID, the use of restraints or psychotropic drugs
(Van de Ven et al., 2013)	Cluster RCT 34 dementia special care units in 11 care homes 434 residents	T: DCM C: no intervention (4 months)	Agitation: CMAI NPS: NPI QoL: Qualidem	No significant effect on CMAI or Qualidem, more NPS were reported in intervention group compared to control
(Rokstad, Røsvik et al., 2013)	Cluster RCT 14 nursing homes (5+4+5) 624 patients included and 446 completed the trial	T1: DCM T2: VPM C: General education about dementia and NPS from DVD recorded training sessions (10 months)	Agitation: BARS NPS: NPI, CSDD QoL: QUALID	No significant effect on BARS, positive effect on NPI total, NPI agitation and NPI psychosis in favour of both interventions compared to control. The QUALID score was in favour of DCM and the CSDD score was in favour of VPM, both versus control.

[1] T= treatment group, C= control group PCC: person-centred care, DCM: Dementia Care Mapping, VPM: VIPS framework of PCC practice model, CAREBA: Care Recipient Behavioural Assessment, CMAI: Cohen-Mansfield agitation inventory, NPI: Neuropsychiatric Inventory, QUALID: Quality of life in late-stage dementia, BARS: Brief Agitation Rating Scale, CSDD: Cornell Scale of Depression in Dementia

Table 1. Rokstad.

Overcoming challenges in implementing person-centred care

Lynn Chenoweth; Janet Mitchell

Between half to three quarters of people living in residential aged care facilities have dementia. As well, from time to time, many people with dementia living in the community and in long-term care settings will require acute care services, where their psychosocial needs are rarely considered and unlikely to be addressed. People with dementia are extremely vulnerable to these challenging care environments, particularly when the people and aspects of the environment are unfamiliar and when procedures are unpredictable and distressing for the person. Vulnerability is exacerbated when care services and treatments regimens are framed by task allocation and rigid schedules. In circumstances such as these, the person with dementia can become anxious, agitated and confused and at times, delirious. The person's psychological well-being in any care setting will mainly depend on the attitudes and actions of the care managers, nurses, health clinicians and care assistants. To support health and well-being, in the first instance executive staff and managers and need to establish care systems which help the person to make sense of the present situation, maintain their strengths and relationships with support networks, retain their dignity and sense of purpose, and be given opportunities to make as many decisions as possible about daily living activities. Making well-being the focus of care services also requires targeted staff education, training, encouragement, support and opportunities to meet the person's unique bio-psychosocial needs. Unless executive and front-line managers implement a person-centred organisational framework to support this approach to care, then nurses and care staff will feel frustrated and stressed when caring for people with dementia. This presentation will discuss the structural barriers, as well as successful ways to overcome many of these barriers, in establishing a person-centred model of care in acute and long-term care settings.

Is it possible to get «evidence» for the effect of person centred care?

Øyvind Kirkevold

Randomized Controlled Trials (RCT) is the state of the art design to document evidence in an intervention study. A RCT demands a clear description of the intervention and a measureable outcome defined in advance.

In nursing, new approaches and methods seldom consist of single clearly described actions. More often we see a combination of attitudes, organizational and structural issues that make suggestions to the nurses how to act. This is also true for methods used to implement Person Centred Care (PCC).

PCC is not a method, but a philosophy that describes attitudes and its implications for practice. The operationalization of PCC is carried trough by different initiatives mostly targeting the care staff. Even tough the interventions are targeting the care staff, leaders or organizations, the effects most often are measured at the patients.

Thus there are several challenges in the design of intervention studies to find evidence for PCC. This presentation will focus on two main issues.

1. The methods used are not clearly described and thus it is difficult to know how well the intervention has taken place or not. It will be made suggestions to implement methods from implementation research to evaluate the degree of compliance before measurement of "effect". Example of method is RE-AIM (Reach Effectiveness - The number, proportion, and representativeness of individuals who participate; Adoption - The number, proportion, and representativeness of settings; Implementation - the intervention agents' fidelity to the various elements of an intervention's protocol; Maintenance)

2. Staff is target of the intervention, but measure effect on the residents. We target the intervention towards providers and expect effect on the users. This issues will be analysed in light of Donald Kirkpatric's "Evaluating training programs – the four levels", adapted to health care. The four levels are: "Reaction" – the staffs subjective experience of the intervention; "Learning" – change of attitudes, improved knowledge and increased skills; "Behaviour" – has it been any change of practise? "Results" – effect on patients.

Free Communications

FC1: Dementia and BPSD

Epidemological Transition in Dementia: Supporting evidences from ASIADEMP collaborative study

Guk-Hee Suh

Background: Asia is the region where dementia is most rapidly increasing. The aims of this study were to compare the prevalence of dementia in the studies of investigators working on Asian studies of Dementia and Depression (ASIADEMP).
Method: Data of each ASIADEMP collaborative study (i.e., Korea, China, Taiwan, Singapore and Japan) were pooled for this study. All 5679 persons aged 65 and over were interviewed face-to-face using the Geriatric Mental State (GMS) examination and diagnosed dementia using the Automated Geriatric Examination for Computer-Assisted Taxonomy (AGECAT) algorithm.
Results: The prevalence rates of dementia varied between 9.7% and 14.3%. Overall prevalence rates in Japan and Singapore were significantly lower than those in Korea, China and Taiwan. Prevalence rate in women was marked higher, which was consistently found in each age group. As usual, the prevalence rate of dementia in older group (age 75 and over) was markedly higher than those in younger group (age 65 – 74). However, this age impact on prevalence rate of dementia was much less prominent in China study compared to others.
Conclusions: An earlier theoretical model of epidemiological transition from low incidence-high mortality society to high incidence-high mortality society to low incidence-low mortality society may explain these diverse findings.

The feasibility of investigating social connections and relationships to reduce BPSD in care homes

Janet Mitchell, Lynn Chenoweth, Janet Long, Jeffrey Braithwaite, Henry Brodaty

Background: The extent to which social attachments can impact cognitive processes, emotional patterns, behavioural responses, health and well-being (Baumeister 1995, Landis 1988, Cacioppo 2014, Kandel 1998) is unknown in people with dementia living in long-term care.
Aims: 1) Present the findings of a nine month pilot study of the social-professional connections of one long-term care resident with neuropsychiatric symptoms. 2) Justify the feasibility of conducting a study on social attachments and their outcomes in people with dementia living in long-term care who experience neuropsychiatric symptoms.
Method: Social professional connections and interactions between the resident, care staff and other people were identified from: 12 hours of direct observation with the Quality of Interactions Schedule; interviews with staff, family and the resident; an audit of care provision and the care environment with the Person-Centred Environment and Care Assessment Tool. The resident's behavioural responses were obtained with the Neuropsychiatric Inventory and the Emotional Response in Care instrument.
Results: Observation of care services revealed: little/no care staff interaction with the resident while feeding him; the resident's limited ability to initiate and hold conversations with other residents; the resident's mainly neutral or negative interactions with direct care staff and mainly positive interactions with external personnel e.g. physiotherapist, chaplain; and care staff's failure to acknowledge the resident even when standing beside him. The audit revealed furniture in public areas not usually arranged in sociable clusters; noise from trolleys; two music activities occurring simultaneously in a common area; and unattended cries from other residents, each impacting on the resident's well-being. Resident expression of frustration and distress occurred with poor social connections between the resident and care staff and with care devoid of interpersonal relationship building.
Discussion: The pilot confirmed the feasibility of investigating the social-professional connections of long-term care residents with dementia and neuropsychiatric symptoms, with the aim of identifying factors, including aspects of care and the care environment, which help to build social networks among these residents, care staff, families, visiting health professionals and other visitors.

Time for Dementia: Development and evaluation of a novel interprofessional educational programme for medical and nursing students

Sube Banerjee

Background: We need education to enable the next generation of health care professionals to rise to the challenge of dementia. Traditional healthcare education delivered through a series of time-limited placements may fail to deliver an understanding of the experiences of long term conditions such as dementia. Longitudinal Integrated clerkships (LIC) allow students longer term placements to provide continuity of experience to learn about chronic illness. We describe the development, delivery and initial evaluation of the Time for Dementia (T4D) programme, a novel interdisciplinary two-year placement with a family with dementia delivered as a compulsory element of medical and nursing undergraduate curricula in South East England.

Method: Case study of a mixed methods evaluation of T4D in terms of process and its impact on student knowledge, understanding, attitudes and behaviours towards dementia using standardised quantitative instruments and qualitative interviews.

Results: T4D was developed in an iterative process by a partnership between the Alzheimer's Society, participating universities and the NHS. T4D was made a core part of the curriculum for medical, nursing and paramedic students. Students visit a person with dementia and their family in pairs for two hours every three months for two years. They follow a semi-structured interaction guide focussing on broad experience of illness and services by the person with dementia and their family and complete reflective appraisals. The programme was delivered to all 348 eligible students using a network of 174 families. A formal mixed methods evaluation was designed and 310 (89%) of the students and 158 (91%) of the families contented to participate. Baseline quantitative data show differences in demographics and knowledge of, attitudes to, and beliefs about dementia. Initial qualitative analyses at 1 year will be presented which suggest a positive impact on students and families.

Conclusions: This demonstrates the feasibility of delivering a two year LIC in dementia to medical, nursing and paramedic students as a core part of their curriculum. The high levels of participation in the evaluation and preliminary data are positive. An assessment of the value of the programme will be provided by the longitudinal quantitative and qualitative data being collected.

Mild Behavioral Impairment (MBI): A pre-dementia syndrome linking neuropsychiatric symptoms and cognitive decline

Zahinoor Ismail; Henry Brodaty; Alicja Cieslak; Corinne Fischer; Serge Gauthier; Yonas Geda; Nathan Herrmann; Krista Lanctot; David Miller; Moyra Mortby; Chiadi Onyike; Luis Aguera-Ortiz; Paul Rosenberg; Eric Smith; Constantine Lyketsos

Objective: Neuropsychiatric symptoms (NPS) in dementia and are associated with disability, cognitive decline, caregiver burden, institutionalization, death, and greater neuropathology burden. NPS are present in about half of people with MCI, and are associated with faster conversion to dementia. Older people with normal cognition and NPS have a higher risk of progressing to MCI, suggesting that NPS are an early manifestation of neurodegeneration. An Alzheimer's Association international expert consensus panel recently proposed that Mild Behavioural Impairment (MBI), defines a syndrome of later-life acquired NPS that is a harbinger of neurodegeneration and progression to MCI and/or dementia. The NPS seen in MBI are described in the domains of apathy; mood; impulse control; social appropriateness; and thoughts/perception. Rating scales for NPS in dementia, especially the Neuropsychiatric Inventory (NPI), have been used to estimate MBI prevalence. However, MBI is by definition a pre-dementia syndrome in individuals who are functionally independent and younger than typical dementia patients. A rating scale specifically designed for MBI is necessary to develop accurate prevalence estimates and as a later outcome measure of preventive therapies.

Methods: We describe the development of the MBI construct and the rating scale to measure MBI. The clinician-rating version of the Neuropsychiatric Inventory (NPI-C) was used as a starting point. Delphi Panel participants added and modified questions based on their clinical and research experience. Questions were designed specifically to address a younger pre-dementia population, and to emphasize that the emergence of NPS was a significant change from prior behavior, present for at least 6 months, consistent with the MBI criteria. A series of online votes resulted in ranking of items, with the lowest ranked in each of the five MBI domains dropped off the list, resulting in the final version of the scale.

Results: We present the MBI rating scale, divided into 5 domains, as well as subdomains, as an informant reported or clinician rated questionnaire.

Conclusion: The MBI rating scale is an instrument based on the new ISTAART MBI research diagnostic criteria. Validation studies are underway to assess its performance.

Prognosis in Alzheimer's disease and mild cognitive impairment with comorbid Depression (PADR cohort)

Maria Lage Barca; Jurate Benth; Karin Persson; Rannveig Eldholm; Anne-Brita Knapskog; Geir Selbaek; Knut Engedal

Objective: Alzheimer's disease and late life depression share patophysiology aspects: vascular risk factors, hippocampus atrophy and low grade inflammation. Therefore, these conditions might interact with each other when present simultaneously. The objective of the present study is to evaluate whether depression accelerates the cognitive decline of patients with Alzheimer's disease and explore which factors can explain an eventual poorer prognosis.

Methods: The PADR cohort consists of a sample of 471 patients from two memory clinics and a geriatric outpatient clinic. At baseline a comprehensive assessment according to international guidelines was performed including history from patient and caregiver, neuropsychological, psychiatric and medical examination, MRI, blood sample for blood chemistry and examination of inflammatory markers, ApoE status and examination of spinal fluid for some patients. Depression was measured by the Cornell scale for depression in dementia (CSDD) and the Montgomery Aasberg depression rating scale (MADRS). At baseline, 147 patients had Mild cognitive impairment (MCI) according to Winblad's criteria and 196 had Alzheimer's dementia according to the International Classification of Disease-10 (ICD-10).

These patients were followed up for a mean of 2 years after baseline with the same neuropsychological tests and assessment scales as at baseline and saliva samples for cortisol. Some patients were submitted to a new MRI.

This oral presentation will report on the progression of Alzheimer's disease (both MCI and dementia) and examine whether depression influences cognitive decline as measured by the Clinical dementia rating scale (CDR).

A linear mixed model analysis will be performed to test the hypothesis that depression measured by the CSDD and MADRS influences the progression of Alzheimer's disease. Primary outcome is cognitive decline as measured by CDR. Possible explaining co-factors of an eventual poorer prognosis thay may interact with depression are hippocampus atrophy and deep white matter lesions in MRI, inflammation evaluated by cytokines, stress measured by cortisol in saliva and ApoE status.

Results: Results will be presented during the presentation.

Conclusion: We hope that the results of the present study can shed light on the influence of depression in patients with Alzheimer's disease as well as possible mechanisms involved.

Clinical Support for Advancement of the RAGE Antagonist Azeliragon into Phase 3 Clinical Investigation for Mild Alzheimer's Disease

Aaron Burstein; Marwan Sabbagh; Mary Sano; Lon Schneider; Douglas Galasko; Larry Altstiel

Objective: To provide a comprehensive overview of clinical support for the Phase 3 development of azeliragon, an oral antagonist at the Receptor for Advanced Glycation End products (RAGE).

Methods: A Phase 2b double-blind, placebo controlled trial in 399 participants with AD (MMSE 14-26) randomized to one of two oral azeliragon maintenance doses (20 mg/day and 5 mg/day) or placebo for 18 months. Primary analysis was ADAS-cog11 change from baseline. Additional analyses included CDR-sb, ADCS-ADL, MMSE, NPI; on-treatment analyses ("on treatment" defined as including data collected within 45 days of the last dose based on 18 day azeliragon half-life); responder analyses; sub-group analyses based on disease severity and evaluating the plasma azeliragon concentration-ADAS-cog relationship to support Phase 3 dose selection.

Results: Despite premature termination of the study, azeliragon 5 mg/day demonstrated monotonically increasing differences with a 3.1-point difference from placebo at month 18 ($p=0.008$, ANCOVA with multiple imputation) which was robust against the model (covariate adjusted or unadjusted), against parametric or non-parametric approach, against missingness (MI, LOCF, completers, longitudinal data analysis), or variable type (measurement or categorical); all supportive analyses listed were nominally significant ($p<0.05$). On-treatment analysis of ADAS-cog demonstrated a nominally significant 2.7-point difference at Month 18 ($p = 0.03$). The mild sub-group showed a more pronounced benefit of azeliragon in ADAS-cog change from baseline at 18 months of 4 points ($p = 0.018$) [1.7 points in moderate] and a nominally statistically significant difference in CDR-sb mean change from baseline (delta = 1, $p = 0.02$). Exploratory evaluation of time-to-progression (7-point increase in ADAS-cog) favored 5 mg/day with a hazard ratio of 0.5 (logrank $p=0.02$). Analysis of the relationship between azeliragon plasma concentration and ADAS-cog support 8-15 ng/mL as optimal (i.e. 5 mg/day). While 20 mg/day was stopped for safety, 5 mg/day was safe and tolerated with GI adverse events occurring more frequently, and psychiatric adverse events less frequently, than placebo.

Conclusions: Clinical data demonstrate the efficacy of azeliragon 5 mg/day with reduction in worsening of cognition and function, particularly in patients with mild AD. Results support investigation of the 5 mg/day dose in the ongoing Phase 3 STEADFAST trial.

Trial registration: ClinicalTrials.gov identifier NCT00566397

FC2: Treatment and BPSD

Deciding on the treatment for challenging behaviors in patients with dementia

Sarah Janus; Janine Van Til; Jeannette Van Manen; Sytse Zuidema; Maarten IJzerman

Objective: Dementia is complicated by manifestations of neuropsychiatric symptoms. Despite recommendations in guidelines promoting non-pharmacological treatment, psychotropic drugs are prescribed often and for extended periods as first-line treatment. However, these drugs can have negative effects for patients. If it is no longer possible to ask the patient in cases of dementia, physicians have to make the treatment decision together with proxies and/or rely on nurses' experiences with the patient. It is however unknown whether physicians, nurses and proxies would make the same treatment choice for the patient. Therefore, this study compares the ranking of attributes of antipsychotic treatment according to its importance for the treatment decisions between these groups.

Method: Based on a literature review and interviews, 16 and 10 attributes were selected for physicians/nurses and proxies respectively. A scenario depicting a patient with dementia demonstrating neuropsychiatric symptoms was shown and respondents had to choose an appropriate treatment (antipsychotics/non-pharmaceutical treatment). The attributes were rated by the respondents according to their choice using a Best-Worst Scaling case 1 design.

Results: The questionnaire was filled in by 41 physicians, 81 nurses and 59 proxies. The antipsychotic treatment option was chosen by 29% of the physicians, 29% of the nurses and 52% of the proxies. The respondents who chose antipsychotics rated the factors “leading to a result the fastest” and “most effective” as most important. Physicians ranked “experience with antipsychotics” as important, whereas proxies did not. Only proxies rated the factor “having a low negative impact on the patient” as important. Of the respondents choosing the non-pharmaceutical treatment, nurses and elderly care physicians ranked “appropriateness” and “of little burden to the patient” as important factors. Proxies, on the other hand, ranked “effectiveness” and “least negative impact on the patient” as important.

Conclusion: This is the first study comparing health care professionals' and proxies' ranking of factors they consider important for their choice either to advice/prescribe psychotropic or non-pharmacological treatment. Effectiveness and negative impact of the two treatments were ranked differently. Proxies should be informed about side effects of psychotropics, and consented in a shared-decision making process about the preferred treatment option.

Impact of Temperature and Humidity on Agitation of Nursing Home Residents with Dementia

Federico Tartarini; Paul Cooper; Richard Fleming

Objective: The overall aim of this project is to determine the degree to which indoor thermal comfort conditions affect agitation in residents with dementia in Australian nursing homes.

Method: The frequency and disruptiveness of 29 agitated behaviors were assessed in 21 residents with dementia living in a nursing home in the Illawarra Region of Australia. Caregivers completed the Cohen-Mansfield Agitation Inventory (CMAI) (Cohen-Mansfield et al., 1989) on a fortnightly basis over 10 months and also reported where the resident had spent his or her time on an hourly basis over the fortnight of observation. Indoor air temperature and relative humidity were logged using 37 data-loggers throughout the aged care facility to determine how the facility performed in regards to thermal comfort. This data was then incorporated in a Temperature-Humidity (TH50%) index and a three-level statistical model to determine the extent to which the indoor thermal environment affected agitation. A multilevel analysis was used since the CMAI data had a hierarchical structure whereby observations were clustered via individual residents who were also observed by different caregivers.

Results: A significant correlation ($p < 0.01$) was found between the Temperature-Humidity index and agitated behaviors and levels of disruptiveness. Higher CMAI total frequency scores were also significantly correlated with the percentage of time that TH50% exceeded 26°C during the fortnight of observation.

Conclusion: This study has provided quantitative evidence regarding the specific impact that indoor thermal environment has on the well-being of residents of nursing homes, and has practical implications for the aged care sector. It builds on previous studies on the effects of sensory stimulation of persons with dementia and highlights the importance of providing ‘thermal care’ (Walker et al. 2015).

Extreme aggression in nursing home residents with dementia: a part of the WAALBED III study

Annelies Veldwijk-Rouwenhorst; Raymond Koopmans; Sytse Zuidema; Martin Smalbrugge; Roland Wetzels; Hans Bor

Objective: Dementia in nursing home (NH) residents is often accompanied by aggression. (Zuidema et al., 2007) Aggression leads to distress in the resident, other residents and (informal) caregivers.(Zwijsen et al., 2014, Voyer et al., 2005) Sometimes the aggression is extreme, and may have a major impact on the environment. There is hardly any literature available about NH-residents with extreme aggression. The current presentation focuses on the prevalence and correlates of extreme aggression in NH-residents with dementia and their characteristics.

Methods: Data of 4 Dutch studies in NH-residents with dementia was combined into one dataset of 2076 residents. Residents with extreme aggression were defined as those scoring 6 (several times a day) or 7 (several times an hour) on the following items of the Cohen Mansfield Agitation Inventory (CMAI): 'cursing or verbal aggression', 'hitting', 'pushing', 'biting' and 'kicking'. We compared residents with and without extreme aggression on different characteristics; e.g. age, gender, psychotropic drug use (PDU) and items of the Neuropsychiatric Inventory- Nursing Home version (NPI-NH). We included only items that were distinct from aggression (conceptually or by content), thus excluding the items aggression/agitation, disin disinhibition and irritability. In a multivariate multilevel logistic regression analysis the association of these characteristics with extreme aggression was assessed.

Results: A group of 160 NH-residents met the definition (7.7%). Compared to the group without aggression (n=1100), residents with extreme aggression were younger, had a more severe stage of dementia and used PD more often. The multivariate analyses showed several correlated factors for extreme aggression: gender (being male, OR 1.70, p=0.04), dementia severity (Global Deterioration Scale 7, OR 2.28, p=0.02), and the use of antipsychotic drugs (OR 2.27, p=0.00); moreover, the odds ratios for extreme aggression were significantly higher in residents who had delusions (OR 5.62, p=0.00), euphoria (OR 2.70, p=0.01), aberrant motor behaviour (OR 1.60, p=0.04) or eating changes (OR 2.06, p=0.00).

Conclusion: The characteristics of NH-residents with dementia and extreme aggression are different from those without extreme aggression. Furthermore, we obtained more insight in several correlated factors. In clinical practice, these factors may signal the possible occurrence of extreme aggression, and may therefore be a starting point for treatment.

The effect of six-monthly medication reviews on the appropriateness of psychotropic drug use for neuropsychiatric symptoms in patients with dementia: a randomized controlled trial

Klaas Van Der Spek; Raymond Koopmans; Martin Smalbrugge; Marjorie Nelissen-Vrancken; Roland Wetzels; Claudia Smeets; Sytse Zuidema; Debby Gerritsen

Objective: In this study we aimed to investigate the efficacy of introducing six-monthly structured medication reviews for improving the appropriateness of psychotropic drug (PD) use for neuropsychiatric symptoms (NPS) in nursing home patients with dementia.

Methods: This study is a multi-center cluster randomized controlled, pragmatic trial with two parallel groups and a study period of 18 months, carried out in nursing home patients with dementia. Assessments (appropriateness of PD) were done every six months.

The intervention encompassed a structured multidisciplinary medication review by pharmacist, physician, and nurse. This was implemented in three phases: 1) preparation and education, 2) conduct, and 3) evaluation/guidance. The control group continued care as usual (Smeets et al., 2013).

The primary outcome was the appropriateness of PD use defined by the Appropriate Psychotropic Drug use In Dementia (APID) index sum score. This index scores information from medical records on seven domains i.e. indication, evaluation, dosage, drug-drug interactions, drug-disease interactions, duplications and therapy duration. The score ranges from 0-102.8, lower scores indicating more appropriate use. Analyses of all prescriptions as well as per PD group, i.e. antipsychotics, anxiolytics, hypnotics, antidepressants and anti-dementia drugs, were performed. Secondary outcomes were appropriateness of indication, evaluation and therapy duration, defined by the APID index subscores on these domains (van der Spek et al., 2015).

Results: Thirteen nursing homes participated, of which seven were randomized to the intervention group. At baseline 31 dementia special care units and 380 patients were included.

The APID sum score improved significantly in the intervention group for all prescriptions (β = -5.3, p = 0.01). Additionally, the evaluation subscore (β = -2.3, p = 0.01) and therapy duration subscore (β = -1.7, p = 0.02) improved significantly. More specifically, the APID sum score and indication subscore for anxiolytics (β = -10.9, p = 0.00 and β = -10.1, p = 0.00) and antidepressants (β = -5.3, p = 0.03 and β =-2.9, p = 0.04) improved significantly. For hypnotics (β = -7.5, p = 0.00), antidepressants (β = -5.3, p = 0.00) and anti-dementia drugs (β = -4.3, p = 0.04) the evaluation subscore improved significantly. Therapy duration subscore improved significantly for antipsychotics (β = -1.4, p = 0.04) and hypnotics (β = -2.9, p = 0.00).

Conclusion: Structurally reviewing the medication six-monthly improves the appropriateness of PDs.

Trial registration: Netherlands Trial Registry (NTR): NTR3569.

Whole-body cryotherapy in memory deficits – modulatory effect on clinical and immunology variables

Joanna Rymaszewska; Elzbieta Trypka; Dorota Szczesniak; Katarzyna Urbanska; Bartlomiej Stanczykiewicz; Izabela Kokot; Sylwia Placzkowska; Lilla Pawlik-Sobecka; Agnieszka Zablocka

Introduction: Cognitive deficits are associated with oxidative stress and inflammatory processes. Exposure to extremely low temperature causes the modification of the proinflammatory cytokines concentration, antioxidative effect, hormones and lipid changes. The aim of study was to evaluate the effect of the whole-body cryotherapy (WBCT) on cognitive impairments.

Methods: Persons with mild cognitive impairments were enrolled and underwent 10 sessions of cryo-stimulation in experimental group (-110°C till -160°C, 2-3 minutes each day). MoCA, TYM, DemTect, SLUMS scales were used to measure cognitive functions at baseline and in follow-up as well as and blood measures (interleukines, BDNF, NO, CRP).

Results: The experimental group analysis showed the significant improvement in time within memory domains measured with DemTect (subscale 5: 'Word List Delayed Recall'), TYM (task 3: semantic knowledge and task 10: anterograde memory) and SLUMS (SLUMS - task 10: logical memory) scales.

Modulatory effect of cryotherapy on the level of inflammatory mediators in plasma (IL-6, IL-10, NO) and BDNF depends on initial status of patients. Furthermore the effect of cryotherapy on immunological status of whole blood cells obtained from patients with mild cognitive impairments (ex vivo) was examined. The secretion of cytokines: IL-6, IL-10, IL-8, and BDNF in response to inflammatory agents: LPS (bacterial lipopolysaccharide), PHA (phytohaemagglutinin) and amyloid-beta 42 (aggregated 24 hours) is investigated.

Conclusions: Systemic and recurring exposure to extremely low temperatures could be useful as one of possible natural method of therapy that stimulates memory impairments.

Educational program improves staff competence and reduces BPSD in nursing home residents

Astrid Liv Mina Bergem; Nikias Siafarikas; Torill Andersson

Objective: The knowledge of symptoms and treatment in dementia, depression and other psychogeriatric conditions among the staff in Norwegian nursing homes is limited. Our aim was to examine whether an educational program in psychogeriatric topics could change the self estimated knowledge, job satisfaction and perception of job burden among nursing home staff. Further, we examined how the residents could benefit from the intervention.

Material and method

In this cross-over randomized controlled study we examined 127 nursing home staff and 239 residents from ten wards in nursing homes in the Oslo area. The staff intervention consisted of a twelve week education program, which included six lessons on psychogeriatric themes and six sessions of reflection and guidance in groups. Initially, five of the ten wards received the intervention, while the other five served as the control group. Secondly, the control group received the intervention. Rating scale questions on self-estimated knowledge, job satisfaction and job burden were answered by the staff before and after the intervention. Likewise, the senior nurses rated the residents' symptoms, behavior distress, diagnoses and treatment before and after the intervention by validated rating scales. All data were anonymous.

Results: The results from the educational program rating scales in the intervention group, showed a statistically significant increase in self-estimated knowledge and treatment of BPSD in psychogeriatric residents, as well as increase in job satisfaction and lower job burden. At the same time, there was a significant BPSD decrease in the patient intervention group. There was no change in the staff and patient control groups. However, when completing the educational program, the same level of knowledge and job satisfaction as for the intervention group was reached, and likewise BPSD decreased significantly in the patient group. In the end of the follow-up period of six months later, the self-estimated knowledge of both groups remained at the same level.

Conclusion: The staff education program lead to increased knowledge about psychogeriatric diseases, and a higher level of job satisfaction and reduced job burden, which in turn resulted in better care and treatment, as well as reduced behavioral and psychological symptoms in demented nursing home residents.

FC3: Treatment and Biological Markers of Treatment Response

Vilazodone inhibits pro-inflammatory gene expression and immunologic activation in geriatric depression

Helen Lavretsky

Objectives: We performed a pilot study of vilazodone, a novel antidepressant never tested in geriatric depression, compared to a gold-standard drug used in geriatric depression, paroxetine. We also performed genomic markers of inflammation and telomerase activity in the two groups to explore potential biomarkers, as well as to assess any differences in tolerability and safety.
Participants: Fifty six non-demented older adults diagnosed with major depression were randomized to receive vilazodone [N=26] or paroxetine [N=30].
Interventions: A 12-week double-blind trial of vilazodone vs paroxetine. Paroxetine daily doses ranged between 10-30 mg (mean = 27.20, SD = 6.78, range = 10-30); Vilazodone effective daily dose was 40 mg per day 10-40 mg. **Measurements:** A comprehensive evaluations of depression severity and remission defined as Hamilton Depression Rating Scale (HDRS-24) score of 6 or below. We estimated effect sizes on several mood and cognitive assessment instruments. Potential genomic markers of inflammation in the two groups, as well as any differences in tolerability and safety were explored.
Results: There were no baseline differences between the groups in demographic and clinical variables. Effect size estimates indicate that overall the vilazodone group subjects show increased improvement in mood compared to paroxetine (on HAMD -2.25 vs -1.31), accompanied by greater improvement in Health-related Quality of life (SF-36 scales).However, Paroxetine group showed greater improvement in several cognitive measures compared to Vilazodone with significant differences in the measures of attention and executive function. Seventeen subjects in the paroxetine group reported mild side-effects (mean of 1.4 (SD=1.2)) and 16 subjects in the vilazodone group reported some side-effects (mean of 1.4 (SD=1.2)). None of the group comparisons were significant.
A markedly greater decrease over time in expression of pro-inflammatory indicator genes for vilazodone-treated patients compared to Paroxetine-treated patients (p = .0294) was found. These findings using a priori-defined gene sets were highly consistent with characteristics of the genes showing the most marked relative down-regulation in the vilazodone-treated group; these included many cardinal pro-inflammatory genes including IL8, IL1B, TNF, PTGS2 (COX2), FOS/JUN (AP-1), EGR1, as well as immunologic activation indicators CD83, CD69, and HLA-DR. Subsequent analyses identified all genes showing a 20% or greater difference across groups in average change over time, and scanned the promoters of those genes for differential prevalence of transcription factor-binding motifs indicative of inflammation (e.g., AP-1, NF-kB) and neural/endocrine systems that might potentially mediate effects of the nervous system on immune cell inflammatory signaling. Results of these analyses showed clear indications of reduced NF-kB, AP-1, and CREB activity in the vilazodone-treated group relative to the Paroxetine-treated group (all p < .05). The Transcript Origin Analyses implicated monocytes and dendritic cells as the primary cellular origins of genes relatively down-regulated in the vilazodone-treated group (both p < .01).
Objectives: The vilazodone group had greater improvement in depression and quality-of life, and the paroxetine group had greater improvement in the several cognitive measures of attention and executive function. The vilazodone group showed a significant effect in inhibiting pro-inflammatory gene expression and immunologic activation in relative to the paroxetine group, which may contribute to the pathophysiology of depression. This pilot trial should inform future larger trials of geriatric depression.

Impact of sedative reduction, via a multifaceted intervention, on long-term care facility residents

Daniel Hoyle; Juanita Westbury; Ivan Bindoff; Lisa Clinnick; Gregory Peterson

Background: Sedative medications, predominantly antipsychotics and benzodiazepines, are commonly prescribed in long-term care facilities (LTC). Antipsychotics are often used for challenging behavior and benzodiazepines are given for sleep disorders and anxiety despite modest efficacy for these symptoms and risk of adverse effects. Contrary to guidelines, evidence suggests that sedatives are not regularly reviewed or reduced due to fear that sedative changes may provoke a recurrence of the initial symptoms or worsen resident quality of life (QoL). Several interventions have been developed to promote appropriate prescribing but have not investigated the impact that sedative reduction has on resident outcomes. For the first time, this study evaluates the clinical outcomes of a nation-wide project to reduce sedative use, the Reducing Use of Sedatives project (RedUSe).
Methods: Residents taking an antipsychotic or benzodiazepine regularly and without a severe psychiatric condition were recruited. Resident behavior (Cohen-Mansfield Agitation Inventory and the Neuropsychiatric Inventory-Nursing Home version), social engagement (Multidimensional Observation Scale for Elderly Subjects- withdrawal subscale) and QoL (Assessment of QoL-4 Dimensional tool) were assessed at baseline and four months. Falls were recorded by nursing staff over four-months. Diazepam and chlorpromazine daily dose equivalents (DDEs) were used to assess changes in sedative prescribing.
Results: A total of 206 residents were recruited from 27 LTCs involved in RedUSe. Attrition left 180 residents (119

benzodiazepine users, 83 antipsychotic users, 22 using both agents) to be included in the analysis. Benzodiazepine (diazepam median DDE: 5mg to 3.8mg, p<0.001) and antipsychotic use (chlorpromazine median DDE: 33.3mg to 25mg, p<0.001) declined between baseline and four-months. There was no significant deterioration in resident behavior, social engagement or overall quality of life for residents who reduced their sedative. However, residents who had no reductions in their antipsychotic dose displayed worse physically non-aggressive behaviors (p=0.012). No association was detected between falls and changes in benzodiazepine or antipsychotic use.

Conclusions: Despite concerns associated with sedative reduction, no deleterious effects on behavior, social engagement or QoL resulted from reduced benzodiazepine and antipsychotic use. Furthermore, prolonged antipsychotic treatment may worsen physically non-aggressive behaviors. This study supports the world-wide movement to regularly review and reduce sedative medications.

Atypical Antipsychotics as Add-on Treatment in Late Life Depression

Sibel Cakir; Zeynep Senkal

Objective: Second Generation Antipsychotics (SGA) has been used as augmentation strategy in adult patients with treatment-resistant depression. However little is known the effectiveness, tolerability and adverse events of SGA in treatment of late-life depression (LLD). The aim of this study was to investigate the effectiveness, tolerability and adverse events of SGA as add-on treatment in LLD.

Methods: The retrospective data of the patients who were older than 65 years, and diagnosed with major depressive episode with inadequate response to antidepressant treatment and had add-on treatment of SGA were analyzed. The outcome measures were the number of the patients could continue to medication to 4th and 12th weeks, adverse events, and change in Geriatric Depression Scale (GDS) scores.

Results: Thirty-five patients were screened; 21(60%) had quetiapine, 12(34.28%) had aripiprazole, 2(5.71%) had olanzapine add-on treatment. Mean age was 72.17 (+5.02) (65-82) and 65.7% of patients were female. Mean daily dose was 85.71(+47.80) (50-200) mg for quetiapine, 3.33 (+1.23) (2.5-5) mg for aripiprazole, and 3.75 (+ 1.76) (2.5-5) mg for olanzapine. The mean GDS score of all study patients were significantly decreased at 4th weeks (p<0.000). The decrease of GDS score was significant in aripiprazole group (p=0.02). Twenty-three of 35 patients (65.7%) were discontinued the study within the first 3 months. The frequency of adverse events were similar in all SGA groups, they were not serious and most commons were sedation, dizziness, constipation and orthostatic hypotension with quetiapine and akathisia, headache and constipation for aripiprazole.

Conclusion: This study indicates that drop out of patients with SGA add-on treatment is high and a subgroup of patients with LLD may benefit from SGA. Effectiveness of SGA is significant in aripiprazole. Adverse events in add-on treatment of SGA were not serious but common in LLD. While risks versus benefits of SGA in elderly should be carefully considered.

The prevalence and cognitive correlates of drugs with potential risk of dementia

Hege Kersten

Objective: Drug use is a modifiable risk factor with a large potential in dementia prevention. Use of proton pump inhibitors, benzodiazepines and anticholinergic drugs has been associated with higher rates of dementia in older people. We studied the prevalence and cognitive correlates of these drugs in younger versus older adults with cognitive impairment.

Methods: The participants were recruited from 8 out-patients clinics in Norway and the study population consists of 542 home-dwelling patients with cognitive impairment. The study population was stratified into two subgroups according to their age at cognitive symptom debut; ≤ 65 years, and > 65 years. Drugs used regularly were recorded from referral letters and information given by the patients and their caregivers. All drugs were classified according to the anatomical therapeutic chemical classification system. A score 2 or 3 on the anticholinergic cognitive burden scale (ACB) was used to define drugs with clinically significant anticholinergic adverse effects. Dementia diagnosis, mini mental state examination (MMSE-NR) and Clinical Dementia Rating (CDR) scale score was retrieved from the comprehensive assessments made for all patients.

Results: The mean number of drug used regularly was 2.95 (SD = 2.70) in the youngest group (mean age = 60.58 (SD = 6.70)) and 3. 56 (SD = 2.62) in the oldest group (mean age = 76.38 (SD = 5.84). The prevalence of proton pump inhibitors, benzodiazepines and anticholinergic drugs was less than 5 % in the whole study population, but the prevalence rate might be underestimated by unreported use and the unrecorded pro re nata use. Although the youngest group used significantly less drugs than the elder (p = 0.01), the use of drugs with potential risk of dementia were more frequent in younger versus older people with cognitive impairment. Regardless of drug use, the oldest group performed significantly higher on the CDR scale (sum of boxes) and lower on the MMSE- NR.

Conclusion: The prevalence of drugs with potential risk of dementia was unexpectedly low in our study population. More studies are required to assess the plausibility of a causal relationship between drugs use and the risk of dementia.

FC4: Caregiver Issues

Final outcomes of the 'RedUSe' expansion: a national multi-strategic, interdisciplinary initiative aimed at reducing antipsychotic and benzodiazepine use in Australian Long Term Care Homes

Juanita Westbury; Peter Gee; Tristan Ling; Gregory Peterson

Background: Overuse of antipsychotics and benzodiazepines in long term care homes has been a concern for several decades. The routine use of these agents in residents with dementia, anxiety disorder and sleep disturbance is contentious due to modest effectiveness alongside a substantial risk of adverse effects. To address this issue, a multi-strategic, interdisciplinary intervention project: Reducing Use of Sedatives, 'RedUSe', was developed and trialled in 2008. The project was funded, extended and enhanced for national staged delivery to over 150 Australian long term care homes throughout 2014-2016.

Objective: To evaluate overall home antipsychotic and benzodiazepine prevalence rates over the 6-month intervention project. Secondary aims were to gauge the proportion of agents ceased and doses reduced, and assess if reductions were sustained.

Method: The project involved three core quality improvement strategies: audit/feedback cycles, nurse education sessions and a structured interdisciplinary psychotropic review process.

Antipsychotic and benzodiazepine data at each nursing home were mined from community pharmacy packing systems, validated by nursing staff and collated utilising a customised software programme at baseline, 3 and 6 months.

Results: An average of 12,165 residents were audited for each measure. At baseline, 4,523 (37%) of residents were taking an antipsychotic and/or a benzodiazepine daily. Over the 6-month project there was a 21% reduction in the proportion of residents taking benzodiazepines every day (22% to 17%, $p < 0.005$) and a 13% reduction in the proportion of residents taking antipsychotics(22% to 18%, $p <0.005$). Substitution to sedating antidepressants or 'prn' use did not occur. Forty percent of all residents taking antipsychotics and/or benzodiazepines at baseline had their psychotropic doses reduced by 6 months, with a higher proportion of benzodiazepine doses reduced than antipsychotic doses. In terms of sustainability, of all benzodiazepines reduced or ceased by the 3-monthaudit, 95% of the reductions/cessations were sustained at6-months; whereas 82% of antipsychotic reductions/cessations were sustained.

Conclusion: Findings suggest that our multi-faceted, interdisciplinary quality improvement program offers an effective approach in reducing antipsychotic and benzodiazepine use in long term care homes. The results of the national expansion of the RedUSe project reflect an improvement on those reported from the original trial in 2008.

What education do aged care nursing staff want around the therapeutic management of older persons' mental health?

Juanita Westbury; Donnamay Brown

Background: Two one-hour interactive educational sessions focused on the therapeutic management of older persons mental health conditions, specifically dementia, anxiety and sleep disorder, were delivered to nursing staff at 75 aged care homes (ACHs) throughout Australia from 2014-15 as part of the Government-funded implementation project: The RedUSe project (Reducing Use of Sedatives).

Objective: To gain feedback from nursing staff attending these sessions and scope suggestions on how educational content could be enhanced.

Method: A mixed-method methodology was adopted using a structured anonymous questionnaire after each education session. Participants were asked to rank the training using a Likert scale, comment on aspects of the education sessions, and were invited to provide suggestions on how content could be enhanced.

Results: A total of 1344 ACH staff attended the training sessions (783 Registered Nurses, 494 Enrolled Nurses and 64 Care Assistants), with1048 (78%) of attendees completing the structured questionnaire. Forty-four percent of these respondents ranked the education as 'excellent' and 43% as 'very good'. Nearly all respondents (97%) agreed that the training increased their understanding of the quality use of psychotropic medicine in older people. Over three quarters of questionnaire respondents did not make any further suggestions to enhance content. Of the 22% on participants that did make suggestions, the main comment was that additional education on medications, especially adverse effects, was needed and they requested education on other topics, particularly antidepressants and pain management (Figure 1). Nearly one fifth of respondents requested additional information on non-pharmacological ways to manage older person mental health issues.

Many respondents suggested additional case studies, dedicated time to discuss particular residents in their homes and requested information how to work more effectively with doctors attending the home.

Conclusion: Nursing staff at Australian ACHs have demonstrated that they strongly value education about medications used to treat common mental health conditions. They ranked a brief educational program as part of a larger intervention aimed to reduce psychotropic use in aged care very highly. A sizable proportion expressed the desire for additional education about other medications used to treat mental health conditions and requested more information about non-pharmaceutical options.

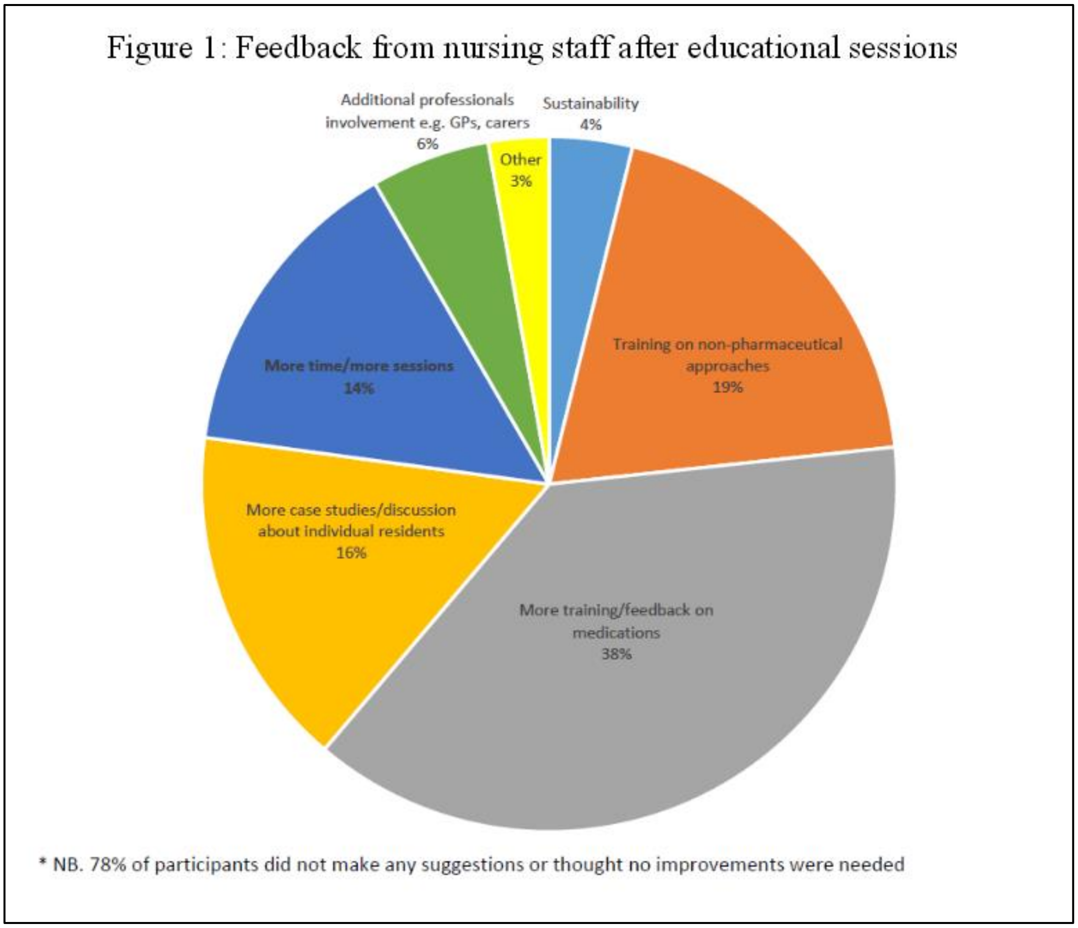


Figure 1. Westbury and Brown.

Relationship quality and distress in spouses of persons with dementia

Heidi Bjørge; Kari Kvaal; Ingun Ulstein

Background and Aim: Being the spouse of a home-dwelling person with dementia poses an increased risk of physical and psychological morbidity to the individual. However, a good relationship between the spouses has been shown to have influential effects on the caregiver's health and might slow the decline of cognitive and functional capacity in the spouse who suffers from dementia. Relational factors have been extensively investigated in association with the concept of Expressed Emotion (EE) in schizophrenia, but few studies have made use of this knowledge in dementia. Hence, we used a short self-report questionnaire, the Felt Expressed Emotion Rating Scale (FEERS), which includes six items pertaining to two dimensions of EE, namely, criticism and emotional over-involvement.

The aim of this study has been to investigate how caregivers perceive their spouses' attitudes towards them and to identify factors that may contribute to their perceptions of their spouses' attitudes.

Method: The FEERS was completed by 119 patients, mean age 76 years, and their spouses, mean age 72 years. Of the patients, 66% were females, and their mean MMSE (Mini-Mental State Examination) score was 21.2. Linear regression analyses were applied to explore the bivariate and multivariate associations between the dependent variables of FEERS criticism and emotional over-involvement and potential explanatory variables.

Results: In the multivariate analysis, the neuropsychiatric symptoms and depression of the ill spouse as well as depression and emotional distress accounted for 42% of the variance in the caregivers' perceived criticism, whereas the caregivers' own social distress and the ill spouse being a husband explained 22% of the variance of FEERS emotional over-involvement.

Conclusion: The study shows that properties of the caregivers as well as of the care receivers contribute to the caregivers' perceptions of the attitudes of the spouse with dementia. Mutual depression appears to increase the risk of the caregiver experiencing the other as critical, according to the FEERS, whereas emotionally distressed wives tend to interpret their husbands with dementia as over-involved. The implication of these findings is that it may be of importance to help caregivers gain a more-correct understanding of the view of the ill spouse to prevent conflicts. Treatment of depression seems to be crucial in order to foster a good relationship.

Caregiver burden in hospitalized patients with late life depression

Ingun Ulstein

Presented by: Maria Korsnes

Background: Depression is a common mental disorder in old age, and tends to be chronic with a recurrent course and lead to reduced quality of life in patients as well as the family caregivers. Still there are surprisingly few studies focusing on the strain and burden put upon the caregivers of patients suffering from depression.

Objective: To study the burden of care in family caregivers of patients included in the PRODE study, an observational study with the aim of studying the course of late life depression is hospitalized patients in Norway.

Methods: This analysis includes data from 111 family caregivers who filled in the Relatives' Stress Scale (RSS), a questionnaire developed to catch burden of care in family caregivers of mentally ill persons and the Geriatric Depression Scale (GDS). The patients cognitive and functional status, and depression was examined by means of the Mini-Mental-Status Examination (MMSE), IQCODE and the Montgomery-Aasberg Depression Rating Scale (MADRS). The data were analysed by means of linear regression.

Results: The analysis includes data from 111 caregivers (60 % females, and 35 % spouses and 48 % adult children) and their family member with depression (71 % females, mean age 75.6 +/- 6.6 years, mean MADRS 25.1 +/- 8.7, mean MMSE 26.1 +/- 8.7 and mean IQCODE 3.3 +/- 0.55. The mean RSS-score was 18.5 +/- 10.9, with female caregivers scoring significant higher than males (20.2 +/- 11.1 vs 15.9 +/-10.3, p=.039), whereas there were no significant differences between the genders when it comes to depression.

When controlling for age and gender, we found a positive significant correlation between RSS and depression in caregivers and patients and their cognitive and functional decline (R2 = 38 %).

Conclusion: Depression in caregivers and patients is associated with higher degree of burden of care. Reduced cognitive and functional abilities in the patients are other risk factors that may help identifiying caregivers at risk of additional health problems due to their caregiver tasks.

Medically Unexplained Symptoms in later life: a link with physical frailty

Martje Grootaarts; Denise Hanssen; Richard Oude Voshaar

Objective: A systematic review estimated the prevalence rates for medically unexplained symptoms (MUS) between 1.5% and 18%, and for somatoform disorders between 5% and 13% in people aged 65 years and over (Hilderink et al., 2013). Despite the presence of several etiological models for somatisation, all models are built from a bio-psycho-social perspective. Interestingly, biological processes are uniquely included as precipitating factors, whereas psychological and social processes can be either precipitating factors, but also predisposing or perpetuating factors. In most models, biological processes are described as bodily sensations which are misinterpreted by the patients as these sensations are supposed to originate from both normal physiological processes (e.g. bowel peristaltic), from pathophysiological processes due to sub threshold medical conditions (e.g. elevated blood glucose levels without actual diabetes), or from clinical diseases. We might thus expect that somatisation problems increase parallel to an increase in somatic disease burden. The objective of the present study was to compare the level of physical functioning between older patients with MUS and older patients with medically explained symptoms (MES).

Methods: Within the Older Persons with medically Unexplained Symptoms (OPUS) study, we compared 118 MUS patients with 154 MES patients. As indicators of physical functioning, we assessed the somatic comorbidity (Charlson Index), number of prescribed drugs, and the physical frailty phenotype according to Fried criteria (Fried et al., 2001). We explored the severity of 1) the physical complaint (VAS scale), 2) somatisation (BSI-53), and 3) hypochondria (Whiteley Index), as well as the presence of a DSM-IV diagnosis of a somatoform disorder (MINI, version 5.0) as MUS severity indicators.

Results: Multiple ANCOVA's adjusted for age, sex, level of education and cognitive functioning, showed that MUS patients had significantly less physical comorbidity, but higher level of physical frailty compared to MES patients. Linear regression analyses showed that physical frailty was associated with higher severity levels of MUS, while somatic comorbidity was not.

Conclusion: We hypothesize that within a subgroup of older MUS patients, the MUS may simply reflect physical frailty.

FC5: Training Issues in Dementia Care

Development of a Global Dementia Resource Website for Patients and Families

David Conn; Bilal Yousuf; Kelsey Yarlett

Objective: Develop an online catalogue of the best dementia websites from around the world with easy-to-navigate access for older people with dementia and their caregivers.
Method: A broad search of the internet was conducted on Google using the following keywords "dementia", "resources", "caregivers". After initial review for suitability a total of 53 websites was selected for further evaluation. A focus group of clients was conducted to assess how older adults navigate dementia-related websites and to inform the design of our website. Finally, a group of older adult volunteers from our Wellness Library was selected to provide feedback during the development of the website.
Results: The 53 websites were evaluated using the short DISCERN tool, Reading assessment tools, and the National Institute on Aging (NIA) Senior Friendly Website Checklist. A total of 33 website was selected for inclusion based on the evaluation and our own website was then developed using the NIA senior friendly website guidelines. Website links were annotated and divided into sections based on a review of studies of information needs for this population. The new website received high ratings when evaluated by older adult volunteers.
Conclusion: The new website demonstrates the usefulness of developing a resource that provides reliable information and easy access for older adults. One limitation was that the website design was somewhat constrained by our own corporate website guidelines. There is a need for further research on developing accessible and effective senior friendly websites for mobile devices and validated assessment tools to evaluate online health information.

Visit the website at http://www.baycrest.org/educate/dementia-resources/ (for launch June 2016)

The Model of "CPT" Cultural Pedagogical Theatre to Apply in Social and Sanitary Professionals Training

Imma Miralles Garcia; Esso Petersson

Objective: Test a new pedagogical methodology to reach and enhance the knowledge and innovation capability of teachers, who train at social and sanitary professionals in good practices to attend dependent persons (aging, mental health, disability), by trainers of FORO TÉCNICO DE FORMACIÓN (FTF), training company who working all over Spain to develop training plans for social and sanitary sectors, in Cultural Pedagogical Theatre (CPT) tools, that involves the participant from the very beginning, methodology created by TP-THEATRE (TPT), who has for over 15 years been working in Sweden with "IFT" Interactive Form Theatre with two methods: Interactive Design Theatre and Interactive Script Writing.
Methods: Both organizations, submitted a project in ERASMUS+ program, it has been approved and well rated because the project relevance, the quality of implementation and the impact and key skills transferred to the workplace. The main activity of this 1 year project is the development of a training course for FTF social-health teachers in the method of interactive theater 4 day 6 hours per day in which TPT teachers explained the history of this CPT and show us examples of their application in different subjects and targets, we trained in the use of interactive theater method, we learned the pedagogical elements to be later used in class with students and we worked on creating scripts related with good practices in dependent persons care. At the end of the course the report of the evaluation of the 4 learning outcomes contained in the Personalized Learning Agreement will be generated. All work evaluation was made by TPT and monitoring of this control, the process of validation and recognition of learning outcomes was been conducted by FTF.
Results: TPT has standardized and redefined the course and their teachers have acquired experience in training a social-health teachers. FTF already use the CPT methodology in training sessions of participants teachers and these will transfer the experience to their peers in a standardized way. The experience will serve both organizations in other similar course in other ERASMUS + project, and in two editions scheduled for the European education sector in BCN and Stockholm.

Videoconsultation is a Feasible and Valid Alternative of Providing Psychiatric Care to the Nursing Home

Raimundo Mateos; Ramón Ramos; David Lojo; Tim Patterson; David Conn

Introduction: More than 80% residents of nursing home suffer from some form of mental disorder. But in most of cases, even within countries with developed psychogeriatric services, residents have difficulties in accessing adequate psychiatric care.
Telepsychogeriatrics, specifically, videoconsultation, for the attention to isolated populations, has increased over the last decade. Its application to elderly people with difficulties in visual and auditory perception involves an additional challenge.
Objectives: Describe a pilot study of Interconsultation-Liason between a Psychogeriatric Unit and a Nursing home, using videoconference. 2) Identify the difficulties and limitations of its implementation.
Methods: The target of the study was a nursing home located in a town 70 km from the Psychogeriatric Unit of Santiago de

Compostela. Both institutions were connected by means of a Point-to-Point ADS line (download bandwidth of 8 Mbps and an upload bandwidth of 640 Kbps). Two modern videoconferencing units, with 32” LCD TV were selected and purchased for this project. Several ad hoc protocols were developed, addressed to collect sociodemographic, clinical and functional capacity data; also, to register technical issues and the degree of satisfaction with videoconferencing procedures of the patient, the psychiatrist and staff of the residence.

Results: A total of 30 connections were made with the residence, investing 55 hours of videoconsultation. In total 63 teleconsultations were made to 23 residents (82.6% women, mean age 83 ± 6.9 years, low educational level). Of these consultations, 23 were first, the rest, follow up. Six patients (26%) were visited only one time, 12 (52.3%) required two or three consultations and 5 (21.7%) were visited more than three times. There was only a cancellation caused by technical problems, at the beginning of the study. In all cases the psychiatrist could make a clinical diagnosis and prescribe treatment. The evaluations of the experience made by the psychiatrist, staff of the nursing home and by the patients, were all very positive. The residents preferred this form of consultation than the alternative, being transported by car for standard in-person consultation.

Conclusions: The model of psychiatric interconsultation-liason to a nursing home can be validly implemented by videoconference and this option may be preferred by residents, psychiatrists and nursing staff.

Sleep Disorders and Risk of Dementia in Late Life: 13-Year Longitudinal Study of Healthcare Members

Jason Flatt; Charles Quesenberry; Jennifer Liu; Kathleen Albers; Rachel Whitmer

Objective: Sleep disorders (SD) impact more than 20% of the population, greatly decrease quality of life, and recent estimates suggest they are increasing (Institute of Medicine, 2006). While SD are associated with cognitive impairment and dementia risk (Yaffe, Falvey & Hoang, 2014), little work has been done in women and ethnically diverse populations. Our goal was to evaluate if SD increases risk of dementia over 13 years and if there were differences by sex.

Methods: 499,844 patients of Kaiser Permanente Northern California who were >60 years in 1/1/2002 were followed for incident dementia diagnoses (Alzheimer’s disease, vascular dementia, and unspecified dementia) abstracted from medical records from 1/1/2002-7/31/2014. SD (defined as non-specified sleep disorders, insomnia, sleep apnea, and circadian rhythm disorders), diabetes and stroke were collected 1/1/1996-12/31/2001. SD and time to dementia risk were evaluated using multivariable cox proportional hazards models adjusted for age, sex, race, diabetes, and stroke, with censoring for death and >90 day gaps in health plan coverage.

Results: Mean age at baseline was 71.0 years (range 60–102), with 54.7% female, 68.3% White, 6.3% Black, 7.4% Hispanic, 9.9% Asian. Six percent of patients (31,997) were diagnosed with a SD at baseline. Those with SD were more likely to be White, male, older, have diabetes and a stroke. Over 13 years of follow-up (4,002,501 years of person time, mean follow-up time 8.2 years), 11.8% (59,127) were diagnosed with dementia. The dementia incidence rate for those with SD was 18.8/1,000 person-years versus 14.5/1,000 person-years without SD. SD was associated with a 27% increased risk of dementia adjusted for age, sex and race (Hazard Ratio= 1.27, 95% confidence interval= 1.23, 1.31). Further adjustment for vascular comorbidities slightly attenuated this association to a 22% increase in risk. Associations were similar when evaluating men versus women separately.

Conclusion: In a larger cohort of older adults from a healthcare delivery system sleep disorder was associated with an increased risk of dementia independent of diabetes and stroke. The magnitude of risk increase for SD on dementia did not differ by sex. Future research aimed at exploring metabolic and molecular mechanisms linking sleep disorders and dementia risk are needed.

Table 1. Cox Proportional Hazard Models of Sleep Disorder and Risk of Dementia Over 13 Years

Model	All patients HR (95% CI)	Men HR (95% CI)	Women HR (95% CI)
Model 1	1.27 (1.23, 1.31)	1.31 (1.24, 1.37)	1.25 (1.20, 1.29)
Model 2	1.22 (1.18-1.26)	1.24 (1.18, 1.30)	1.21 (1.16, 1.25)

Model 1 adjusted for age, race, and sex Model 2 plus diabetes and stroke

Figure 1. Flatt, et al.

The conditions of prescribing of antipsychotic medications in residential aged care: the HALT project

Fleur Harrison; Monica Cations; Tiffany Jessop; Allan Shell; Lynn Chenoweth; Henry Brodaty

Background: Despite limited evidence for their efficacy and concerns about their safety, antipsychotic medications are commonly prescribed to manage behavioural and psychological symptoms of dementia (BPSD). In addition, guidelines for appropriate use are rarely followed in practice. Our aim is to examine the conditions under which antipsychotic medications are prescribed, including naturalistic dosage history, setting, consent and indication. This may help to identify residents at risk of inappropriate prescribing and avenues for intervention.

Method: Data were obtained at index assessment of the HALT project, a single-arm longitudinal deprescribing study including 24 care facilities across Sydney, Australia. Participants were aged over 60 years, on regular antipsychotic medication, and without a primary psychotic illness or severe neuropsychiatric symptoms, as rated on the Neuropsychiatric Inventory (NPI). Data included resident demographics and medical history, and antipsychotic use including drug type, dosage history, setting, consent, indication, and concurrent psychotropic medication load. Cognition and BPSD were also assessed.

Results: Of 139 participants, 86.4% were prescribed an atypical antipsychotic, 10.1% a typical, and 3.6% both. Participants also took an average of 2.3 concurrent psychotropic medications. Aggression (39.4%), agitation (34.3%), psychotic symptoms (19.3%), nocturnal disruption (14.7%), vocally disruptive behaviours (11.9%) and wandering (7.1%), sometimes in combination, were the most common reasons for prescription.

The current course of antipsychotic had been prescribed on average 2.1 years prior, with dose unchanged for 1.3 years; 22.2% of participants had received a previous course. Most current courses (64.7%) commenced during residency at the current facility. Verbal consent for the use of antipsychotic medication was recorded in 21.1% of participant files and written consent in one file. Recommendations by health professionals to cease antipsychotic medications were documented in 65% of cases.

Discussion: Antipsychotic medications were commonly prescribed outside the guidelines for older adults with dementia. The majority were initiated during residency at the facility, without informed consent and continued without change for lengthy periods, even when reduction or cessation was recommended. Indications were often unclear or for symptoms for which there is insufficient evidence of long-term benefit. Interventions to improve current prescribing practices to meet guidelines are needed.

FC6: Dementia & Alzheimer's Disease

Subjective experience of people with Alzheimer's disease participating in the physical activity trial Fitness for the Ageing Brain Study II (FABS II)

Nicola Lautenschlager; Osvaldo Almeida; Leon Flicker; Elizabeth Cyarto; Dina Logiudice; Keith Hill; David Ames; Christopher Etherton-Beer; Gerard Byrne; Kana Appadurai; Kay Cox

Objective: Physical activity (PA) is recommended for people with dementia. Benefits have been reported, however little is known about how research interventions are understood and if people with dementia perceive benefits from participation.

Methods: FABS II was a randomized controlled trial for people with mild to moderate Alzheimer's Disease (AD) living in the community in Australia (1). The intervention was a 6-month home-based program with a target of 150 minutes/week of moderate PA. Carers participated in a "coach" role. The behavioural intervention was delivered via an individual workshop, newsletters and telephone support. The control group continued their usual PA. After 6 months both groups completed a program evaluation questionnaire administered by a researcher. Participants were asked if they enjoyed the study (yes/no) and to rate the 'helpfulness' of the study strategies (1-5; none to extremely helpful); the 'improvement' in fitness and quality of life indicators (1-5; none to outstanding). The strategies were the same for both groups only the content was different.

Results: One hundred and thirty two volunteers (61% male), mean age was 74.4 (±SD 7.3) years, participated. Mean adherence to the PA program was 69.5%. Overall 96.5% of participants reported that they enjoyed participation. Ratings of 'helpful' or greater were 75.2% for the newsletters; 78.3% for the phone calls; and 69.8% for lifestyle information. There were no significant differences in responses between control and intervention groups. At 6 months intervention participants reported their memory, fitness, strength, balance and mobility as significantly improved compared to the control group. There was no significant difference of subjective perception between the groups for daily tasks, quality of life and communication with others.

Conclusion: the majority of participants enjoyed participation in FABS II. The intervention group enjoyed significant better subjective improvements compared to the control group, but this was not consistent for all areas. Patients with AD can experience participation in PA research as beneficial.

Common variations at CLU are associated with lipid levels in Alzheimer's disease

Lu Hua Chen; Yan Hui Fan; Patrick Yu Ping Kao; Deborah Tip Yin Ho; Leung Wing Chu; You Qiang Song

Objectives: The genetic risk factors have been found to play critical roles in Alzheimer's disease (AD) pathogenesis. Previously, CLU encoding Clusterin, was simultaneously reported to be associated with late-onset AD (LOAD) by two Genome-wide association studies (GWAs) based on Caucasian populations. Successful follow-up study for CLU and LOAD susceptibility has been performed in our independent Chinese population. Since evidence indicating the function of Clusterin is involved in cholesterol metabolism, we then further analyze those single nucleotide polymorphisms (SNPs) in CLU and plasma lipid levels in our Chinese LOAD patients.

Methods: Subjects including 400 LOAD and 289 non-demented controls were recruited from the Memory Clinic, Queen Mary Hospital and community elderly social centers in Hong Kong, respectively. Cholesterol, triglyceride, high-density lipoprotein cholesterol (HDL-C) as well as low-density lipoprotein cholesterol (LDL-C) levels were measured to evaluate subjects' plasma lipid levels. Three previously published SNPs, including rs2279590, rs11136000 and rs9331888 were selected for genotyping.

Results: By multivariate logistic analysis, after adjustment for age, sex, body mass index, and APOEε4 status, two SNPs (rs2279590 and rs11136000) of CLU are found to be significant correlations with plasma lipid levels. Both A allele of rs2279590 and T allele of rs11136000 are positively correlated with HDL-C levels ($\beta=0.07$, $p=0.009$; $\beta=0.06$, $p=0.036$, respectively), while negatively correlated with triglyceride levels ($\beta=-0.15$, $p=0.005$; $\beta=-0.14$, $p=0.009$, respectively).

Conclusions: This is a first study that exhibition the associations between CLU polymorphisms and plasma lipid levels in LOAD. Since in vivo study has reported the association between soluble Aβ and HDL particles in both serum and cerebrospinal fluid (CSF), findings from our present study afford additional evidence of CLU susceptibility in LOAD development.

Detecting changes in computer-use behaviours as an indicator of early cognitive decline: a feasibility study

Samuel Couth; Gemma Stringer, Ann Geldson, Joseph Mellor, Iracema Leroi

Objective: Early detection of dementia is essential to improve long-term clinical outcomes. However, current diagnostic methods rely on costly expert evaluation, often leading to delays in timely diagnosis. Therefore, there is a need for a low-cost, reliable and unobtrusive method to detect subtle, yet meaningful early cognitive decline. 'Software Architecture for Mental Health Self-management' (SAMS) is a multi-stage project investigating whether measuring daily computer-use behaviours over time may be a pragmatic and sensitive method for detecting early cognitive decline. As part of this project, the current experiment aimed to determine the feasibility of detecting differences in computer-use behaviours in elderly people with and without cognitive problems, and whether any differences in computer-use patterns were related to cognitive and neuropsychological test scores.

Methods: Twenty-four healthy control participants (female n = 14, mean age = 71.1) and nineteen participants with mild cognitive impairment (MCI) or mild Alzheimer's disease (AD; female n = 6, mean age = 75.1) were asked to complete a set of semi-structured computer activities. Specially designed SAMS software recorded participants' computer-use behaviours throughout. Participants also completed a battery of cognitive and neuropsychological tests, including the Addenbrooke's Cognitive Examination – III (ACE-III) and measures of depression and apathy.

Results: The total duration (seconds) to complete the set of computer tasks was significantly longer for cognitively impaired compared to healthy control participants. This measure was inversely related to total ACE-III scores, even when controlling for participant age, depression and apathy scores, and computer-use experience. Other computer-use behaviours were subsequently divided by total duration to account for time spent to complete the computer tasks. This demonstrated that MCI/mild AD participants produced fewer keyboard presses per second, which was also strongly related to ACE-III scores.

Conclusion: The SAMS software is a feasible and practical tool capable of detecting differences in a number of computer-use behaviours among elderly people. Crucially, the speed of certain computer-use behaviours may serve as a good predictor of the level of cognitive functioning. Therefore, passive monitoring of computer-use in pre-clinical elderly persons is potentially an effective method for detecting early cognitive change, and thus ensuring timely therapeutic interventions.

A Norwegian twin study of heritability and environmental factors in Alzheimer's disease and other dementias

Astrid Liv Mina Bergem; Nikias Siafarikas; Thomas Nilsen; Per Magnus; Tor Alte Rosness; Bjørn Strand; Henrik Schirmer; Gunn Knutsen; Knut Engedal; Espen Bjertness

Objective: The etiology of Alzheimer's disease (AD) is not completely understood, but the disease is most likely caused by the interaction of genes and environment. Our aim was to estimate heritability and environmental factors of AD and other forms of dementia in the Norwegian population, by the use of the Norwegian Cause of Death Registry (NCDR). Further, to compare the results with former Scandinavian twin studies of living twin pairs (Bergem et al., 1997; Gatz et al., 2006).

Method: The twin method is well suited to evaluate genetic and environmental influences on AD and other dementias. In this historical cohort study The Norwegian Twin Registry was checked against the NCDR for diagnoses of dementia, taken from the death certificate. A total of 9136 twin pairs were identified in the NCDR. Dementia was found in 273 pairs, in which one or both members had AD or other dementias. Probandwise concordance-rate was calculated and heritability estimated by application of the additive genetic, shared and non-shared environmental influence model (ACE). Narrow sense heritability is reported as portion of total phenotypic variance explained by A.

Results: From the total of 273 demented twin pairs, 102 were monozygotic (MZ) and 171 dizygotic (DZ). AD was diagnosed in 79 pairs, and other forms of dementia (non-AD) in 194 pairs. Probandwise concordance-rate for AD was 25% among MZ and 4% among DZ. The ACE model fitting results were 0.73 for additive genetic factors, 0.27 for non-shared environment and 0.0 for common shared environment. Probandwise concordance-rate for non-AD was 3% among MZ and 11% among DZ., with an estimated heritability factor of 0.0.

Conclusions: Our findings support the hypothesis that heritable genetic factors play the major role in the cause of AD. However, environmental factors also play an important role and might reduce or increase the AD risk. Heritability seems to play a negligible role in other dementias, which supports an environmental causation. This is in line with previous twin studies in Scandinavia.

Past, Present and Future of The 10/66 Dementia Research Group

Daisy Acosta

The 10/66 population-based study is a longitudinal study of adults aged 65 and over, living in 11 defined catchment areas in eight low and middle-income countries (China, Cuba, Dominican Republic, India, Mexico, Peru, Puerto Rico, Venezuela). The surveys, which commenced in 2003, use the same cross-culturally validated assessments. This includes measures of cognitive function, mental disorders, physical health, anthropometry, socio-demographics, health and lifestyle risk factors, disability/dependence, health service utilisation, care arrangements, caregiver strain and biological measures. A second follow up was carried out between 2007 and 2010 and a third wave of assessment using an extended form of the basic 10/66 survey will start in 2016. This will be both a new prevalence sweep, with a re-door-knocking of the original catchment areas to generate a new representative prevalence sample of all older adults, and a final follow-up of the original baseline cohort. The original sample consisted of 15901 individuals.

Morbidity in the baseline surveys of the cohort has been described in detail, with publications on the prevalence of dementia, mild cognitive impairment, mental disorder, sleep disorder, hypertension, stroke, anaemia and dependence. More recently, we have been focusing on determinants of longitudinal outcomes, specifically incident dementia, mortality, and dependence.

The data set is openly available and data access forms can be found on our website, together with a full list of findings and publications (http://www.alz.co.uk/1066).

During the presentation, the Main findings from each phase of our study will be discussed.

Role of Apathy in Functional Decline in Alzheimer's Disease

Hillel Grossman; Carolyn Zhu, Mary Sano

Introduction: Apathy may be conceptualized as a distinct syndrome, apparent in many neuropsychiatric conditions and exerting significant burden. Based upon clinical experience with dementia patients, we hypothesized that apathy was common in Alzheimer's disease (AD), distinct from depression, and associated with greater functional impairment.

Methods: Data was derived from the National Alzheimer's Coordinating Center (NACC), which maintains a large relational database of standardized clinical research data from 29 NIA-funded Alzheimer's Disease Centers (ADCs) across the US. AD diagnosis was based on research criteria. Apathy and depression case definition was based upon clinician assessment. Functional impairment was assessed with FAQ and CDR. Multivariate regression models were used to estimate independent effects of apathy and depression on FAQ and CDR sum of boxes (CDRsob), after controlling for demographic characteristics.

Results: At the initial visit, 8,829 subjects with AD were identified, of whom 3,915 (44.4%) were classified as having apathy.

Among individuals with apathy, 49.0% had depression. Among those without apathy, 27.7% had depression. Compared to those without apathy, individuals with apathy were younger (age 74.7±10.1 vs. 75.4±9.7), more likely to be male (47.3% vs. 40.6%), and Hispanic (11.3% vs. 8.8%). Those with apathy also had lower MMSE (18.2±7.2 vs. 20.4±6.1), worse CDRsum of box scores (8.1±4.6 vs. 5.8±3.8), and worse FAQ scores (18.8±8.4 vs. 14.2±8.6, all $p<0.001$). Multivariate results showed that apathy but not depression was associated with worse CDR. Both apathy and depression were associated with worse FAQ but the magnitude of the effect of apathy was substantially larger than depression. There was no interactive effect between apathy and depression on either CDR or FAQ.

Discussion: This analysis shows that apathy is common in AD. It is a distinct phenomenon occurring in the absence of depression at least 50% of the time. Apathy is a disabling condition associated with lower MMSE scores and more functional impairment. There is substantial clinical relevance to these findings: Apathy is often concatenated into depression syndromes fostering a misunderstanding of the patient's condition, inadequate education of caregivers and inappropriate treatment. Apathy may respond to distinct behavioral and pharmacologic interventions.

FC7: Dementia – Mild Cognitive Impairment

Subjective Memory Complaint and Objective Memory Performance: Moderating Effect of Cognitive Impairment

Ah-Rong Lee; Ji-Hye Lee; Soowon Park; Yongjoon Yoo;
Jung-Hae Youn; Seung-Ho Ryu; Jun-Young Lee;
Seong Jin Cho

Objective: Subjective memory complaint (SMC) is included as a diagnosis criteria for mild cognitive impairment (MCI), a prodromal state of dementia (Albert et al., 2011). However, there is an ongoing debate about whether this criterion contributes to the correct diagnosis of MCI or hinders it instead. Furthermore, previous studies have largely been limited to the Western population. This study seeks to investigate the different significances of SMC in normal and MCI elderly Korean population.

Methods: 219 elders (181 normal controls, 38 MCI) were recruited from 9 community-based centers in Seoul. All participants were aged over 59 years and had no current medical disorders. The scores of various neuropsychological assessments were analyzed for the interaction between MCI status (MCI vs. normal control) and SMC presence (SMC+ vs. SMC-) *via* a two-way ANOVA.

Results: Significant interaction effects were found for short-term delayed cued recall test ($F(1,211)=4.45$, $p<.05$) as well as Simple Ray Figure immediate ($F(1,211)=4.20$, $p<.05$) and delayed recall tests($F(1,211)=6.94$, $p<.05$). Also, there were marginally significant interaction effects for long-term delayed free ($F(1,211)=3.84$, $p<.06$) and cued recall tests ($F(1,211)=3.67$, $p<.06$). For these tests, the mean scores of SMC+ group were lower than SMC- group among normal controls; on the other hand, no significant differences were found in MCI group. In MCI group, the mean scores of SMC+ group even tended to be higher than SMC- group (though nonsignificant).

Conclusion: Contrary to normal control group, MCI patients who performed worse in tests did not report more SMC than those who performed competently. This result indicates that the usage of subjective cognitive complaint as a criterion for the diagnosis of MCI in the Korean elderly population may be undesirable. That SMC may hinder rather than helps the diagnosis of MCI implies that there are more MCI patients than those who present themselves to the clinics.

Furthermore, an interaction effect is present only for the verbal and visuospatial memory tests. This suggests that a discriminative approach to the different fields of memory functions is needed. A nationwide attention for establishing a suitable infrastructure of MCI diagnosis is advisable.

The Detection, Diagnosis and Impact of Cognitive Impairment Amongst Over 65s admitted to an Irish University-Affiliated, Tertiary-Referral Hospital

Clodagh Power; Helena Bates; Mike Healy; Elaine Green

Introduction: In line with its ageing population, Ireland's estimated 47,000 people with dementia is estimated to treble in the coming 3 decades. The diagnosis of dementia remains inadequate even in clinical settings despite an established negative impact of on patient outcomes (Sampson, Blanchard et al. 2009, Timmons, Manning et al. 2015). Data on rates and degree of impairment amongst hospital inpatients is vital for strategic planning of services and facilitating appropriate patient care.

Table 1 – Cohort Demographics

Variable	%
Gender	
Male	44.1
Female	55.9
Age, years	
65-69	14
70-79	38.4
80-89	42
>90	5.6
Marital Status	
Married	40.6
Single	11.9
Widowed	39.9
Separated/divorced	7.7
Education	
Primary	58.7
Secondary	34.3
Tertiary	7.0
Lives With	
Alone	37.1
Family/Other	60.2
Nursing Home	2.8
Admitting Team	
Medicine	42.7
Geriatrics	14.0
Surgery	35.7
Haem/Rad/Onc	7.7
Charlson Co-Morbidity Index, mean (SD)	2.21 (2.092)
Final Cognitive Diagnosis	
Normal	51.7
MCI	21.0
Dementia	27.3

Table 1. Power, et al.

Table 2 – Demographics by Group

Factor	**Dementia n=39 n(%)**	**MCI n=30 n(%)**	**Normal n=74 n(%)**	**Test p-value**			
				All Groups	**Dem v MCI**	**Dem v Normal**	**MCI v Normal**
Gender Male Female	 15 (38.4) 24 (61.5)	 16 (53.3) 14 (46.6)	 32 (43.2) 42 (56.7)	 X^2=1.563 0.561	 X^2=0.974 0.324	 X^2=0.084 0.772	 X^2=0.516 0.473
Age, mean (SD)	81.97 (6.72)	76.23 (6.409)	76.97 (7.413)	X^2=14.6 **0.001**	Z=- 1.22 0.22	Z= -3.329 **0.001**	Z= -0.431 0.666
Marital Status Married Single Widowed Separated/divorced	 13 (33) 9 (23.0) 14 (35.8) 3 (7.6)	 13 (43.3) 2 (6.6) 13 (43.3) 2 (6.6)	 32 (43.2) 6 (8.1) 30 (40.5) 6 (8.1)	 X^2=6.685* 0.351	 X^2= 3.579* 0.311	 X^2=5.088* 0.165	 X^2=0.156* 0.984
Education Primary Secondary Tertiary	 28 (71.7) 8 (20.5) 3 (7.6)	 18 (60) 9 (30) 3 (10)	 38 (51.3) 32(43.2) 4 (5.4)	 X=6.562* 0.161	 X^2= 1.077* 0.584	 X^2=5.771* **0.056**	 X^2=1.916 0.384
Lives With Alone Family/Other Nursing home	 15 (38.4) 20 (51.2) 4 (10.2)	 8 (26.6) 22 (73.3) 0 (0)	 30 (40.5) 44 (59.4) 0 (0)	 X^2=13.19* **0.01**	 X^2=5.139* 0.077	 X^2=7.919* **0.019**	 X^2=1.916* 0.384
Harmful Use Alcohol Yes No Former	 4 (10.2) 35 (89.7) 8 (20.5)	 4 (13.3) 26 (86.6) 6 (2)	 15 (20.2) 59 (79.7) 18 (24.3)	 X^2=2.11* 0.348	 X^2=0.00* 0.987	 X^2=1.185 0.276	 X^2=0.302 0.583
Family Hx Dementia Yes No	 7(17.9) 32 (82)	 5 (16) 25 (83)	 16 (21.6) 58 (78.3)	 X^2=0.423 0.809	 X^2=0.00 1.00	 X^2=0.046 0.830	 X^2=0.090 0.764
Admitting Team Medicine MedEl Haem/Rad/Onc Surgery	 24 (61.5) 9 (23) 0 (0) 6 (15.3)	 11 (36.6) 2 (6.6) 3 (10) 14 (46.6)	 26 (35.1) 9 (12.1) 8 (10.8) 31 (41.8)	 X^2=18.59* **0.005**	 X= 14.557* **0.002**	 X^2=15.63* **0.001**	 X^2=0.749* 0.862
Past Psychiatric Hx Yes No	 10 29	 2 28	 15 59	 X^2=4.179 0.124	 X^2=3.031* **0.039**	 X^2=0.173 0.678	 X^2= 1.980 0.159
CCI Mean (SD)	 2.49 (2.037)	 2.43 (2.012)	 1.97 (2.152)	 X^2=3.387 0.184	 Z= -0.081 0.936	 Z= -1.534 0.125	 Z= -1.454 0.146
GDS 4 Mean (SD)	 0.49 (0.731)	 0.50 (0.861)	 0.73 (1.089)	 X^2=0.535 0.765	 Z= -0.471 0.638	 Z= -0.790 0.430	 Z= -0.723 0.470
GAI-SF Mean (SD)	 2.84 (1.965)	 1.43 (1.755)	 1.99 (1.716)	 X^2=11.205 **0.004**	 Z= -3.019 **0.003**	 Z= -1.984 **0.047**	 Z= -1.826 **0.068**
Family Hx Dementia Yes No	 7(17.9) 32 (82)	 5 (16) 25 (83)	 16 (21.6) 58 (78.3)	 X^2=0.423 0.809	 X^2=0.00 1.00	 X^2=0.046 0.830	 X^2=0.090 0.764

Table 2. Power, et al.

Objectives: To examine the prevalence of dementia, mild cognitive impairment (MCI) and normal cognition amongst patients aged 65 and older in an acute general hospital. To delineate the characteristics of the 3 cohorts, investigate the rates of previous detection and assess their outcomes at 6 and 12 months.

Methods: This was a prospective, observational study. Every patient aged over 65 admitted over a 2 week period was invited to participate. Those who met the inclusion criteria were screened for delirium then underwent a cognitive screening battery. Demographic, functional and outcome data were obtained from medical records, participants and family.

Results: Complete data for 143 patients was obtained. The mean age was 78.1 years. 55.9% were female. 58.7% had primary education only. 48% showed evidence of cognitive impairment of whom 27.3% met the DSM-4 criteria for dementia and 21% met criteria for MCI. Only 41% of those with dementia and 10% of those with MCI had a previously-documented impairment. Between group analysis showed significant differences in length of stay (p=0.003), number of readmissions in 12 months (p=0.036) and likelihood of returning home (p=0.039) between the dementia and normal groups. The MCI group behaved similarly to the normal group in terms of outcomes. No difference was seen between groups for 1 year mortality. Effects of cognition on outcomes were less pronounced on multivariate analysis. The impact of cognition remained significant for length of stay only, with the strongest contribution of all analysed variables (p=0.004).

Conclusions: Cognitive impairment is pervasive and under-recognised in the acute hospital and impacts negatively on patient outcomes.

Table 3 – Outcomes by Group

Factor	**Dementia n=39 n (%)**	**MCI n=30 n(%)**	**Normal Cog n=74 n(%)**	**Test p-value**			
				All	Dem v MCI	Dem v Normal	MCI V Normal
Length of Stay, mean (SD)	32.15 (33.5)	18.2 (15.2)	17.0 (21.2)	X^2=9.208 **0.010**	Z=-2.034 **0.042**	Z=-2.990 **0.003**	Z=-0.409 0.683
No. of readmissions in: (excluding deceased)							
6 months, mean (SD)	0.82 (1.1)	0.73 (.94)	0.58 (.99)	X^2=1.954 0.376	Z= -0.613 0.054	Z= -1.699 0.089	Z= -0.967 0.333
12 months, mean (SD)	1.21 (1.5)	0.87 (1.2)	0.84 (1.3)	X^2=2.406 0.30	Z= -1.543 0.123	Z= -2.100 **0.036**	Z= -0.168 0.867
Discharge Destination (excluding deceased)							
Home	24/34 (70.5)	27/30 (90)	64/72 (88.8)	X^2=6.797*	X^2=2.608	X^2=4.265	X^2=0.0
Other	10/34 (29.4)	3 (10)	8 (11.1)	**0.033**	**0.054**	**0.039**	1.000
RIP at 12 months							
Yes	15/39 (38.4)	6/30 (20)	18/74 (24.3)	X^2=3.586	X^2=1.927	X^2=1.832	X^2=0.047
No	24/39 (61.5)	24/30 (80)	56/74 (75.6)	0.166	0.165	0.176	0.828

Table 3. Power, et al.

History of Traumatic Brain Injury and APOE are Uniquely Associated with Cognitive Impairment and Dementia in the Aging, Demographics, and Memory Study (ADAMS)

Nicholas Bott; Nathan Hantke; Victoria Liou-Johnson; Sherry A. Beaudreau

Objective: Recent studies have shown that history of traumatic brain injury (TBI) and *APOE* genotype are each associated with increased risk of dementia (Lawrence et al, 2015). However, the extent to which both a history of TBI and *APOE* genotype are implicated in the risk of cognitive impairment without dementia is unknown (LoBue et al, 2016). In this study we investigated the relationship between history of TBI, *APOE* genotype, and a diagnosis of dementia or cognitive impairment no dementia (CIND) in a population-weighted sample from the U.S.

Method: We conducted analyses using cross-sectional data from the ADAMS supplement to the Health and Retirement Study (2007). In a sample of older adults categorized as having normal cognition (n=307), CIND (n=241), or dementia (n=308), we identified 122 with a self-reported history of TBI (normal cognition N=60; CIND N=41; dementia N=21). A multinomial logistic regression was constructed with demographics (age, gender, education, ethnicity/race), depressive symptoms on the Neuropsychiatric Inventory, history of stroke (yes/no), informant-reported history of TBI (yes/no), and presence of the *APOE* ε4 allele as predictors of cognitive status. The reference group was normal cognitive status.

Results: Mean age of TBI participants (N=122) was 78.9 years. After controlling for covariates, history of TBI was associated with 2.3 times increased risk of CIND (CI=1.12 to 4.74), but not dementia. *APOE* ε4 allele presence was associated with 2.90 times increased risk of dementia (CI=1.59 to 5.27), but not CIND. Only CIND (N=6) and dementia (N=7) groups reported a history of multiple TBIs. CIND participants reporting multiple TBIs were younger than those reporting a single TBI (p=.024). Interaction of TBI and presence of *APOE* ε4 allele was not associated with increased risk of dementia or CIND.

Conclusion(s): These results suggest that TBI history is a unique predictor of CIND that does not interact with *APOE* genotype; *APOE* ε4 allele is a unique predictor that does not interact with TBI history in its association with dementia. Findings further suggest that TBI history and frequency could be useful in identifying older adults at risk for cognitive impairment, including CIND, and should be examined in prospective studies.

The Neuropsychological Profile of Remote Traumatic Brain Injury in Older Veterans

Allison Kaup; Carrie Peltz; Kimbra Kenney; Joel Kramer; Ramon Diaz Arrastia; Kristine Yaffe

Objective: Traumatic brain injury (TBI) has been identified as a risk factor for dementia (Barnes et al., 2014; Plassman and Grafman, 2015; Plassman et al., 2000). It remains unclear what type of dementia process may result among older adults with past TBI. We aimed to characterize the neuropsychological profile of remote TBI in older adults in order to increase understanding of how remote TBI may impact cognition in aging.

Methods: Participants were 169older Veterans [mean age = 79.1 (range 51-97), 89% male, 92% Caucasian], 88with remote TBI and 81without TBI, living in one of two Veterans' retirement homes in independent residence. TBI history was ascertained with the Ohio State TBI Identification Method structured interview. Cognition was assessed with neuropsychological tests; Raw scores were converted to z-scores compared to demographically-corrected normative data and combined into domain composite z-scores (Attention/Working Memory, Learning/Memory, Language, Processing Speed, and Executive Functioning). We investigated the association between TBI and performance in each cognitive domain in regression models (unadjusted and adjusted for site, demographics, and medical and psychiatric variables that differed between groups).

Results: Compared to those without TBI, older Veterans with TBI had greater deficits in Processing Speed (β= -.19, p= .03 in adjusted model) and Executive Functioning(β= -.17, p= .05 in adjusted model)but no differences in other cognitive domains(all p > .05).TBI-associated deficits were most prominent among individuals with multiple mild TBIs and those with any moderate-to-severe TBI(adjusted model for Processing Speed: No TBI = ref, Single Mild TBI β= -.06, Multiple Mild TBIs β= -.19, any Moderate-to-Severe TBI β= -.16, p-trend =.04; adjusted model for Executive Functioning: No TBI = ref, Single Mild TBI β= -.07, Multiple Mild TBIs β= -.14, any Moderate-to-Severe TBI β= -.18, p-trend =.047).

Conclusions: The neuropsychological profile of remote TBI among older Veterans is characterized by slowed processing speed and executive dysfunction, but not memory or language impairment. This pattern may reflect long-standing deficits or a TBI-associated cognitive decline process distinct from Alzheimer's disease.

The operationalization of mild cognitive impairment for dementia prediction: less is more

Henry Brodaty; Liesbeth Aerts; John Crawford; Megan Heffernan; Nicole Kochan; Simone Reppermund; Kristan Kang; Kate Maston; Brian Draper; Julian Trollor; Perminder Sachdev

Objective: There is no standard operationalisation for the different aspects of the diagnosis of mild cognitive impairment (MCI), which includes subjective cognitive decline (SCD) and objective cognitive impairment (OCI) in the absence of significant functional impairment (FI). We aimed to determine which operationalisation results in the most accurate prediction of dementia.

Methods: We analysed the prevalence and 6-year dementia conversion rates for 7 different operationalisations of SCD and 8 of OCI, as well as for the resulting 56 MCI algorithms, in 618 dementia-free adults between 70 and 90 years of age, as part of an ongoing population-based study, the Sydney Memory and Ageing Study. In addition, we evaluated the added value of mild FI for dementia prediction, based on 9 different operationalisations of mild FI, insufficient to warrant a diagnosis of dementia. All operationalisations are listed in the Table.

Table: Different operationalisations of diagnostic criteria for MCI

			Test	Cut-off
Subjective cognitive decline (SCD)		Participant complaints		
	1	Memory-specific	MACQ	≥ 25
	2	General: Mild	Custom questionnaire	≥ 2.4
	3	Severe		≥ 2.5
		Informant complaints		
	4	Memory-specific	IQCODE (subset)	≥ 3.3
	5	General: Mild	IQCODE	≥ 3.3
	6	Severe		≥ 3.5
	7	Corroborated complaints	MACQ + IQCODE	≥ 25 and ≥ 3.3

Objective cognitive impairment (OCI)	1	Minor impairment (baseline)	12-test battery:
			- Digit symbol-coding
			- Trail making test A
			- Logical memory delayed recall
			- Rey auditory verbal learning
			  - total learning
			  - short-term delayed recall trial 6
			  - short-term delayed recall trial 7
			- Benton visual retention test
			- Boston naming test
			- Semantic fluency
			- Block design
			- Controlled oral word association
			- Trail making test B
				≤ 1 SD in 1 test

	2			≤ 1 SD in 2 tests of the same domain
	3	Major impairment (baseline)		≤ 1.5 SD in 1 test
	4			≤ 1.5 SD in 2 tests of the same domain
	5	Minor decline (at 2-year follow-up)		≤ 1 SD in 1 test
	6			≤ 1 SD in 2 tests of the same domain
	7	Major decline (at 2-year follow-up)		≤ 1.5 SD in 1 test
	8			≤ 1.5 SD in 2 tests of the same domain
Mild functional impairment (FI)	1	General mild FI	Bayer-ADL	≥ 1.5
	2			≥ 2.0
	3			≥ 2.5
	4	Mild FI on activities with a high cognitive demand	Bayer-ADL (subset)	≥ 1.5
	5			≥ 2.0
	6			≥ 2.5
	7	Mild FI on activities with a low cognitive demand	Bayer-ADL (subset)	≥ 1.5
	8			≥ 2.0
	9			≥ 2.5

Table 1. Brodaty, et al.

Results: Across the different algorithms, MCI prevalence varied between 0.4 and 30.2% and dementia conversion rates between 15.9 and 61.9%. The dementia prediction accuracy was poor to moderate for all of the evaluated operationalisations. None of the 56 MCI algorithms performed better than the accuracy obtained based on the best-performing OCI operationalisation alone, defined based on a performance <1 SD in 2 different neuropsychological tests for the same cognitive domain (AUC=0.72 and OR=6.6 (95% CI: 4.0–11.0)). Different SCD and mild-FI measures were poor predictors of 6-year dementia prediction and did not improve accuracy when combined with OCI.
Conclusion: At the population level, dementia progression is not more accurately predicted by MCI than based on OCI alone. Although MCI prevalence and dementia conversion rates varied widely across different operationalisation algorithms, the overall dementia prediction accuracy was limited. Better tools, including biomarkers, are needed to complement clinical measures in the population-based assessment and identification of individuals at increased risk of developing dementia.

Measuring computer use behaviours to detect cognitive and functional impairment in early dementia

Gemma Stringer; Samuel Couth; Laura Brown; Daniela Montaldi; Ann Geldson; Joseph Mellor; Iracema Leroi

Objective: The diagnosis of dementia depends, in part, on an accurate assessment of functional ability. However, clinical rating scales may lack the sensitivity and objectivity necessary to support the accurate and early detection of cognitive and functional decline. An alternative is to assess performance on daily tasks. One such task is daily computer use, which is rapidly growing amongst the elderly, and can be measured objectively and unobtrusively. Measuring computer-use behaviours therefore presents a potential pragmatic opportunity to detect functional decline in at-risk individuals. The aim of this study was therefore to determine whether performance on daily computer use tasks can: (1) reflect levels of subjective ratings of functional ability; and (2) be used to distinguish between people with mild cognitive impairment (MCI) or mild Alzheimer's disease (AD) and healthy cognition.
Method: Participants with MCI or mild AD (n=19) and healthy control participants (n=24) each completed a battery of neuropsychological, functional and neuropsychiatric assessments and a series of semi-directed computer tasks, including desktop navigation, email management, word processing and internet searching.
Results: The total time needed to complete the computer tasks was significantly correlated with subjective ratings of cognitive and functional capacity, and also differed significantly between the MCI/mild AD group and the healthy controls. Specific computer use behaviours (average number of drags, key strokes, pauses and average time participants held down keys) were also significantly related to subjective ratings of function and cognition. Total time to complete computer tasks predicted subjective ratings of change in memory and age.
Conclusion: Performance on computer tasks in elderly participants can distinguish between those with and without cognitive impairment and is associated with subjective ratings of cognitive and functional decline. This demonstrates the potential for daily computer use as a performance-based measure of functional ability.

FC8: Dementia – Young Onset

What is the contribution of potentially modifiable environmental and lifestyle risk factors to young onset dementia? Preliminary results from the INSPIRED study

Monica Cations; Adrienne Whithall; Fiona White; Julian Trollor; Clement Loy; Henry Brodaty; Perminder Sachdev; Peter Gonski; Apo Demirkol; Robert Cumming; Lee-Fay Low; Brian Draper

Introduction: There is some misconception that young onset dementia (YOD) is predominantly caused by autosomal-dominant factors, though these account for less than 20% of cases. The aim of this study is to gather detailed data regarding exposure to potentially modifiable environmental and lifestyle risk factors, and assess associated risk for primary degenerative and vascular YOD.

Method: Participants with YOD were recruited via relevant health care professionals or were self-referred, and their dementia diagnosis was confirmed by clinical consensus. Pair-matched control participants were recruited via GP clinics and matched by geographical location, sex and five-year age group. Exposure data were collected using surveys and structured interviews with the participant and/or an informant. Family history of dementia was entered as a covariate.

Results: To date, 122 control participants and 77 people with YOD were included. Case aetiology included Alzheimer's disease (n=50), frontotemporal dementia (n =14), vascular/mixed dementia (n=9), Lewy Body disease (n=2) and unspecified degenerative dementia (n=2). Risk for YOD was significantly associated with stroke (OR=7.47, 95%CI:2.4-23.4), low education (OR=4.8, 95%CI:2.1-11.0), smoking (OR=2.23, 95%CI:1.3-4.1), and early or midlife depression (OR=2.04, 95%CI:1.2-3.8). Analyses were repeated for AD alone, and all effects aside from depression (OR=1.7, 95%CI:0.9-3.3) were attenuated but retained significance. Risk for YOD was not associated with cardiovascular risk factors commonly reported in studies of older people, such as hypertension, hypercholesterolemia and type II diabetes (all ns).

Conclusion: Potentially modifiable environmental and lifestyle risk factors such as low education and smoking as well as clinical conditions such as depression and stroke are associated with increased risk for YOD. The effect of cardiovascular risk factors in YOD warrants further investigation. It is possible that they are not relevant to YOD, or require more years of cumulative exposure to confer risk.

Why aren't people with young onset dementia and their caregivers using formal services?

Monica Cations; Adrienne Whithall; Fiona White; Julian Trollor; Clement Loy; Henry Brodaty; Perminder Sachdev; Peter Gonski; Apo Demirkol; Robert Cumming; Lee-Fay Low; Brian Draper

Introduction: Despite reporting high levels of burden, caregivers of people with young onset dementia (YOD) underuse formal services. Previous quantitative studies in YOD demonstrated that service use is only tenuously associated with dementia specific factors, such as severe functional impairment. These studies are of limited utility in guiding service design because they did not consider important contextual barriers to service use.

Method: 93 people with YOD (mean onset age 55.1yrs) and/or primary caregivers reported knowledge and use of a list of services, and reasons for non-use. Current dementia severity, functional impairment, behavioural and psychological symptoms of dementia (BPSD), caregiver burden, social network, and informal care provision were assessed, excluding 16 participants no longer cared for by a family caregiver.

Results: Although at least one service was recommended to most participants (96.8%), 66.7% chose not to use one or more of these. Non-use was not related to any dementia or caregiver factors, including age, sex, severity of impairment, functional disability or BPSD, caregiver burden, social network, or required informal care. Nearly a quarter (24.7%) of caregivers reported that a service was not needed, but this did not mirror the objective need for support indicated by burden, informal care requirements, dementia severity or BPSD. Barriers to use were otherwise service-related, particularly the lack of services specific to YOD patients (x^2=23.3, p<.001). Caregivers reported that services would not cater for younger people or that the person with YOD refused as they did not want to participate with older people. Availability and affordability were also strongly related to service use (x^2=15.3, p<.001), with inflexible services failing to consider that many caregivers work full-time and also provide care to parents and children.

Implications: People with YOD and their caregivers avoid formal service use because they feel able or willing to provide care themselves, and/or that existing services do not cater to their specific needs. Policy makers and service designers must allow for flexible delivery tailored to the complex needs of the person with YOD and their family. Support should be specialised and complement, rather than replace, informal care that family carers are willing to provide.

The course of cognitive functioning and dementia severity in Young-Onset dementia

Adrie Gerritsen; Christian Bakker; Frans Verhey; Marjolein De Vugt; Raymond Koopmans

Objectives: The progression of dementia in people with young-onset dementia (YOD) is relatively unkown. Furthermore, it is uncertain which factors contribute to this decline. Aim of this study was to investigate the course of cognitive functioning and dementia severity in the three most occuring YOD patient groups, and to investigate which factors are associated with this course.

Methods: The course of dementia in 198 participants from the Needs in Young-onset Dementia study (van Vliet et al, 2010) with YO-Alzheimer Dementia (AD), YO-Vascular Dementia (VaD) or YO-Fronto Temporal Dementia (FTD) was studied. In a mixed models analysis, the relationship between diagnosis, use of antipsychotics, disease duration, education and neuropsychiatric symptoms, and the course of cognitive functioning, assessed with the Mini Mental State Examination (MMSE), as well as dementia severity, assessed with the Global Deterioration rating Scale (GDS), was explored.

Results: Preliminary results show that cognitive decline in people with YOD is more progressive in YO-AD compared to YO-VaD or YO-FTD. Next to lower education also higher scores on the subsyndromes psychosis and hyperactivity of the Neuropsychiatric Inventory (NPI) were associated with higher rates of cognitive decline. In contrast, higher scores on the NPI affect sub-syndrome were associated with lower levels of cognitive decline. A more advanced age at time of inclusion was associated with a less progressive course of the dementia. Furthermore, antipsychotic use in this study was not associated with higher decline rates.

Conclusion: Different diagnosis groups in YOD show different rates of decline in cognition, and this decline seems less progressive than was found in studies (Han et al., 2000; Schmidt et al., 2011) about decline in late onset AD. Managing neuropsychiatric behaviour maybe can influence cognitive decline.

HIV associated neurocognitive disorders and relation to CD4 count among patients at Mildmay Uganda

Noeline Nakasujja; Harriet Chemusto; Yvonne Karamagi; Mary Odiit; Dan Kajungu; Charity Kyomugisha-Nawagaba; Barbara Mukasa; Seggane Musisi; Christina Lindan

Objective: HIV associated neurocognitive disorders (HAND) are a common manifestation of HIV disease progression, even in patients who are on long term antiretroviral treatment (ART). We evaluated the prevalence and predictors of HAND among HIV infected adults attending a care and treatment clinic at Mildmay Uganda.

Methods: We enrolled 211 HIV sero-positive adults into three strata based on CD4 count and ART eligibility: 71 had a CD4 < = 500cells/ µL but not yet initiated on ART; 70 had a CD4 > 500cells/ µL and not eligible for ART based on national guidelines; and 70 individuals were stable on ART for at least one year. Patients completed a questionnaire on socio-demographics, medical history, Centre for Epidemiologic Studies Depression Scale (CES-D), problem drinking was determined by the CAGE. HAND was evaluated through administration of the Uganda neuropsychiatric battery. Frascati criteria were used to determine HAND staging (normal, asymptomatic neurocognitive impairment [ANI], mild neurocognitive disorder [MND] and HIV-associated dementia [HAD]). Chi square tests of association as well as 95% confidence interval (CI) were used for statistical inference.

Results: The mean age was 37 years; 67% were women, and most (83%) had 7-12 years of education. Half (54%) were married or cohabiting. Memory problems were self-reported in 56 persons (26.5%). Among those on ART, the common regimens were Zidovudine/ Lamivudine/ Nevirapine (29%), and Tenofovir/ Lamivudine / Efavirenz (42%). Viral load was undetectable in 58 (82%) of participants on ART. Problem drinking was present in 11 (5%) while a CESD score >16 was present in 74(35%) of the participants. MND occurred in 81(38%) while HAD was in 21(10%); there was no difference in prevalence of HAND overall or by type, among the three strata. Independent predictors of any category of HAND included increasing age (OR 1.04; 95% CI 1.01- 1.07, p<0.01), female gender (OR 1.7, 95% CI 0.85-3.31 p=0.07), being separated (OR 4.1 95% CI 1.3-14 p< 0.01) referent- single.

Conclusion: HAND was highly prevalent in all categories of patients. Interventions targeting rehabilitation for cognitive decline need to be put in place to reduce the impact of neurocognitive deficits in this population.

Assessing dementia risk in general practice: a qualitative study of the attitudes and views of members of the public

Lisa Newton; Claire Dickinson; Louise Robinson

Objectives: A number of initiatives have been developed to promote "timely diagnosis" of dementia in primary care in the United Kingdom including identifying people at risk (case finding) and providing them with information about risk reduction. We do not know what the general public think of such initiatives. This presentation discusses results from a qualitative research study exploring public views of case finding and tools to assess dementia risk in primary care.

Methods: Three focus groups with member of the public were undertaken in northern England (n=17). A further two focus groups are planned. Pre and post focus group questionnaires were used to assess knowledge of dementia and attitudes towards risk reduction. During the group discussions information about dementia and approaches to timely diagnosis were presented and explored to elicit a diverse range of views. The focus group discussions were audio recorded, transcribed and subjected to thematic analysis.

Results: Emerging themes included: limitations of case finding, objective measures of risk versus self-reporting questionnaires and the need for information on risk. Participants identified limitations to case finding such as people not answering truthfully when asked whether they have noticed a problem with their memory or attributing memory problems to old age, people not attending their surgery or the risk of over diagnosis. Many participants reported a preference for objective measurements of risk, such as genetic testing or something a doctor could measure, rather than self-reported questionnaires. Participants had mixed views on dementia risk; if identified as high risk some stated they would be motivated to change while others felt they would not change their lifestyle. Participants called for more education on risk reduction and clear explanation of their personal risk.

Conclusion: It is envisaged the results of this study should inform the development of new approaches to "timely diagnosis" of dementia and risk reduction. Future research should focus on acceptable methods of identifying people at risk and education on initiating and maintaining behaviour change.

Can be hypothyroidism considered reversible dementia?

Sarah Calixto; Daniela Locatelli; Marcos Martinelli; Jose Martinelli

Introduction: Abnormal concentrations of thyroid hormones are considered also developing dementia risk factors. In elderly patients, hypothyroidism is listed invariably as a possible potentially reversible causes of dementia.

Objective: To evaluate cognitively elderly patients TSH> 80µUI/ml.

Methods: We evaluated 26 patients of both sexes and aged over 60 years. The participants underwent detailed clinical history, laboratory tests and neuropsychologic evaluation. The following tests were used: Mini-Mental State Examination (MMSE) and the Cambridge Cognitive Examination (CAMCOG).

Results: Average age of the subjects was equal to 77.65 years (standard deviation [SD] = 8.19), 65.3 (n = 17) participants were male and 73.08% (n = 19) with schooling between 1 to 4 years. Mean TSH was equal to 125.57 (SD = 51.02) of the total sample; among women the average was 109.89 (SD = 41.47) and among men was 132.95 (SD = 54.51). The value of T4L total sample was equal to 0.56 (sd = 0:55); among women was equal to 0.38 (sd = 0:13) and among men equal to 0.63 (SD = 0.65). The total average MMSE was equal to 22 points (SD = 4.98) and CAMCOG equal to 77 points (SD = 18.74). 92.30% (n = 24) had a comorbidity such as bronchial asthma, heart failure, diabetes or hypertension, whilst only 7.7% (n = 2) showed no comorbidity. 26.92 (n = 7) were used amiodarone.

Conclusion: It can be concluded that the lowering of thyroid hormones in the brain aging process, trigger cognitive changes that resemble Alzheimer's disease. Nine elderly patients had no cognitive impairment at diagnosis of hypothyroidism and not following for 5 years. All patients showed improvement of clinical symptoms with treatment.

FC9: Late-life Neuropsychiatric Disorders 1

Improving Diagnostics Beyond the DSM-5: a Proof-of-Principle Study Using Personalized Feedback on Daily Dynamics of Psychopathology

Date Van Der Veen; Renske Kroeze; Harriette Riese; Michelle Servaas; Jojanneke Bastiaansen; Richard Oude Voshaar; Denny Borsboom; Henricus Ruhe; Robert Schoevers

Objective: As there is high co-morbidity of mental disorders and high heterogeneity within categories (Wardenaar & de Jonge, 2013), pathology of individual patients is often not adequately captured by the diagnostic categories of the DSM-5. This heterogeneity increases with age (Wolitzky-Taylor *et al*., 2010) and could explain the lower effectiveness of treatment of affective disorders in geriatric patients (Gould *et al*., 2012a; 2012b). This proof-of-principle study concerns a 67-year-old female patient initially suffering from treatment-resistant mixed symptoms of anxiety and depression. To gain insight in the complex symptom dynamics, ecological momentary assessments (EMA) were combined with statistical network analysis (Borsboom & Cramer, 2013). We investigated whether a personalized network based on the interrelationship between fluctuations in affect, somatic and context variables could i. be achieved and ii. be useful as a form of case conceptualisation, and iii. help to provide useful personalized insight in symptom dynamics for intervention selection.

Methods: The patient filled out items on her smartphone for two weeks, five times a day. Items were used for modeling and visualization of the variables (nodes) and the connections between these nodes in network graphs using the R-package Qgraph (Epskamp *et al*., 2012).

Results: Graphs were explained to the patient and her husband by her clinician and the researcher. The EMA data confirmed a circadian pattern of complaints (figure 1). Network graphs (figure 2 and 3) were used as case conceptualisation and explained that feeling relaxed seemed to drive physical activity, causing physical discomfort in the following hours and experiencing stress about these physical symptoms. The patient recognized the graphical network dynamics. This increased her insight that tension, expressed as (feared) somatic anxiety symptoms, played a central role. This started a dialogue on how to cope with tension itself and persuaded the patient to try interoceptive exposure, an intervention which she had rejected up until then.

Conclusion: This innovative approach provided better insight in the patient's complex symptom dynamics and invoked a successful change in treatment strategy. Personalized diagnosis of psychopathology incorporating daily mental health dynamics is a promising addition to current categorical diagnostic systems that merits further exploration.

Figure 1. Graphical representation of daily fluctuations in affect averaged across the 14-day period collapsed over a 1-day period. The dots represent each of the 14 individual measurements and the black line the average affect rating at each of the five daily assessments.

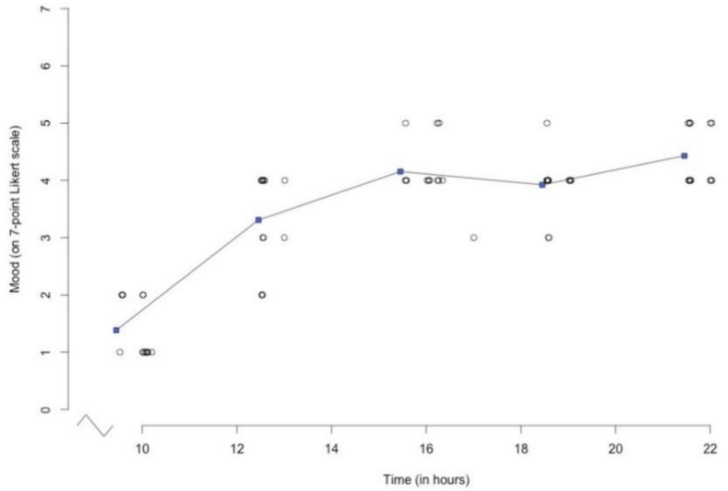


Figure 1. Van Der Veen, et al.

Figure 2. Contemporaneous associations

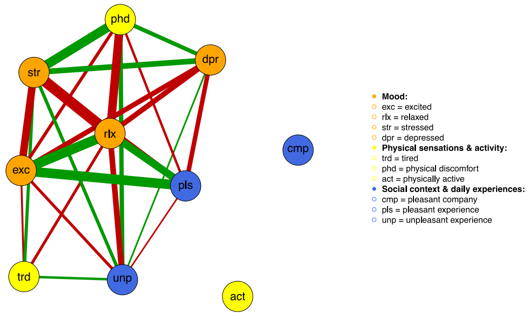
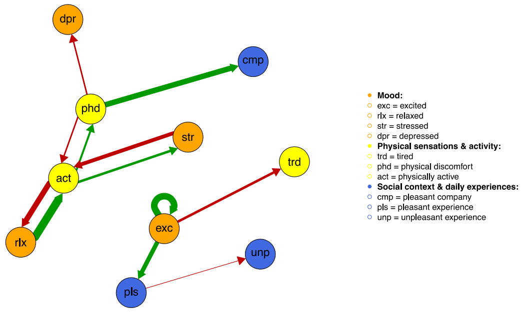


Figure 3. Temporal, 3-hour time lag associations



Network of contemporaneous (figure 2) and temporal (across 3-hour time lag; figure 3) associations of nodes. The color of the nodes represents variable categories: orange for affect, yellow for somatic, and blue for context. The colors of the lines represent either a positive (green) or negative (red) connection between two nodes. The thickness of the lines represent the weight of the connection: the thicker the line, the stronger the association.

For example this shows: feeling relaxed seems to drive physical activity, causing physical discomfort in the following hours and experiencing stress about these physical symptoms. When experiencing physical discomfort, the company of people three hours later is evaluated positively. This could indicate safety behaviors and if so should be incorporated in the exposure interventions.

Figures 2-3. Van Der Veen, et al.

Anxiety in late-life depression: results of a longitudinal cohort study

<u>Date Van Der Veen</u>; Hannie Comijs; Robert Schoevers; Willeke Van Zelst; Richard Oude Voshaar

Objective: Anxiety in depression is associated with more impairment and a worse prognosis, concerning treatment response. Based on our cross-sectional study (van der Veen *et al.*, submitted) showing an interaction between live-events and personality traits on the explanation of variance in anxiety levels, we expect a worse course of anxiety among depressed patients with high neuroticism who experience life-events during follow-up.

Methods: Data were used from the Netherlands Study of Depression in Older persons (NESDO), including 359 older patients with a major depressive disorder at baseline. Major depressive disorder (MDD) and comorbid anxiety disorders (ANXD) were assessed according to DSM-IV-TR criteria using the Composite International Diagnostic Interview (CIDI). Severity of the depressive symptoms and anxiety symptoms was obtained from 6-monthly postal questionnaires including the Inventory of Depressive Symptoms (IDS) and Beck Anxiety Inventory (BAI), as well as the Burgha list of threatening (recent) life events.

Information about socio-demographic, clinical and personality variables (NEO-FFI) was obtained from the baseline measurement.

Results: Two-year follow-up data were available for 270 (75%) older adults, of which 103 (38.2%) suffered from one or more comorbid ANXDs. At follow-up, 122 (4.6%) persons achieved full remission, 15 (6.0%) suffered from an ANXD only, 74 (29.5%) from a MDD only, and finally 40 (15.9%) from both a MDD and ANXD. Multinomial logistic regression, adjusted for potential confounders, and with full remission as the reference category show that the interaction of life-events and neuroticism is significantly associated with whether or not the patient had an anxiety disorder at follow-up or a non-remitted depression with a comorbid anxiety disorder, but not a pure depression. Repeated Measures ANCOVA showed that this same interaction between life events and neuroticism predicts a less favorable course of anxiety symptoms (BAI) over time

Conclusion: Our results could implicate that in the face of a life-event, maladaptive personality traits and dysfunctional coping may play a central role in increased anxiety levels in late-life depression. Examination of the personality profile of depressed older persons might be more relevant during a depressed state than previously thought and may stress the importance of improving existing or learning new coping strategies.

Autism in the elderly: Towards appropriate care

Shabbir Amanullah

Introduction: Autism was first reported by Leo Kanner in 1943 and despite many years of research, it is only beginning to be recognized that it continues into old age. The presentation of ADHD is varied but has certain core features in children.

Hyperactivity, Attention deficit are predominant. In autism, social reciprocity, communication amongst others, are key. However, many a times they are comorbid conditions.

As one grows older, attention deficit persists while hyperactivity comes down. The persistence of hyperactivity impacts the individuals' ability to hold down a job, maintain relationships and stay in marriage amongst a number of other areas. In autistic individuals', as they get older, many of these traits remain, if there are comorbid, but some may get more intense. These may include social isolation and sensitivity to change but are not limited to them.

If such individuals develop dementia, the likelihood of the coarsening of many baseline features may increase, placing the burden of care on family or and staff. If there is no awareness of the underlying condition, use of psychopharmacological agents becomes the mainstay along with the use of restraints and this can seriously compromise the care of such individuals.

It is crucial that one understands how to recognize the features of autism and possible comorbid ADHD in the elderly. There is increasing research in the area looking into various neural patterns and increased awareness is critical to both good clinical care and research.

Clinical and Cognitive Outcome, Course of Late Onset Depression – A Study from Geriatric Services of a Tertiary Care Center in India

Sridatta Rajur; Mathew Varghese; Sivakumar Thangaraju; Keshav Kumar

Introduction: Literature on outcome studies of Late Onset depression(LOD) are inconsistent and long term follow up over LOD is lacking from India.

Aims and Objective: To study the course, outcome in LOD and to compare the cognitive performance between patients with LOD and healthy controls

Methodology: Study design was a naturalistic follow-up study. 210 case files of LOD between 2007 & 2012 were reviewed. Physical follow-up was done for fifty patients. Depression was assessed using GDS and MADRS, follow up data using Longitudinal Interval Follow up Evaluation (LIFE) and Cognitive functions using HMSE, Neuropsychological Battery for Indian Elderly which was compared with matched healthy controls.

Results: Among 210 file review 22.4% cases dropped out after initial visit. Among 79 cases where follow up information was available 3 cases converted into BPAD,1 had MCI & 1 of them was converted to Dementia who was missing. 33 were still symptomatic,5 patients attained partial remission, 40 attained complete remission.

Among 50 where in person evaluation was done, only 28% of patients had regular follow up and 66% had attained remission from index episode out of which 54% had at least one relapse at follow up. Subjects in LOD group had significantly inferior performance in Wordlist{IR($p<0.001$),DR($p<0.001$)}, Design{Construction($p=0.013$),IR($p=0.040$), DR($p=0.014$)}, DigitSpan{Forward($p=0.014$), Reverse(p0.012)}, CorsiSpan{Forward($p=0.011$), Reverse($p=0.039$)}, Verbal fluency total($p=0.010$) and Total time for Tower of Hanoi($p=0.009$). However, remitted LOD patients performed better in Executive functions & memory.

Conclusion: Patients with LOD appear to have poorer outcome with fewer remission rates, longer duration to achieve remission, high probability of relapse and poorer performance in cognitive functions.

Common mental disorders and mortality among older adults living in low and middle income countries: a 10/66 study

Matthew Prina; Carolina Kralj; Mariella Guerra; Daisy Acosta; Cleusa Ferri; Martin Prince

Objective: Although some previous studies have reported increased mortality among individuals with depression or anxiety, it is not clear whether co-morbidity between the two disorders result in even higher risk of death. We investigated the relationship between anxiety, depression and mortality in a sample of older adults living in eight low and middle income countries. We also examined whether co-morbid anxiety/depression was associated with a higher risk compared to having either disorder alone.

Methods: Surveys of adults aged 65 and over living in 11 catchment areas across eight countries (China, Cuba, Dominican Republic, Mexico, Peru, Puerto Rico and Venezuela) were carried out by the 10/66 Dementia Research Group. A full follow-up was carried out 3 to 5 years after the baseline and included a mortality assessment. The same standardised methods and measures were used across sites. Anxiety was measured using the Geriatric Mental State (GMS) examination and its computerised algorithm (AGECAT) for both cases and sub-threshold cases. Depression was determined using ICD criteria for cases, and EURO-D not meeting ICD-10 criteria for sub-threshold cases. Kaplan-Meier survival curves and Cox Regression models were used to investigate the hazard of mortality in older adults with anxiety, depression and co-morbidity. Analyses were adjusted for age, gender, education, number of physical impairments, 10/66 dementia, number of assets, and food insecurity.

Results: Participants with depression or anxiety had higher hazards of deaths, compared to people without depression (pooled estimate HR=1.34, 95% CI: 1.13-1.58), or anxiety (HR=1.31, 95% CI=1.10-1.56), after full adjustment, which also included the other mental disorder. Participants with sub-threshold anxiety were also at increased risk of mortality (HR=1.25, 95% CI: 1.15-1.38), but this was not found in people with sub-threshold depression alone. Kaplan-Meier curves showed that participants with co-morbid depression and anxiety had a higher risk than those with either disorder alone, but this was not immediately apparent in the Cox regression models after full adjustment was taken into account.

Discussion: Anxiety and depression were associated with increased mortality, but it was not clear whether co-morbid disorder was associated with an additional increased risk of death in our sample.

Cognitive Outcomes in Ageing Cannibis User

Adrienne Withall; Nicholas Lintzeris; Lauren Monds; Brian Draper; Nicole Ridley; Raimundo Bruno; David Allsop

Objective: Cannabis use is increasing among older people, due to persistent use in the ageing 'baby boomers' and increasing medicinal use. Whilst heavy adolescent cannabis use can be associated with persistent cognitive impairment, remarkably little is known regarding its effects in older individuals. Recent preclinical findings suggest that cannabinoids can actually delay neurodegeneration, and there is increasing interest in cannabinoids as possible treatments for various neurodegenerative disorders, including dementia.

Methods: Published scientific studies were systematically reviewed. Pilot data on cognition in older cannabis users was also collected.

Results: Remarkably, given the increasing use of cannabis among older adults, there has been little systematic examination of cognition in this population. One longitudinal cohort study examined neuropsychological functioning over 25-years, which identified evidence of impairment amongst persistent cannabis users across all cognitive domains; this was most marked for executive function and information processing speed. However, impairment was concentrated among adolescent-onset cannabis users, with more persistent use associated with greater decline. Interestingly, older-onset cannabis users had greater restoration of cognitive function following cessation. Our research group recently found significant cognitive impairment on the ACE-R in 42% of older, cannabis-using patients aged 50+ attending D&A treatment, however these patients had other comorbidities (e.g. other substance use, depression, head trauma).

In contrast to the studies examining early-onset cannabis use and cognition, more recent preclinical research suggests that cannabinoids may actually have a neuroprotective role. There is increasing preclinical evidence that the endocannabinoid system regulates neurodegenerative processes common to various types of dementia, such as excess glutamate, glial activation, oxidative stress and neuroinflammation. This suggests that cannabinoids may have beneficial cognitive effects, particularly in later life. There is increasing interest in whether cannabinoids may be useful in the treatment of dementia, including the disruption of pathological processes in Alzheimer's disease. To date, only one small clinical pilot study, with favourable findings, has been reported.

Conclusion: A better understanding of the effects of cannabis use upon cognitive outcomes and measures of mental health in older adults is required to better inform consumers and health providers regarding the safety of cannabis in this group.

FC10: Late-life Neuropsychiatric Disorders 2

The impact of Function Focused Care on Physical Function, Activity, and Behavior of Nursing Home Residents with Dementia

Elizabeth Galik; Barbara Resnick

Background: Half of all nursing home (NH) in the United States have moderate to severe dementia and are functionally disabled. Unfortunately, these individuals have limited opportunities to engage in functional and physical activities due to custodial care practices that focus on task completion and policies that restrict mobility for fear of falls. These residents may also have related behavioral symptoms, such as agitation and resistance to care. It is during care interactions that behavioral symptoms are most commonly exhibited. This resistance discourages staff from engaging residents in functional activities and adds to functional decline. Function Focused Care is a theoretically based way to provide care in which caregivers teach, cue, model, and assist residents to perform functional tasks and engage in physical activity while minimizing behavioral symptoms.

Methods: The purpose of this cluster-randomized controlled trial was to test the impact of the Function Focused Care Intervention for the Cognitively Impaired with nursing home residents with dementia (N=103) and the nursing assistants who care for them (N=77). Generalized estimating equations were used and an intention to treat paradigm was followed.

Results: The residents were mostly female (77%), African American or mixed race (67%), and unmarried (85%). The mean age of residents was 83.7 (SD=9.9) and they were severely cognitively impaired with a MMSE 8.7 (SD=4.0). There were significant improvements in the amount and intensity of physical activity by survey (p=.01) and actigraphy (p=.004), and significant improvements in physical function (p=.01). In addition, there were significantly fewer falls in the treatment group (28% versus 50% in the control group). There was no significant treatment by time difference between groups with regard to the psychosocial outcomes (agitation, depression or apathy). Nursing assistants provided a greater percentage of observed function focused care during care interactions in the treatment group at 6 months (p=.001).

Conclusion: This study provides some evidence that nursing home residents with severe cognitive impairment can safely and successfully be engaged in physical and functional activities.

Dysfunctional Beliefs and Attitudes about Sleep among Elderly Pensioners with Insomnia in Abeokuta, Nigeria

Adefolakemi Ogundele; Ighoroje Maroh

Insomnia is a common health complaint among the elderly. Sleep problems in this group are often accompanied by maladaptive sleep-related cognitions.

The aim of this study was to examine the dysfunctional beliefs and attitudes about sleep and its relationship to insomnia in the elderly in Abeokuta, Ogun state, Nigeria.

It was a cross sectional study carried out among 212 elderly pensioners in the community. Individuals with a past history of mental illness were excluded. Respondents were administered the Insomnia Severity Index (ISI) questionnaire, the Geriatric Depression Scale (GDS) and the Dysfunctional Beliefs and Attitudes about Sleep Questionnaire (DBAS-16).

The mean age of respondents were 70.1±7.1 years, 81.6% were males, 23.6% used medication to aid sleep, while 16.0% slept for < 4 hours per night. Insomnia in the respondents were identified as: absent (46.7%), subtheshold (37.7%), moderate (13.7%) and severe (1.9%).Presence of insomnia was significantly associated ($p < 0.001$) with higher total and subscale DBAS scores. Depressive symptomatology was not associated with dysfunctional sleep beliefs. Subjects who used medications to aid sleep ($t = 2.436$, $p = 0.016$) and who slept for < 4 hours ($t = 3.360$, $p = 0.037$) had more severe maladaptive beliefs and attitudes. On the DBAS subscales, short sleepers expressed the most worry/helplessness towards insomnia and had more negative attitudes about sleep medications.

These findings suggest that negative beliefs and attitudes about sleep may be instrumental in perpetuating insomnia. The clinical implication is that these cognitions should be identified and modified in the management of insomnia in the elderly.

Psychotropic medication use in Australian Long Term Care Homes

Juanita Westbury; Peter Gee; Tristan Ling; Gregory Peterson; Donnamay Brown

Background: For at least two decades concerns have been raised about excessive psychotropic prescribing in Australian Long Term Care Homes, resulting in media attention, government enquiries and professional guidelines. To evaluate if these initiatives have impacted use, we examined the current pattern of psychotropic use in a large national sample of Australian Long Term Care Homes. A secondary aim was to seek associations between psychotropic use and Home characteristics, including location, size and ownership.

Design, setting and participants: Cross-sectional cohort study of residents from 150 Long Term Care Homes distributed between 6 states and one territory throughout Australia from April 2014 to October 2015.

Main outcome measures: Proportion of residents taking psychotropic medications on a regular and 'prn', or 'as required', basis.

Method: De-identified prescribing data was mined from pharmacy packing programs utilising a IT program as part of the federally funded 'Reducing Use of Sedatives' (RedUSe) project. Data was verified by a trained nurse at each home. Psychotropic prescribing data was collated and grouped into various categories for statistical analysis.

Results: Full prescribing data was available from 11,368 residents. Nearly two thirds (61%) were taking at least one psychotropic medication every day, with over 40% of residents prescribed antidepressants. Over half of all residents (54%) were prescribed an antipsychotic or benzodiazepine on their medication charts. Specifically, a fifth of residents (22%) were prescribed antipsychotic medication every day; likewise, 22% were prescribed anxiolytics/hypnotics (predominantly benzodiazepines) on a regular daily basis. In terms of 'prn', or 'as required' use, nearly a third of residents (30%) were listed for 'prn' benzodiazepines, and 11% for 'prn' antipsychotics. The characteristic of state was significantly associated with psychotropic use, but not home size or ownership type.

Conclusion: The overall prevalence of Long Term Care Home psychotropic and antipsychotic use appears to have decreased slightly over the past two decades, and there has been a significant increase in the proportion of residents taking anti-depressants. However, the current level of anxiolytic/hypnotic prescribing is almost double that reported in Australia previously and 'prn' use is widespread.

Interventions to reduce benzodiazepine and antipsychotic use and promote non-pharmacological management of common mental health conditions in Australian Long Term Care Homes need to be implemented as a matter of priority.

FC11: Long Term Care

Joint effort key in successful implementation

Erica De Vries; Claudia Smeets; Martin Smallbrugge; Klaas Van Der Spek; Sytse Zuidema; Raymond Koopmans; Debby Gerritsen

Objective: To evaluate the process of implementing a multidisciplinary six-monthly medication review in long-term care organizations (LTCOs) and determine its quality in daily practice.

Methods: The PROPER-intervention (Figure 1), performed by Elderly Care Physicians (ECP), pharmacists, and nursing staff, was implemented in thirteen units from six LTCOs. The process evaluation was conducted alongside the PROPER-trial (1), using Leontjevas' model for first- and second order process evaluation (Figure 2). Data sources were web-based questionnaires, interviews, attendance lists, minutes, evaluation- and registration forms.

Results: Widespread shortage of ECPs hindered recruitment and caused one organization to drop out after baseline. Randomization and reach were adequate, although turnover in stakeholders was frequent (11/12 ECPs; 3/6 pharmacists; 10/32 nursing staff members). The participation rate in education sessions (95%), medication reviews (100%) and evaluation meetings (81%) was generally high. The intervention's relevance and feasibility and also the applied implementation strategies were highly rated. Identified barriers and facilitators regarded the required time-investment, planning and organization, staff turnover and understaffing of nursing staff, attitude towards the intervention and support of higher management. The stakeholders considered the local intervention coordinator -assigned to guard the planning- highly facilitating. Alternatively, the education component and the communication during medication reviews were too complex for several nursing staff members.

Conclusion: This particular implementation was successful, partly because the PROPER-intervention is not very complex and close to usual care, involving few professionals. Also, the time investment is highly clustered towards specific moments, making it easy to manage. More importantly, the subject was highly topical; all LTCOs in the Netherlands are pressed for lowering their psychotropic drug use. Moreover, a highly important general theme was present in the findings: joint effort. Commitment of both higher management and professionals in terms of a positive attitude towards change combined with (facilitating) actual time investment is necessary to succeed in implementing the intervention in the organization and should be a focus point in future implementations in the care sector.

Figure 1. The PRescription Optimization of Psychotrophic drugs in Elderly nuRsing home patients with dementia (PROPER) intervention.

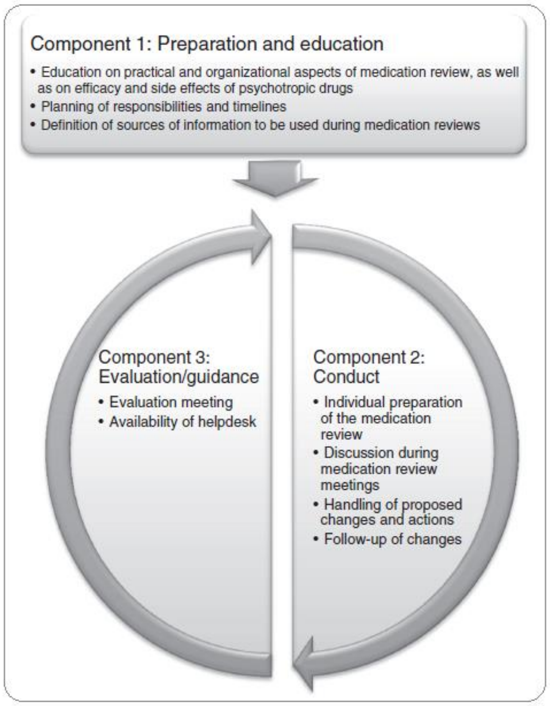


Figure 1. De Vries, et al.

Figure 2. Framework of first- and second-order process evaluation (2).

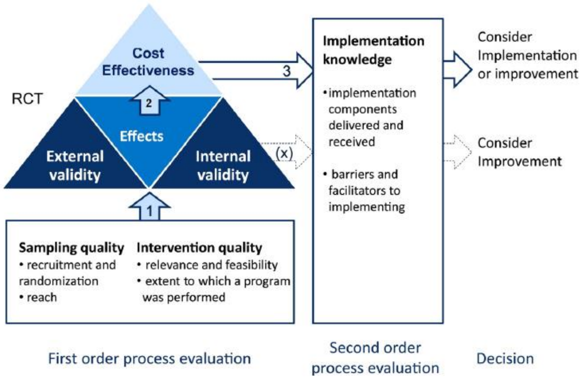


Figure 2. De Vries, et al.

The Ageing Prisoner: A Rapidly Growing International Issue

Adrienne Withall; Nikola Ninaus; Jo-Ann Brown; Peter Schofield; Henry Brodaty; Tony Butler

Objective: The ageing prison population (inmates aged 50+) is a rapidly growing international problem. This presentation will discuss the prevalence of this complex group and describe their major health needs, as well as the challenges involved in establishing models of care to meet these needs.

Methods: Published research (Medline, Cinahl, Informit) and government reports were systematically reviewed. Search terms included ageing, older, elderly, cognitive impairment, cognitive decline, dementia, Alzheimer's disease, prison, gaol/jail, correctional, offender, and prisoner. Data from the Australian Inmate Health Surveys (1996, 2001, 2009, 2015) was also analysed.

Results: The ageing prison population is rapidly increasing worldwide; almost doubling in the last decade in Australia. There are three groups of older prisoner: those 'ageing in place', habitual (re)offenders, and elderly first time offenders. These groups tend to have different demographic and socioeconomic characteristics and somewhat different healthcare needs. In Australian correctional facilities, the most common, serious offence for elderly first-time offenders was sexual assault at 28%, followed by homicide at 14%; similar to statistics from the US, Canada and UK (Moll 2013). This sub-group often have cognitive impairment and/or dementia at the time of their offence, posing questions about whether they should be incarcerated. The growing population of older prisoners has serious implications for the financial viabilities of prison services. Older prisoners require constant monitoring of their physical and psychological condition, tailored programs designed for their specific cognitive and neuropsychiatric needs, environmental modifications and lastly, there are policy implications to be considered.

Conclusion: The ageing population within prisons, particularly those with cognitive impairment and dementia, is increasing and this group require models of effective care that meets their unique needs. How best to achieve compassionate and quality care within the confines of their environment poses an important ethical challenge.

FC12: Late-life Neuropsychiatric Disorders 3

Diagnosis and Management of Neurogenic Orthostatic Hypotension

Adam Ziemann; Sandra Mertz; Gerald Rowse; Beverly Karabin

Neurogenic orthostatic hypotension (nOH), a drop in blood pressure (BP) because of autonomic nervous system dysfunction, is defined as a sustained reduction in systolic BP ≥20 mmHg or diastolic BP ≥10 mmHg when a patient stands. It can result in decreased cerebral perfusion and symptoms including dizziness/lightheadedness, visual disturbances, and syncope. The neurotransmitter norepinephrine regulates vasoconstriction upon standing. In disorders such as Parkinson disease and multiple system atrophy, nOH occurs because autonomic nervous system damage prevents adequate norepinephrine release. nOH is identified by recognizing nOH-related disorders, inquiring about symptoms such as positional lightheadedness, and measuring orthostatic BP and heart rate. The burdensome symptoms of nOH may be managed by nonpharmacologic and pharmacologic options. In 2014, the US Food and Drug Administration approved the norepinephrine prodrug droxidopa for the treatment of symptomatic nOH. Herein, the characteristics of patients who participated in the droxidopa pivotal trials are reported to better describe this condition.

The introduction of a tailored psycho-educational tool to engage groups at risk of developing dementia

Sandra Evans; Genevieve Holt

Background: UK memory services focus on the needs of older people, reflecting the increased prevalence of dementia in elderly populations. Clinical audit in the Diagnostic Memory Clinic (DMC) for Hackney, London has revealed a significant minority of referrals for memory assessments are being received for women under the age of 65 whose first language is Turkish, most of whom are not found to have dementia but who do have vascular risk factors (White & Evans, 2015). London-based studies have shown that first generation Turkish women are more likely to be monolingual and have lower levels of education compared to the general population, which can be a barrier to independence, employment, and promotes social isolation (Greater London Authority, 2009). Research suggests that poor physical health, illiteracy, depression and social isolation are risk factors for dementia (Kaup *et al.* 2013; Alzheimer's Society, 2016), meaning this group of relatively young women from Turkish-speaking backgrounds represent an at-risk group for developing dementia in the near future.
Objective: The City and Hackney DMC, in collaboration with the Wolfson Institute of Preventative Medicine, seeks to understand better and meet the distinct needs of an at-risk ethnic minority population, using a psychoeducation intervention developed and delivered using a culturally-sensitive patient pathway tailored specifically for this group.
Methods: Links have been forged with the Turkish-speaking population of Hackney through the support of Derman, a community centre that promotes health among local, Turkish-speaking people. Focus groups are used to explore their current understanding of memory problems in adulthood, and a DVD is created to address this community's dementia risk. The material will be shared with primary care for use by such families referred to the DMC.
Findings & Conclusions: The acceptability of this community-specific intervention is presented.

Onset of Psychiatric Disorders in Patients with Parkinson's Disease

Andreea Seritan, Jill Ostrem

Objective: Psychiatric comorbidities, including anxiety, depression, impulse control disorders, psychosis, and neurocognitive disorders, are common in patients with movement disorders, including Parkinson's disease (PD). In some patients, psychiatric symptoms precede the onset of motor symptoms. The objective of this study is to explore the proportion of patients with PD who had psychiatric symptoms prior to receiving a PD diagnosis.
Methods: All patients with PD older than age 50 who were referred for psychiatric consultation during October 2015-April 2016 at the UCSF Movement Disorders and Neuromodulation Center were included (n=40). DSM-5 diagnoses were established, based on psychiatric evaluations. The age of onset of psychiatric symptoms was identified by chart review and compared with the age of PD diagnosis.
Results: Of the 40 patients, 30 (75%) met DSM-5 criteria for depressive disorders, including MDD, dysthymia, and other depressive disorders; 27 (67.5%) met DSM-5 criteria for anxiety disorders, including generalized anxiety disorders, panic disorder, social anxiety disorder, and other anxiety disorders; 6 (15%) reported a history of impulse control disorders; 4 (10%) had substance use disorders; and 6 (15%) had mild or major neurocognitive disorders. The proportion of patients who had psychiatric symptoms prior to the PD diagnosis will be calculated (analysis is in progress).
Conclusion: Psychiatric comorbidities are common in patients with PD, and they may precede the PD diagnosis in many cases. Earlier ages of onset of psychiatric conditions indicate a longer duration of illness with multiple recurrent episodes, and thus inform the psychiatric management.

Diagnosis and current treatment of common neuropsychiatric manifestation of Parkinson’s Disease

Adrianna Hermida

Dr. Hermida will share her experience from working at the Emory comprehensive care clinic (CCC) for Parkinson’s disease. The Emory PD CCC is a unique healthcare model providing comprehensive, interdisciplinary team-based assessment and treatment of PD patients. During a 2-day visit, providers in sleep medicine, geriatric psychiatry, geriatric medicine, speech and language therapy, physical therapy, occupational therapy, social work, neuropsychology, nursing, and movement disorders evaluate patients.

The association between psychosis and anxiety in Parkinson’s Disease and the occurrence of cognitive dysfunction

Felicia Goldstein

Felicia Goldstein, PhD will talk about the association between psychosis and anxiety and the occurrence of cognitive dysfunction.

FC13: Suicide and Other Late-life Neuropsychiatric Disorders

Suicide Risk Assessment Decision Aid in Long Term Care Settings

Mark Lachmann

Objective: Suicide is a rare but devastating event in Nursing Home settings. We describe the development of a Suicide Risk Assessment Decision Aid for use in Nursing Home Settings.
Method: Literature review was carried out both with regards to suicide in Nursing Home settings, but also with regards to suicide assessment approaches. References included here are representative of the larger sample. A geriatric psychiatrist working with six social work staff from a group of four large Chinese culturally focused nursing homes in Toronto, Canada developed a Decision Aid for Suicide Risk Assessment. This Decision Aid was then implemented over a six month period and its' use evaluated.
Results: Over a six month period (July-December 2015) the Decision Aid Tool was used 13 times. This tool was found to have been helpful in developing a structured consistent approach to suicide risk assessment in nursing home settings. The Suicide Risk Assessment Decision Aid Tool will be presented, with guide to its use.
Conclusion: No method exists to reliably predict and prevent suicide. A structured approach to suicide risk assessment in nursing home settings is helpful in caring for residents and organizing a compassionate effective care response for individuals at high risk of suicide attempt.

Gender differences in co-morbid physical and mental disorders as predictors of suicide in older adults

Helen-Maria Vasiliadis; Samantha Gontijo Guerra; Catherine Lamoureux-Lamarche

Objectives: To assess the gender specific association between the presence of chronic physical and mental disorders and health service use and suicide in older adults.
Methods: Secondary data analysis was carried out on data from two linked cohorts on older adults aged ≥64 years and residents of the province of Quebec. Suicide decedents (n=493) between 2004 and 2007 and confirmed by the Quebec Coroner's office were included. The comparison group included 2494 individuals participating in a longitudinal study on the health of the elderly. Gender specific multivariate analyses were carried out to test the association between suicide and the presence of a number psychiatric and physical disorders controlling for health service use and socio-demographic factors by gender.
Results: In males, the presence of mental disorders, other than anxio-depressive disorders, was associated with an increased risk whereas diabetes, heart disease and cancer were associated with a decreased risk of suicide. In females, anxio-depressive and other mental disorders and stroke were associated with an increased risk whereas, diabetes, arthritis, heart disease was associated with a reduced risk of suicide. Male and female suicide decedents with co-morbidity had on average up to 5.8 (95% CI: 2.1 – 9.5) and 16.5 (95% CI: 12.8 – 20.2) additional outpatient visits than controls in the year prior to death.
Conclusions: Overall, the presence of psychiatric disorders has a more important impact on suicide risk as opposed to the presence of physical disorders. The increased outpatient service use in the year prior to death in suicide decedents with co- morbidities calls for more expertise in suicide prevention and detecting suicidal behaviour in at risk populations in medical settings.

Self-harm and Dementia

Brian Draper; Rebecca Mitchell; Lara Harvey; Henry Brodaty; Jacqui Close

Background: This presentation will review the literature on self-harm in people with dementia, which has only had limited previous research, and present new data on the characteristics and outcomes of older people hospitalized with intentional self-harm in a population-based study.

Aims: To compare the characteristics of older people with and without dementia that self-harm, identify associations of mental health-related diagnoses with those hospitalized for a non-self-harm injury, and examine mortality by injury intent for older people with and without dementia.

Method: A population-based study of individuals aged 50+ years with and without dementia admitted to hospital for a self-harm injury using linked hospital admission and mortality records during 2003-2012 in New South Wales (NSW), Australia. Health outcomes, including hospital length of stay (LOS), 28-day readmission and 30-day and 12-month mortality were examined by dementia status.

Results: There were 427 individuals with dementia and 11,684 individuals without dementia who were hospitalized following self-harm. The hospitalization rate for self-harm for individuals with dementia aged 60+ years was double the rate for individuals without dementia (72.2 and 37.5 per 100,000). Compared to individuals who were admitted for a non-self-harm injury-related hospitalization, those with self-harm injuries had significantly higher odds of also having a mental health condition (dementia OR 14.9 (10.6-21.0); non-dementia OR 22.5 (20.2-25.2)). There were higher 12-month mortality rates, 28-day readmission and longer LOS for individuals with dementia.

Conclusion: Dementia is associated with an increased risk of hospitalisation for self-harm in older people and worse outcomes. The high rate of coexistent mental health conditions suggests that interventions which reduce behavioural and psychological symptoms of dementia might reduce self-harm in people with dementia.

Worthlessness Uniquely Predicts Future Anxiety Symptom Severity in Community-Dwelling Older Adults

Nehjla Mashal; Sherry Beaudreau

Objective: Many older adults present with subclinical anxiety that causes functional impairment (Brenes et al., 2008). This investigation aimed to delineate unique affective symptom predictors of change in anxiety in older adults after a one year period. Worry, a critical risk for negative responses to stress (Ruscio et al., 2011), was expected to predict anxiety symptom severity after one year after adjusting for baseline depression and anxiety symptoms.

Methods: Community-dwelling older adults (n = 109) completed psychiatric assessments at baseline (Time 1) and one year later (Time 2). Simultaneous multiple regressions examined whether self-reported affective symptoms of anxiety based on somatic arousal (Beck Anxiety Inventory; BAI; Beck et al., 1988), depression (Beck Depression Inventory-II; BDI-II; Beck et al., 1996), and worry (Penn State Worry Questionnaire; PSWQ; Meyer et al., 1990) at baseline predicted self-reported anxiety (BAI) one year later.

Results: Time 1 affective symptoms significantly predicted Time 2 anxiety symptoms, $R^2 = .489$, $F(3,105) = 33.491$, $p = .000$. Specifically, Time 1 depression uniquely predicted time 2 anxiety ($\beta = .353$, $p = .002$), after adjusting for Time 1 anxiety ($\beta = .291$, $p = .011$) and Time 1 worry ($\beta = .140$, $p = .116$). We examined which depression items at Time 1 were associated with anxiety at Time 2. The Worthlessness item on the BDI-II was most highly correlated with anxiety at Time 2 ($r = .606$, $p = .000$; with anxiety at Time 1 partialed out, $r = .464$, $p = .000$). The overall regression model with Time 1 anxiety, worry and the Worthlessness item of the BDI-II entered simultaneously was significant, $R^2 = .548$, $F(3, 105) = 42.398$, $p = .000$. Time 1 Worthlessness uniquely predicted Time 2 anxiety ($\beta = .376$, $p = .000$), adjusting for Time 1 anxiety ($\beta = .403$, $p = .000$) and worry ($\beta = .120$, $p = .146$).

Conclusion: Findings implicate worthlessness as a risk factor for increased late-life anxiety, particularly somatic arousal symptoms. Worthlessness may be particularly toxic negative mood state that predisposes older adults to experience more anxiety in the future. If replicated, this single symptom could explain why many older adults with subclinical levels of affective symptoms still experience functional impairment.

FC14: Therapy & Treatment (non-pharmacological)

Psychodynamic Psychotherapy for Older Adults

Neil Jeyasignam

It has been claimed that older persons do not respond to dynamic psychotherapy. This was championed by no less than Freud, who wrote in 1905, “Near or above the age of fifty, the elasticity of mental processes, on which the treatment depends is, as a rule lacking – old people are no longer educable.” Curiously, Freud made this statement at the age of 49.

There has since been considerable progress in the evidence for psychodynamic psychotherapy for older adults, however service provision is still minimal, despite our ageing populations. This presentation will discuss the evidence base and available research regarding psychotherapy, as well as a discussion of some specialised services that have been successful in Australia for providing psychotherapy for the older person. It will also discuss specific case studies of patients undergoing successful psychotherapy, as well as practice notes for the clinician considering prescribing or delivering therapy.

One of the greatest joys of psychiatry is to listen to the stories of patients. What better stories could there be than with the older patient?

Preliminary results of multidisciplinary group therapy for older adults

Silvia van Dijk; Richard Oude Voshaar

Objective: Multidisciplinary group therapy is often offered to older adults suffering from affective disorders, although empirical effectiveness data have not been published yet. We have studied two types of multidisciplinary group therapy. First, the effect of a 20-week personality changing (PCGT) program, given to patients when individual psychotherapy was not sufficient. Second, the effect of an adaptation enhancing group therapy (AEGT) program, delivered in blocks of 4 weeks (to adapt treatment duration to personal needs), given to patients to prevent admission to a psychiatric ward.

Methods and results: Among 49 patients (mean age 65 years, 67% females) receiving PCGT, we found large pre-post effect-sizes measured with the Geriatric Anxiety Inventory (GAI, Cohen’s d effect-size (ES) = 1.3) and Inventory of Depressive Symptoms (IDS, ES = 1.2). Linear mixed models showed that the presence of a cluster B or C personality disorder (n=25, 51%) did not affect the outcome on the IDS or GAI. However, in 9 patients the presence of (very) mild cognitive impairment affected the improvement of depressive symptoms negatively. The pre- post ES among the 61 patients (mean age 67.1, 61% females) receiving AEGT was less than the patients receiving PCGT, but still moderate to large (ES=0.5 and 0.7 for depression and anxiety, respectively). The presence of a cluster B or C personality disorder (n=21 patients, 34%) neither affected improvement of depressive symptoms, nor anxiety symptoms. However, the presence (n=31 patients, 51%) of a cognitive disorder (mild cognitive impairment or early dementia) negatively affected improvement of anxiety symptoms.

Conclusion: In contrast to meta-analyses of outpatient treatment studies in depression, the presence of a personality disorder does not affect multidisciplinary group therapies in later life. This may be explained by the fact that in our program, specific attention is paid to interpersonal functioning as well as group dynamic processes. With respect to the PCGP program, it seems especially important not to include patients with cognitive problems, as this therapy seems too demanding for them.

Resonant circuits are potential confounding factors of electroconvulsive therapy (ECT) in elderly patients

Andreas Rather; Karen Ademmer

Objective: The assessment of the quality of electroconvulsive therapy (ECT) relies on a sufficient EEG recording. We investigated how signal distortion in occasional EEG recordings obtained during electroconvulsive therapy (ECT) influence important ECT variables.

Methods: For this purpose EEG recordings with significant signal distortion and their corresponding ECT parameters (impedance) were correlated and rated with respect to maximal amplitude, duration of convulsions, and postictal suppression index (PSI).

Results: There was a correlation between increased impedance, occurence of damped harmonic oscillation and amplitude distortion, clipping, and harmonic distortion, but not phase-frequency distortion.

Conclusion: As a cause of signal distortion we identified an increase of electrode impedance which could be ascribed to poor skin preparation and electrode properties. This provides evidence that especially the skin of the elderly patient and ECT electrodes should be prepared thoroughly prior to treatment in order to prevent alteration of the EEG signal and, thereby, to gain an adequate assessment of the convulsive effect of the therapy.

Improving the mental health of caregivers of people with dementia

Denise Wissmann

Background: Dementia is the leading cause of disability for Australians over 65 years of age, and 57% of people with dementia live at home, often requiring family members to provide extensive assistance. Caring for a family member with dementia can be considered stressful. Some caregivers are at risk of declining mental health, while others cope well and report no mental health difficulties.

Objective: "Coping with Carer Stress" was designed as a manualised group program delivered to family members of people with dementia, using a specific therapeutic technique, Cognitive Behavioural Therapy (CBT). This program was concomitantly evaluated.

Method: The participants comprised 59 caregivers of community dwelling individuals living with dementia who attended one of the 11 group programs offered in Victoria, Australia over a 5 year period. The intervention aimed to assist caregivers to learn new skills to better manage the emotional demands of being a carer through attendance of an eight week program. Participants completed questionnaires on their assessment of difficulty as caregivers, self-efficacy, depression stress and anxiety before, and at the conclusion, of the group program. In particular, comparison of mean differences in scores on a number of scales before and after a treatment effect, were used in conjunction with qualitative data to assess changes in efficacy and mood.

Results: Caregivers demonstrated significantly less assessment of difficulty, less stress and increased self-efficacy on self-report at post-group assessment. Qualitative participant feedback validated the benefits of learning new coping skills and being part of a group program with other dementia caregivers.

Conclusion: Programs for assisting caregivers need to include mechanisms for teaching skills in small groups specifically cognitive reframing skills, whilst providing emotional support. Assisting caregivers to develop competence to better manage the day-to-day stressors of caring for a family member with dementia may help protect caregivers from stress and other negative mental health outcomes.

The potential of mindfulness-based interventions to prevent memory decline as well as hippocampal and entorhinal atrophy in older adults with mild cognitive impairment: Preliminary findings

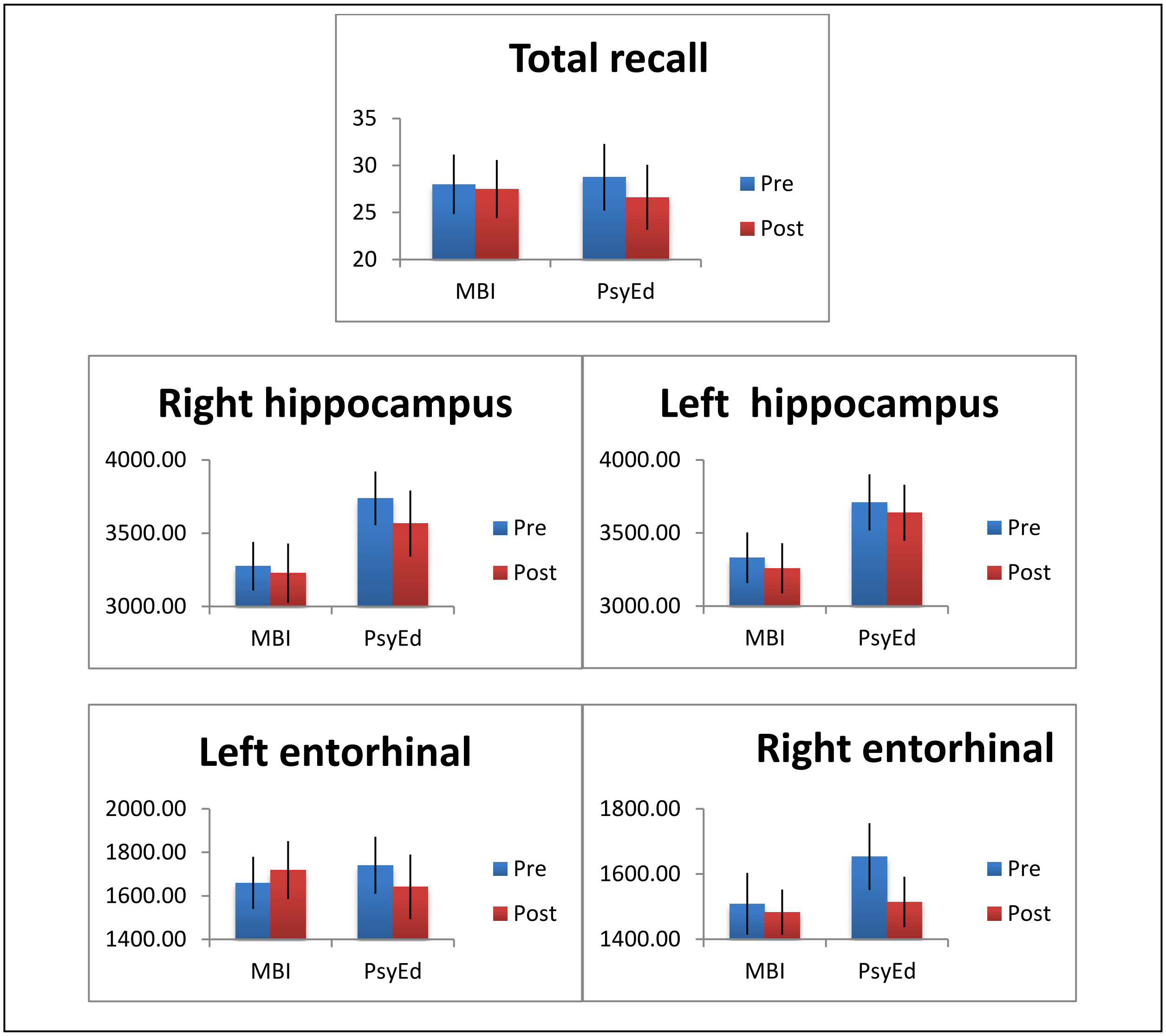
Eddy Larouche; Anne-Marie Chouinard; Sonia Goulet; Simon Duchesne; Carol Hudon

Objective: Mindfulness-Based Interventions (MBI) teach non-judging moment-to-moment awareness through mindfulness meditation. The aim of this study was to test the efficacy of a MBI to prevent memory decline and hippocampal and entorhinal atrophy, compared to an active control condition, in older adults with mild cognitive impairments (MCI).

Methods: In this single-blind randomized controlled trial, older adults with MCI were assigned to an 8-week MBI (n=9), or control (CTRL; n=9) condition, which provided psychoeducation about memory and aging. Pre- and post- intervention, all participants were administered a verbal free-recall memory test and underwent a cerebral magnetic resonance (MR) examination. 3D T1-weighted MR images were acquired on a 3.0-Tesla Phillips using a standardized ADNI protocol and were analyzed using Freesurfer (5.3.0). A greater decrease in volume (%) means more atrophy of the brain structure. Longitudinal mixed model analyses were conducted to compare the evolution of measurements in both conditions (alpha=5%). Effect sizes (Cohen's *d*) were calculated.

Results: Participants, of which 40.0% were women, were aged between 56 and 87 (mean=71.1, SD=7.8), with a mean education level of 13.2 years (SD=2.7). Eight participants in each condition completed the study. There was no baseline difference between groups in terms of age (*p*=0.155), education level (*p*=0.494), and gender (*p*=0.362). Pre- and post-intervention, and compared to the control group, the MBI group showed less memory deterioration (MBI=-1,80% *p*=0.767, CTRL=-7,4% *p*=0.268; *d*=0,33), less hippocampal atrophy (Left: MBI=-2,2% *p*=0.326, CTRL=-1,9% *p*=0.359; *d*=0,00; Right: MBI=-1,4% *p*=0.665, CTRL=-4,6% *p*=0.154; *d*=0,40), and less entorhinal atrophy (Left: MBI=+3,5% *p*=0.529, CTRL=-5,7% *p*=0.745; *d*=0,59; Right: MBI=-1,7% *p*=0.112, CTRL=-8,4% *p*=0.745; *d*=0,50). Power analyses (80%, alpha=5%) confirmed that minimum 40 participants would be necessary to observe statistically significant differences between conditions.

Conclusion: These preliminary findings indicate that MBI can help preventing memory decline and underlying cerebral atrophy in older adults with MCI. Although no statistically significant differences were found, moderate effect sizes obtained for most variables support the efficacy of MBI in buffering against pathological aging. These results suggest that interventions promoting mental health can contribute to secondary prevention efforts in Alzheimer's research. Future research should focus on confirming these results with a larger sample.



Total recall

Right hippocampus

Left hippocampus

Left entorhinal

Right entorhinal

Tables 1-5. Larouche, et al.

Posters

P1: Relationships between creativity and hobbies in the elderly

Carlo Angelo Cristini; Valentina Andolfi; Chiara Valenti; Giovanni Cesa-Bianchi; Alessandro Antonietti

Objective: Creativity may help old people to restructure daily activities as a consequence of retirement and to face the challenges which occur in late adulthood (Fisher and Spect, 1999). However, the developmental trend of creative skills and the relations between creativity and lifestyle in old age are still unclear (Zhang and Niu, 2013). The study was aimed at assessing modifications in creativity in healthy olds by taking into account the role of age, gender, and level of education and by testing possible relationships with hobbies.

Methods: A sample of 123 people, cognitively intact, aged between 52 and 89 years, took part to the study. They were splitted in subgroups according to age and the years of education. Participants were administered the WCR test measuring dispositions toward creativity (Antonietti & Colombo, 2013). The test assesses the three basic aspects of the creative process: widening the mental framework, connecting disparate elements, reorganising the cognitive field. A questionnaire about the most frequent hobbies was admnistered too.

Results: Total scores in the WCR test were not affected by gender, age, and level of education, even though widening, connecting, and reorganising sub-scores showed some fluctuations across the age levels. Comparisons with younger normative samples revealed that creativity does not decrease in late adulthood. As hobbies, age influenced mostly some peculiar activities and was related to the level of expertise in time management. The creative attitude was not correlated in a consistent way to hobbies, except some expressive activities.

Conclusions: Findings supported the notion that creativity fails to decrease in the elderly, is not modulated by gender, age, and level of education, and is not related to hobbies. This suggests that the creative process is associated mainly to personality and biographic experiences rather than demographics and lifestyle.

P2: Motivations and Meanings behind the Commencement of Activities: Qualitative Study among Local Elderly Residents

Shingo Yamane; Sae Tanaka; Hideaki Hanaoka

For the elderly, decreased activity is linked to major mental, physical, and psychosocial problems. Therefore, for elderly citizens to lead active lives in the community, various initiatives have been implemented with respect to the areas of medical treatment, welfare, and long-term care. However, the kind of activities that the elderly select and practice in the community, as well as their original motivations and personal meanings, remain unclear. Therefore, this study clarifies the motivations and meanings, for the parties involved, of activities that have been introduced by elderly residents in their home communities. We believed that the study would enable us to find suggestions for creating community programs intended to help elderly residents maintain active lives. Semi-structured interviews based on an interview guide were conducted with 10 participants; subsequently, their responses were subjected to a qualitative inductive analysis. As a result, 682 individual labels were obtained from participants' statements, which were finally aggregated into seven conceptual categories: "activity overview," "circumstances," "motivation," "sentiment," "health," "impact of activities," and "future goals." Participants' "activity overviews" consisted of exercise and physical activities, and cultural activities, such as teaching kimono dressing classes, with an emphasis on proceeding with these at one's own pace, without the need for additional equipment. Moreover, all activities entailed relationships with others, and it was found that such activities were associated with various "sentiments." In addition to the intrinsic motivational factors needed for beginning activities, extrinsic factors were also important. In terms of intrinsic factors, a sense of wanting to maintain "health" was associated with the commencement of activities, and recognizing the "impact of activities" also affected their continuation. In terms of extrinsic factors, activities began based on the information obtained from recommendations of medical personnel or friends, news magazines, or other media, and others' praise and positive feedback; furthermore, information exchange with others also contributed to the continuation of activities. It was revealed that elderly, along with changes to their mental and physical function and in the "circumstances" that surround them, were inspired to change how they pursued their conventional activities, to continue their activities, and even to undertake "future goals."

P3: A Comprehensive Community Care model for Geriatric Population in a small rural Japanese community at Joetsu Suwa District

Yu Kawamuro; Sanae Hosya; Keiko Morihashi; Kazushi Hoyoki; Mayako Miyazaki; Reiko Homma True

Background: Japan is facing unprecedented increase in the geriatric population while the birthrate is going down rapidly. It is projected that by 2025, the geriatric population will rise to 20%. However, In Joetsu City, the geriatric population at the end of 2015 was already 29.7%. In contrast to the national average of 15.0%, the rate of dementia among the geriatric population in Joetsu was 20.2%. Among the geriatric population in Joetsu City, 20.6% has been assessed and certified as needing some form of assistance. Inspired by the 2015 revision of the national policy for geriatric care, we have pioneered a comprehensive community care program in Suwa District, where the geriatric population is 40.4%, and named the program Suwa Health Salon.

Method: The first phase of the study included creating a job category and hiring Life Support Coordinators, establishing a salon for the elderly, and providing health-promoting activities to seniors in the community. The program ran twice weekly, for two hours, for one year. The activities at the Salon included the following:

1. Education and guidance on health, oral health, and nutrition related issues
2. Nursing care prevention guidance
3. Recreation activities
4. Exercises

Results: Following the implementation of the program, the overall rate of the Joetsu geriatric population-requiring assistance was reduced from 22.3% in 2011 to 20.6% in 2015. The second phase of the study will focus on 30 subjects. 10 each from two groups participating in the Salon, group needing Level 1 or 2 assistance and healthy seniors not requiring assistance. The control group of 10 will be from the geriatric population in the community. Pre and post 4 months evaluation measures to be administered are as follows: health measures, including height, weight, BMI, blood lipid level, glucose tolerance level and level of cognitive functions to be measured by MMSE-J, CDR-J, and GDS-J.

Conclusion: First phase of the study has demonstrated the effectiveness of prevention activities to reduce deterioration of the assistance requiring conditions and dementia. We anticipate the second phase of the study will further identify specific preventive factors that can improve the health of geriatric population.

P4: Analysis of Cambridge Cognitive Examination (CAMLOG) in Octogenarians and nonagenarians

Lucas Romano; Livia Galeote; Juliana Cecato; Isadora Araujo; Barbara Stella; Jose Martinelli

The purpose of this study is to analyze the Cambridge Cognitive Examination (CAMLOG) in elderly patients aged 80 years or more. The results showed that most patients with dementia (58.8%) were female (65.8%) and had a level of schooling between 1 and 4 years (54.8%). The level of education and sex are variables that significantly distinguish patients, both CAMLOG as for MMSE. The higher the education level is, the higher is the value observed in CAMCOG. Furthermore men have superior performance in the test, compared with women. The ROC curve proved to be effective only in the discrimination of two categories of education variable - "Illiterate" and "Informal”, indicating that the model as proposed and studied does not fit the data. This could also be seen when analyzing the likelihood ratio for each level of education, whereas the values of this statistic are unrepresentative. This may be the result of the sample used in the study, as it is a very specific sample - containing only patients over 80 years - it may be that the tests used in the discrimination of patients by education are not best suited to carry out this work. A proposition of an analysis using a new diagnostic test would be appropriate for future studies, so as to have more meaningful and representative results for the sample.

P5: Main fears in old age

Giovanni Cesa-Bianchi; Carlo Angelo Cristini; Angela Solimeno-Cipriano; Luca Cristini; Allesandro Porro; Marcello Cesa-Bianci

Objective: The study examined the mains fears in the elderly, in different situations. Historically, when in the old age the feeling of security reduces, when the fragility seems to take over, old fears may come to life again. There are fears that come from our own past history, others that arise from current and upcoming events.

Methods: More than 1,000 elderly people equally distributed by sex and age (below and above 75 years), living at home or in institutions, in rural or urban areas were examined. Tools: Mini Mental State Examination (MMSE); Multiareas questionnaires, including elderly people's fears, presented in a semi-structured interview; 3) Geriatric Depression Scale (GDS); 4) Zung Self-Rating Anxiety Scale (SAS). Those with MMSE <24 were excluded.

Results: Loneliness and disability are the most reported fears in the interviewed elders, especially in metropolitan areas. Especially women, according to higher life expectancy, deal with loneliness and isolation. Disease, pain and chronicity and are other fears strongly felt in old age and they are also factors related to mood disorders. Many seniors (especially institutionalized) fear the pain, they are afraid that there are no adequate remedies or that no one could take care of them. One of the commonest fears is that of falling, of being removed from home, hospitalized, operated on, rehabilitated, so as not being able to get back home. Many seniors fear losing their cognitive skills, being no longer able to organize their live, especially when institutionalized. Mostly women, especially in metropolitan areas, are afraid to leave the house, to be attacked in the street, on public transport, in their own home. Poverty is another fear. Few seniors fear the end of their lives. GDS and SAS have detected low levels of depression and anxiety.

Conclusion: The lack of stable references, the uncertainty of the future, violence (especially women), the prospect of loneliness, abandonment and disability (mainly for women and over75, living in metropolitan areas), the onset of pain (basically for institutionalized ones), of a chronic disease are the most popular fears of the elderly people, as affecting their health and the quality of their life.

P6: Are older adults with fall-related concerns more anxious in general? Results from a systematic review and meta-analysis

Marie-Christine Payette; Vanessa Léveillé; Claude Bélanger; Sebastien Grenier

Objective: Anxiety and fall-related concerns, such as fear of falling, low balance confidence or low self-efficacy at avoiding falls have often, but inconsistently, been associated in the literature (Denkinger *et al.*, 2015). This study aims at clarifying those inconsistencies with a systematic review and meta-analysis and to evaluate if the strength of this relationship varies among the different constructs used to measure fall-related concerns.

Methods: A systematic review was conducted through multiple databases (e.g., MEDLINE, PsycINFO) to include all articles published before June 10, 2015 that measured anxiety and fall-related concerns in community-dwelling older adults. Active researchers in the field were also contacted in an effort to include unpublished studies. The systematic review led to the inclusion of twenty relevant articles ($n = 4738$).

Results: A random-effect meta-analysis indicated that the mean effect size for fear of falling and anxiety is $r = 0.32$ (95% CI: 0.22‑0.40), $Z = 6.49$, $p < 0.001$ and the mean effect size for self-efficacy at avoiding falls or balance confidence and anxiety is $r = 0.31$ (95% CI: 0.23‑0.40), $Z = 6.72$, $p < 0.001$. These effects are both moderate, according to Cohen (2013). A Q-test for heterogeneity revealed that the two effect sizes are not significantly different ($Q(19) = 0.13$, $p =$ n.s.).

Conclusion: This is the first meta-analysis on the relationship between anxiety and concerns about falls among community-dwelling older adults. It indicates that there is a moderate relationship between anxiety and concerns about falls and that this relationship does not vary among the different constructs used to measure these concerns. Fall-related concerns may lead to activity restriction, gait instability, and may indirectly increase the risk of falling (Hadjistavropoulos *et al.*, 2011). The effect size of intervention programs based on physical activity is low (Kendrick *et al.*, 2014). Anxiety symptoms could possibly interfere with the ability of some older adults to benefit from these interventions, because they may need psychological interventions as well. Future studies should examine if older adults who respond the least to interventions based on physical activity have elevated unaddressed anxiety symptoms.

P7: Information-Seeking About Anxiety in Older Veterans: A Qualitative Investigation

Aimiee Marie Zapata; Christina Garrison-Diehn; Sherry Beaudreau; Ruth O'Hara; Christine Gould

Objective: Older adults may be reluctant to seek mental health treatment due to stigma or poor access to treatment. We sought to learn about where older adults go to seek information about one particular late-life mental health issue, anxiety.

Methods: The sample consisted of 20 older patients at a hospital for military Veterans (Mean age= 69.5, SD = 7.3, Range = 60-85 years; 50% White), who participated in semi-structured interviews and were invited to a follow-up focus group, attended by 12 of 20 participants. Team-based coding using an inductively developed codebook focused on identifying sources of information. Tests of interrater reliability resulted in a Cohen's kappa coefficient of 0.93. After team-based coding was complete, we used a combination of inductive and deductive thematic analysis to identify patterns within participant-reported sources of information.

Results: The majority of participants looked to health care providers (e.g., primary care physician, mental health professional) for information on anxiety and coping. Other frequently-mentioned sources of information included searching online (e.g., Google, YouTube) or reading books. Thematic analysis revealed a continuum between guided (e.g., health care professional) and unguided (e.g., reading books or engaging in exercise) sources. Some reported they begin by searching for information on their own before approaching a health professional, whereas others indicated that they supplement the information that they received from a health professional with information on the internet. In our presentation, we also will describe focus group findings related to perceptions about using technology to teach coping skills for anxiety.

Conclusion: Discovering where older Veterans are more likely to look for information can help providers target educational materials to provide information about anxiety and coping skills. Though older Veterans primarily named their health care providers as sources of information, online searches and reading books seemed to be the next alternative sources, which highlights the importance of understanding older Veteran's perceptions of technology as a means of teaching coping skills.

P8: Development and Initial Feasibility of a DVD-Delivered Relaxation Treatment to Reduce Anxiety in Older Community-Dwelling Adults

Christine Gould; Ruth O'Hara; Vanessa Ma; Brian Kok; Julie Wetherell; Mary Goldstein; Sherry Beaudreau

Introduction: Progressive muscle relaxation (PMR), a component of cognitive behavioral therapy for anxiety, has been found to be one of the most efficacious non-pharmacological treatments for late-life anxiety. With appropriate visual instructional aides to guide learning and practice, PMR has the potential to be learned independently, without the need for face-to-face therapy. We describe the development of a novel video treatment program, called BREATHE (Breathing, Relaxation and Education for Anxiety Treatment in the Home Environment), which consists of weekly video lessons paired with daily PMR practice. We report on the initial feasibility of BREATHE in older community-dwelling adults with anxiety disorders.

Method: Eight adults aged ≥ 60 years with anxiety disorders (agoraphobia, generalized anxiety disorder, panic disorder, social anxiety disorder, and anxiety disorder other specified) diagnosed using the Structured Clinical Interview for DSM-5 completed the 4-week BREATHE program. Participants learned diaphragmatic breathing, PMR, and abbreviated PMR by watching DVDs on a borrowed portable DVD player or on their own player. Weekly telephone calls provided technical assistance and addressed minor issues related to the treatment. Participants recorded subjective anxiety ratings (scale: 0/no anxiety to 100/extreme anxiety) before and after each practice. These feasibility data are part of a 8-week pilot study.

Results: Initial feasibility of BREATHE based on anxiety ratings from home practice logs are described. Seven of eight participants completed the four week treatment. Daily practice adherence rates (n=8) were: 72.7% (week 1), 89.1% (week 2), 87.2% (week 3), and 78.2% (week 4). Figure 1 displays mean anxiety ratings before and after relaxation practices. Reductions in anxiety ratings during practices were observed. Weekly telephone calls with research staff addressed barriers such as difficulty tensing muscle groups. Qualitative feedback about the treatment ascertained during the weekly telephone calls will be discussed.

Conclusion: Preliminary findings suggest that BREATHE, a DVD-delivered relaxation treatment for late-life anxiety, is feasible and is acceptable to older community-dwelling adults with anxiety disorders. Feedback from participants during the telephone calls demonstrates the importance of these weekly telephone calls for accountability and addressing questions regarding the program.

Funding: U.S. Department of Veterans Affairs Career Development Award (IK2 RX001478, PI: Gould) and by Ellen Schapiro & Gerald Axelbaum through a 2014 NARSAD Young Investigator Grant (PI: Gould) from the Brain & Behavior Research Foundation.

Figure 1. Anxiety Rating Reduction for Daily Relaxation Practice

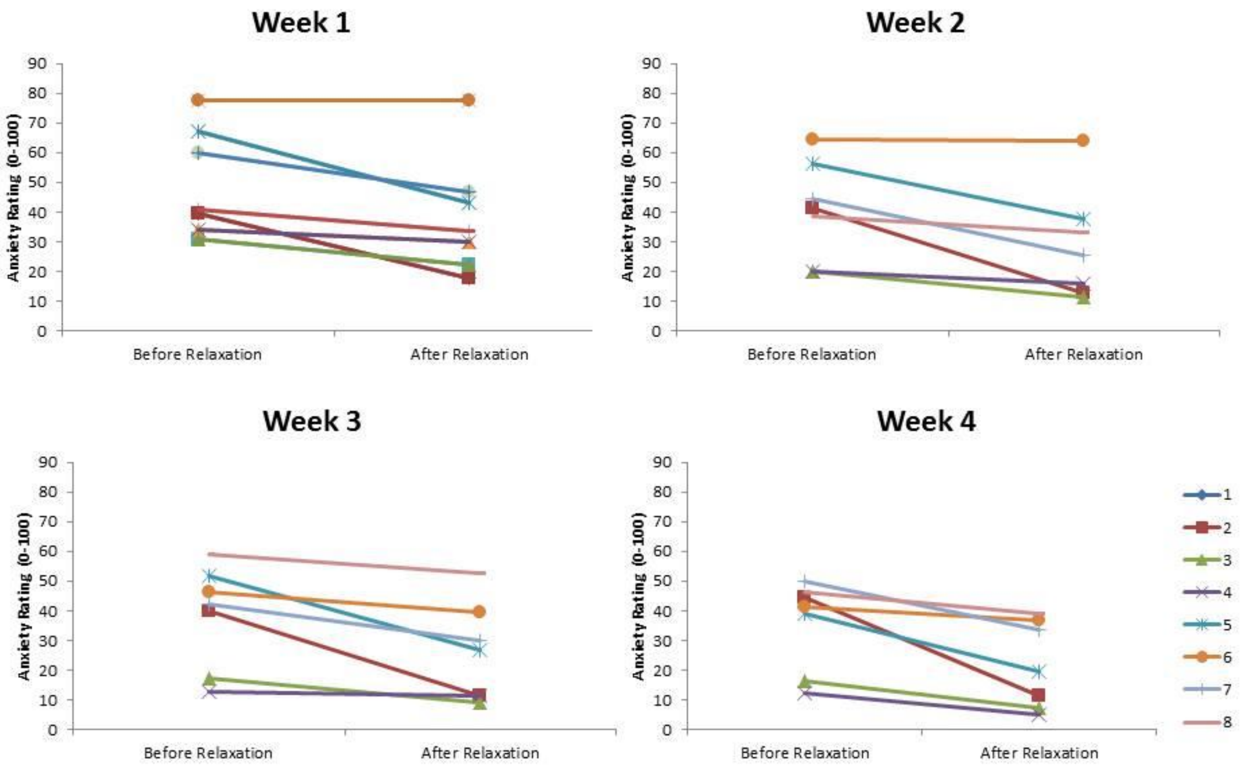


Figure 1. Gould, et al.

P9: Behavioral and psychological symptoms of dementia and antipsychotic drug use in the elderly with dementia in Korea long-term care facilities

Kang Soo Lee

Background: Behavioral and psychological symptoms of dementia (BPSD) are known predictors of institutionalization, lower quality of life, and caregiver distress. Guidelines recommend initial management with non-pharmacological means, but antipsychotic drugs are widely used for the treatment of certain BPSD.

Objectives: The objective of the current study is to analyze the prevalence of behavioral and psychological symptoms of dementia (BPSD) and antipsychotic drug use in long-term care facilities in Korea.

Methods: Retrospective chart review and cross-sectional analysis was conducted with 529 residents diagnosed with dementia out of a total 835 residents in 20 long-term care facilities from October 2011 to April 2012. Basic characteristics of residents such as prevalence of BPSD and antipsychotic prescriptions were analyzed. BPSD was determined using the Neuropsychiatric Inventory-Questionnaire (NPI-Q) assessment tool, and associations with the use of antipsychotic drugs were investigated.

Results: The mean age of the 529 residents was 81.16 ± 8.73 years, 410 (77.5%) were female. The mean length of stay in long-term care facilities was 24.19 ± 23.06 months. The primary outcome was a prescription rate of antipsychotic medications. Of the 529 dementia residents, 143 (27%) were prescribed antipsychotic medications (quetiapine, risperidone, olanzapine). Agitation was the most common symptom of BPSD. Disinhibition and irritability were associated with the use of antipsychotics in a multiple logistic regression analysis (respectively p = 0.007, 0.016 and adjust odds ratio = 0.51(0.31-0.83), 0.57(0.36-0.90)).

Conclusion: BPSD are common in long-term care facilities in Korea. Antipsychotics were small but statistically significant benefits in the treatment of BPSD and have been still the pharmacological short-term treatment option for BPSD associated with disinhibition and irritability in long term care facilities in Korea.

P10: Teleconsultation for Behavioral and Psychological Symptoms of Dementia (BPSD): increasing accessibility to geriatric psychiatry care in Quebec

Marie-Andrée Bruneau; Laurence Villeneuve; Caroline Ménard

Introduction: As much as 80% of people with neurocognitive diseases will present BPSD. The impact of these symptoms is major: they decrease cognitive capacities, functional autonomy, quality of life and increase caregiver burden. However, there is a limited access to specialized expertise in this field. Studies have demonstrated the relevance, feasibility and effectiveness of teleconsultation to assess and monitor neuropsychiatric symptoms associated with cognitive impairment. With this in mind, we developed a teleconsultation service for BPSD for partners located in distant area of Quebec.

Objective: To describe the operating procedures and some results of the teleconsultation service.

Methods: The service is based on distant team coaching and monthly complex case consultations. Teleconsultations are conducted by a geriatric psychiatrist and a psychologist specialised in BPSD. Clinical data and satisfaction questionnaires results were collected for every consultation done between May 2013 and November 2015.

Results: Thirty-nine patients (29 women, 10 men) were evaluated. Their mean age was 80 (+/- 11) years. Mean MMSE was 14 (range: 0-27). Mixed dementia was the most prevalent diagnosis (46%), followed by Alzheimer's disease (31%). The majority of patients had previous personnel psychiatric disorder (62%) and a high presence of familial psychiatric disorder (46%). Agitation/aggressiveness (92%), irritability (39%) and anxiety (39%) were the most frequent BPSD with a mean of 3 BPSD symptoms by patient. Subjects were taking a mean of 7 kind of medication (μ= 4 psychotropic medication). Eighty-seven percent of patients were already on antipsychotic, 56% on antidepressant, and 59% on anxiolytic medication before the teleconsultation. Of these, 59% were deemed inappropriate by the geriatric psychiatric consultant. The satisfaction questionnaire completed by the distant team showed a high degree of satisfaction for this modality of consultation. At follow-up, the distant team quoted BPSD as improved for at least two-thirds of the patients.

Conclusion: We conclude that this kind of service is efficient in educating clinicians about BPSD and increasing quality of care for these patients. We believe that it is easily transferable to other partners and is an easy way to increase accessibility to expert opinion in the evaluation and management of BPSD.

P11: Music therapy decreases resistiveness to care and improve communication with caregivers

Marie-Andrée Bruneau; Ana Ines Ansaldo; Guy Banville; Suzanne Généreaux; Micheline Hubert; Caroline Ménard; Laurence Villenueve; Elisa Vauclare; Laurence Charest

Introduction: Up to 80% of patients with major neurocognitive disorder present Behavioural and Psychological Symptoms of Dementia (BPSD). In nursing homes, 40-60% of the residents present agitation or aggression. BPSDs are frequently observed during hygiene care, which is a challenge for caregivers. Current expert recommendations promote the use of non-pharmacological approaches for BPSD. However, medication is still often used, with its associated risks. Among the possible non-pharmacological approaches, music therapy has proven effective in this population. Our project aims to determine the effectiveness of customized music during hygiene care, on patient's behavior and quality of communication.

Methods: Nursing Home's participants with major neurocognitive disorder and resistiveness to hygiene care (e.g., refusal of care, screaming, verbal or physical aggression) and their orderlies were recruited. The data were collected during eight hygiene cares, 4 performed without music followed by 4 carried out with customized music according to premorbid patient's preferences. Every care was video recorded. Objective measures of agitation behaviors were analyzed with the videos using the "Grille d'évaluation des comportements de résistance" (Belzil, 2012). Communication was evaluated with the "Description qualitative de la communication" (Généreux et al., 2004) filled out by the orderlies.

Results: Three participants with major neurocognitive disorder living in a nursing home and presenting symptoms of agitation during hygiene care, along with their orderlies, were recruited. Analysis of the first results shows a decrease in physical agitation behavior (average occurrences without music: 8.42 / with music: 3.42) and verbal agitation (average occurrences without music: 19.67 / with music: 10.75). Also, caregivers reported improved communication during hygiene care performed with customized music. Specifically, there is an increase of positive elements in the communication (average without music: 3.89 / with music: 4.35 and decreased negative elements (average without music: 4.35 / with music: 3.18).

Conclusion: Thus, the use of customized music seems to be an interesting non-pharmacologic intervention to reduce agitation and resistiveness to care among nursing homes patients with major neurocognitive disorder. As this is an exploratory study, an increased sample of subjects is needed in order to prove the effectiveness of the intervention.

P12: De Clerambault's syndrome in dementia

Kuei-Yu Liang; Chun-Chi Hu

Objective: Delusions are common in the course of dementia, with a prevalence of between 14% and 76%. However, de Clerambault's syndrome, or erotomanic delusion, has rarely been described in dementia. It is a delusional conviction that another exalted person is intensely in love with him or her. In this paper, an elderly woman of vascular dementia presenting with erotomanic delusion is reported.

Method: Case report.

Result: Ms. C was a 78-year-old widowed female with a past medical history for diabetes, hypertension, and osteoarthrosis. She had cerebral infarction 7 years ago. In the meantime, brain magnetic resonance imaging demonstrated left posterior cerebral artery infarction. There had been deterioration in Ms. C's memory and level of general functioning since then. She was dysphoric, hypochondriac, and lost interest in hobbies.

Ms. C's erotomanic symptoms occurred suddenly after she met a young male staff in dementia day care center. She developed an elaborate delusion about his pursuit of her, his extreme lover for her, and his commitment to her. She inappropriately hugged him and kissed him. When her family and staff confronted with reality, she became agitated and attacked them. After withdrawing from dementia day care center, she was still preoccupied with delusional loving and threatened to suicide.

On admission, Ms. C was disorientated in time and place. She was easily agitated, distracted, and presented with confabulation. Clinical examination was unremarkable, apart from right hemianopia and obesity. She scored 11 of 30 on the Mini-Mental State Examination that revealed moderate dementia. In the Bender-Gestalt Test, marked visuospatial deficits were found. Two weeks after the initiation of treatment with olanzapine at 5mg/d and escitalopram at 5mg/d, Ms. C's irritability, agitation, and dysphoric mood improved gradually. There was partial response for her erotomanic delusion after 4-month treatment.

Conclusion: Only a few case reports of erotomanic delusion in dementia are presented in the literature. The prognosis and response to treatment of erotomania are generally poor. In the patient presented, psychotropic medications have been helpful in minimizing the extremes of the psychotic delusional system. More research is needed to explore the clinical course and treatment of such patients.

P13: Severity and occurrence of behavioral and psychological symptom among patients of different dementia stages in Taiwan

Si-Sheng Huang; Cheng-Chen Chang

Objective: The clinical dementia stage and behavioral and psychological symptoms of dementia (BPSD) were reported to be highly associated with caregiver burden. Our aim was to examine the severity and occurrence of BPSD across the various degrees of the disease in Taiwan.

Methods: The study was a cross-sectional design. 276 patients with dementia from July 2001 to October 2008 were surveyed and assessed the stage of dementia using the clinical dementia rating scale (CDR) in central Taiwan. The BPSD was evaluated using Neuropsychiatric Inventory (NPI). We examined the difference among various CDR stages on the severity of individual BPSD (product score of the NPI) with Kruskal Wallis test. The difference among CDR stages on the occurrence of BPSD was examined using Chi-square test.

Results: The NPI total score was significantly different among stages of dementia ($p<0.001$) and reached highest scores when the CDR was 3. Considering each NPI domain, delusion ($p=0.01$), agitation/aggression ($p=0.033$), apathy/indifference ($p=0.009$), aberrant motor behavior ($p<0.001$), nighttime behavior disturbances ($p<0.001$), and appetite and eating abnormalities ($p=0.001$) were significantly different in different stages of dementia. The severity of BPSD got worse and worse over disease course, and were highest in moderate (CDR=2) or severe (CDR=3) stage of dementia. The occurrence of BPSD in the patients was highest when the CDR was 2 (97.5%). The occurrence rate of delusion, apathy, aberrant motor behaviors, nighttime behavior disturbances, and eating abnormalities were significantly different among stages of dementia. These BPSD symptoms reached highest occurrence when the CDR was 2 or 3.

Conclusion: The severity and prevalence of BPSD are different in various stage of dementia. Highest severity of global BPSD was at severe dementia (CDR=3) and decreased in later stage (CDR=4) of dementia. The severity and prevalence of delusion, apathy, aberrant motor behavior, nighttime behavior disturbances, and eating abnormalities were different among stages of dementia. Evaluation instruments used in different studies limited the generalization of results.

P14: PEACE-AD: An NIA Alzheimer's Disease Cooperative Study Multicenter Trail of Prazosin for Agitation in AD

Murray Raskind; Elaine Peskind

Background: Disruptive agitation in Alzheimer's Disease (AD) remains a challenging treatment problem, particularly in long term care residents with advanced dementia. Clinical and postmortem brain tissue studies[1,2] suggest that enhanced responsiveness to brain norepinephrine at the postsynaptic alpha-1 adrenoreceptor (AR) contributes to the pathophysiology of agitation in AD. Prazosin is a generic brain active alpha-1 AR antagonist that was effective for severe agitation in a placebo-controlled pilot study in a sample of predominantly skilled nursing facility resident with AD[3].

Objective: To evaluate the efficacy and tolerability of prazosin for AD agitation as manifested by irritability/low anger threshold, physical or verbal aggression, persistent uncooperativeness with necessary care, and pressured motor hyperactivity.

Methods: 186 long term care residents with AD and moderately severe or severe agitation will be randomized in a 2:1 ratio of prazosin to placebo for 12 weeks. At baseline, participants must have at least two of the above described agitated behaviors rated as ≥ moderately severe five times per week for at least four consecutive weeks. Rescue lorazepam up to 2mg/day for 20 days is allowed to enhance retention during prazosin titration. Prazosin will be flexibly titrated over a maximum of 20 days with maintenance dose no higher than 6 mg bi.d. Primary outcome measure is a modified NPI-C. Secondary outcome measures include the ADCS-CGIC, ADCS-ADL, standard NPI total mg rescue lorazepam prescribed and activity and sleep.

Results: This randomized clinical trial has been funded by the NIA. Enrollment will being Fall, 2016

P15: Aging effect of mitochondrial DNA copy number and increased oxidative damage in clinically stable patients with major depressive disorder

Cheng-Chen Chang; Ta-Tsung Lin; Chin-San Liu; Te-Jen Lai; Si-Sheng Huang

Objective: Mitochondria play an important role in energy metabolism. It is well known that mitochondrial oxidative phosphorylation system generates free radicals and the electron transport chain itself is vulnerable to damage by free radicals. Human mitochondrial DNA (mtDNA) is prone to oxidative injury because mtDNA is not protected by histones and mitochondria generate reactive oxygen species (ROS) during ATP synthesis. Mitochondrial dysfunction results from alterations in biochemical cascade and the damage to the electron transport chain has been suggested to be an important factor in the pathogenesis of a range of psychiatric disorders, such as major depressive disorder (MDD). This study aims to compare alterations of mitochondria DNA (mtDNA) copy number, single nucleotide polymorphisms (SNPs), and oxidative damage of mtDNA in clinically stable patients with major depressive disorder (MDD) and to see if aging may affect mtDNA variations and oxidative damage.

Methods: Patients (N=40) met DSM-IV diagnostic criteria for MDD were recruited from the psychiatric outpatient clinic at Changhua Christian Hospital, Taiwan. They were clinically stable and their medications had not changed for at least the preceding two months. Exclusion criteria were substance-induced psychotic disorder, eating disorder, anxiety disorder or illicit substance abuse. Comparison subjects (N=70) did not have any history of major psychiatric disorders and they were non-smokers. Peripheral blood leukocytes were analyzed to compare copy number, SNPs and oxidative damage of mtDNA between the two groups.

Results: We recruited 40 (36%) males and 70 (64%) females. 12 males and 28 females were in MDD group. The median age of the subjects was 42 years and 38 years in MDD and comparison groups, respectively. Leukocyte mtDNA copy number of MDD patients was significantly lower than that of the comparison group ($p=0.037$). MDD patients had significantly higher mitochondrial oxidative damage than the comparison group (6.44 vs. 3.90, $p<0.001$). After generalized linear model adjusted for age, sex, smoking, family history, and psychotropic use, mtDNA copy number was still significantly lower in the MDD group ($p<0.001$). MtDNA oxidative damage was positively correlated with age ($p<0.001$) and MDD ($p<0.001$).

Limitations The study is cross-sectional with no longitudinal follow up. The cohort is relatively stable and generalizability of our result to other cohort should be considered.

Conclusion: Possible involvement of oxidative stress and mitochondria dysfunction in the pathophysiology of MDD needs more large-scale studies. Aging may increase oxidative damage but no effect on mtDNA. It is important that psychiatrists retain a high level of suspicion for mitochondrial dysfunction in patients with MDD.

P16: Translation, Cross-Cultural Adaptation of the Routine Task Inventory-Expanded (RTI-E) to Brazilian Portuguese: a pre-test with elders

Patricia Cotting Homem de Mello; Patricia Neubern; Andriane Colozio; Diego Celestino; Alexandra Oliveira; Noomi Katz; Tania Alves

The Routine Task Inventory Expanded (RTI-E) is an instrument developed and validated in English to evaluate independency level and functional status (Katz, 2006). **Objective:** included its translation and cross-cultural adaptation to Brazilian Portuguese, verifying semantic, conceptual and cultural equivalence to the original.

Methods: Translation followed Guillemin (1993) and Beaton et al. (2000) guidelines. Two occupational therapists, experts in functional assessments and a third professional from other area, all proficient in English, translated the original assessment to Portuguese. Back translation was done by a fluent in English researcher, non-informed of the study objective and sent to the author to revision and approval. A pre-test was conducted by two occupational therapists with ten healthy elderly to assess the comprehensibility of the items and cultural differences.

Results: 10 elders, 9 women and 1 man, from 60 to 84 years old (mean age 70,7; median 74), with a mean of 12 years of formal education, were evaluated using RTI-E and clinical, cognitive and functional assessments. Difficulty in understanding specific words and conceptual terms were registered and analyzed by an experts committee, changed and submitted to the assessment author. The RTI-E is very user friendly and approaches cross culturally common daily living tasks in four major areas: Activities of Daily Living, Instrumental Activities of Daily Living, Communication and Working Readiness. Little adjustments were done in tasks performed in a slightly different way in our context. **Conclusion:** To analyze semantically and culturally an assessment tool is critical to obtain reliable information about people assessed. RTI-E standardizes information about functioning status in elders, which is important to design appropriate intervention programs considering their safety and best functional potential while performing activities. We are now performing a larger validity study of RTI-E with Alzheimer´s elders. Results of this study will be presented at the conference.

P17: Supporting family carers of people living with dementia: the development of a new mobile application

Sally Wai-chi Chan; Robert Sanson-Fisher; Amanda Wilson; Sharyn Hunter; Sarah Jeong; Kichu Nair; Viki Brummell; Frans Henskens

Objective: The aim of this poster is to present the development, features and preliminary evaluation of a dementia care psycho-education intervention delivered via a mobile application (app) for family carers of people living with dementia (PLWD) on carers' burden, coping strategies, depression, gain in caregiving, distress, and frequency and severity of behavioural and psychological symptoms of dementia (BPSD).

Background: It is estimated the number of people with dementia in Australia will increase from 298,000 in 2011 to 400,000 by 2020. Caregivers of PLWD experience high levels of stress and there are more than 200,000 informal carers of PLWD in Australia. Behavioural and psychological symptoms (BPSD) in PLWD cause greater stress to carers than cognitive and functional problems and significantly predict early nursing home placement. Psychoeducation through apps focusing on BPSD management is an accessible and effective way to support carers.

Methods: Dementia Caregiver Application: The app is a collaborative project between researchers from Australia and Singapore. It has been designed with carers' input to reduce interface barriers (diagram one). The app consists of eight components: (1) information about dementia such as causes, sign and symptoms, available community resources, fall prevention and long-term caregiving issues; (2) videos of 8 scenarios focusing on management of common BPSD such as agitation, aggression, confusion, repetition, hoarding and hiding things, suspicion, wandering, eating problems, bathing problem, inappropriate sexual behaviour, hallucination and delusion, and communication; (3) podcasts of caregiving skills; (4) visual pill tracker; (5) daily tracker of mood, burden, and BPSD; (6) caregiver diary; (7) family photos; and (8) cognitive games. The app will be used by 10 caregivers with their feedback obtained. It will be followed by a pilot RCT.

Conclusion: This app contains unique features enabling comprehensive support and remote monitoring of carers and PLWD. We aim to evaluate the effectiveness of app support for carers. Findings will support the development of practice guidelines to evaluate similar interventions. The app aims to enhance carers' quality of life, quality of care for PLWD, reduce caregivers' burden, unnecessary institutionalization of the PLWD, and healthcare costs.

Diagram one: The Dementia Caregiver App was developed in collaboration with research partners from Australia and Singapore which changes the face of in-home care for caregivers of people with dementia. The App contains useful tools and caregiving tips to support caregivers in managing BPSD.

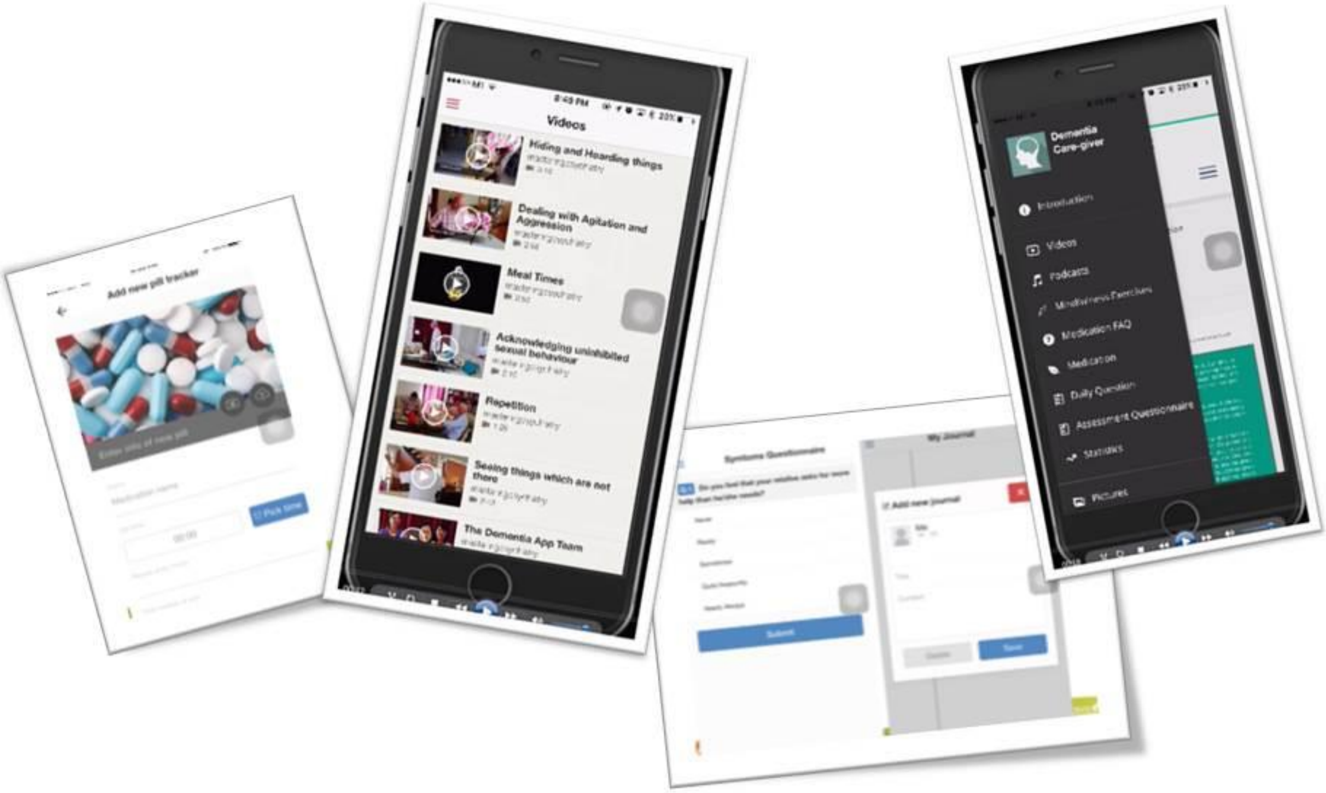


Diagram 1. Chan, et al.

P18: An Indo-Canadian Cross Cultural Qualitative Study on Caregivers of Persons with Dementia

Nadeesha Fernando; Murali Krishna; Ashok Krishnamoorthy; Caroline Fall; Kumaran Kalyanaraman; Peras Mehta; Sarah Stott-Eveneshen; Videsh Kapoor

Introduction:

Epidemiological research has indicated that there are 7.7 million new cases of dementia each year (WHO, 2012). The majority of this increase is in low and middle income countries (LMIC) (Ferri, 2006). Currently 62% of persons with dementia (PwD) live in LMIC and this number is estimated to rise to 71% by 2050 (Ferri, 2006). Dementia is relatively undiagnosed in LMIC and treatment of dementia is limited due to lack of resources, awareness and educationsurrounding the disease (WHO, 2012).

In response to lack of research in LMIC, the 10/66 Dementia Research Group, a collective group of researchers conducting population-based research into dementia in LMIC, was established in 1998 (Prince, 2009). Among their multiple research goals, 10/66 group has investigated the caregiver experience in centers around the world.

There is growing knowledge that caregivers from high and low income suffer significant consequences to caregiving (10/66 Dementia Research Group, 2004).

In high-income countries, multiple interventions have been implemented to reduce caregiver distress. (Pinquart, 2006; Smits, 2007; Brodaty, 2003; Lee, 2004; Spijker, 2008; Olazaran, 2010).

PwD in LMIC, in contrast, have limited access to specialist services for diagnosis and treatment of dementia (WHO, 2012). Thus, care for PwD is primarily the responsibility of the family (Prince, 2012; Honyahiki, 2011; Dias ,2004).

Given limited access to specialist services in LMIC, we seek to understanding if there is a relationship between access to psychiatric care and caregiver knowledge of dementia. In previous studies, caregiver experiences have been studied in high-income and low-middle income countries in isolation.

Methods: We identified 10 caregivers of PwD in Vancouver who were connected with the hospital systems or outpatient services. In Mysore, 15 caregivers of PwD were identified through the cognitive aging study of the Mysore Birth Records Cohort (CSI Holdsworth Hospital).

All consented to participate in an open-ended interview with researchers. Each audio-recorded interview took place in the caregivers' home, hospital or research institute. These were conducted in English (Canada), or English/Kannada/Urdu (Mysore). Translation provided by Research Institute.

Interviews consisted of open-ended questions regarding initial diagnosis, current level of care, current medical supports, current caregiving supports and educational needs. The questions were discussed with research group and gathered from current literature (Patel, 2001; Shaji, 2003).

Data Analysis: The qualitative analysis was carried out by two members of the research group. Two interviews were discarded from Mysore Cohort. The constant comparison technique was used to identify data relevant to the research questions. The task of content coding included ordering the data in relation to the objectives of the study, categorizing answers, and examining the data for possible associations.

Results: Preliminary Results: Data analysis is currently under progress, however preliminary findings reveal an greater expression of caregiver distress in Vancouver as compared with Mysore. In addition, educational needs are approved of in LMIC, but not deemed necessary for care of PwD. Specialist resources are deemed important in high income, but not useful in LMIC.

Discussion: Preliminary Discussion: There were multiple limitations in this study. First, the cultural and language barriers with interviews conducted in Mysore was apparent through data analysis. Second, interviewers' biases regarding their own cultural value system may have interfered with expression of distress in Mysore.

Educational needs were not seen as a priority in Mysore, as compared with Vancouver. Many were open to the concept but unsure as to how education may improve caregivers' experience. This may be related to cultural context and decreased expression of distress seen in Mysore. In Vancouver, resources/education were utilized but, interestingly, the expression of distress was higher.

Conclusion: Preliminary Conclusion: Understanding the experiences of the caregivers of PwD in different economic/cultural contexts demonstrates the importance of patient-centered care. Models created in high income countries may be inadequate to support carers of PwD in LMIC as they may not reflect caregivers experience. In Canada, being aware that our models are based in an economic and cultural context is important for working diverse cultural groups.

P19: The Caregiver Literacy Series: An opportunity to educate caregivers about the biology behind Alzheimer's Disease and Dementia

Elaine Jurkowski

Repeatedly as multidisciplinary professionals we are concerned about the individual patient we serve – especially as we consider their cognitive and neurological needs. Often the family members and caregivers struggle with how to cope with diagnoses and to understand the biological and neurological basis of how specific diseases impact the nervous system The Caregiver Literacy Series, is a series of ten specific modules designed to enhance the coping of the caregiver and family members through scientific and educational resources. Four specific therapeutic workbooks and accompanying CDs provides an overview of information about the specific neurological and biological aspects of the dementia disorder and how these aspects affect the individual's behavior. The series designed through the use of the Self Efficacy Model (Bandura, 1968) and Prohaska and DiClemente's Stages of Change (1988) theoretical frameworks has demonstrated some positive impact in improving one's understanding of the illness, decreasing caregiver burnout and improving depression levels for users. The efficacy of these educational tools was measured by various psychometric scales including the Care giving Burden scale, Compassion Fatigue and Satisfaction Scale and Center for Epidemiologic Study Depression Inventory. Some of the educational module topics include *Understanding the Care giving Role; Care giving and Depression; Care giving and People with Alzheimer 's disease; Care giving and People with Behavioral Issues.* This presentation will showcase the specific modules of the series related to Alzheimer's Disease, and showcase data on the efficacy of this intervention.

P20: Mente Sana, Cuerpo Sano ("Healthy Brain, Healthy Mind"): A Spanish-Language Community Based Program for Older Adult Mental Wellness

Andrew Neal Dentino; Maricela Buenfil; Maggie Darcey; Kelli Bruemmer; Sara Sherry; Roberto Medina; Julie Nelson

Oklahoma ranks #47 nationally in terms of health outcomes for older adults. In addition to possessing geographical areas of extreme rurality, this may be attributable to many factors, including sedentarism, diet and health behaviors. To address this, the OHAI was inaugurated in 2011 with a grant from the DWR to improve the health and well-being of older Oklahomans. OHAI has created a program (HBHM) which specifically addresses the unmet mental health needs of our older citizens. It is purposefully meant to be a pragmatic, group-oriented program with opportunities for individual reflection and practice on improving health behaviors. It consists of a four-week intervention, with three 3 month follow-up periods to total one year in length. It addresses matters of health behaviors, mood, anxiety and their relationships to medical and physical issues. It follows a series of twelve lessons and exercises in health promotion which are based on accepted psychologic principles of behavior change with a year-long HBHM workbook provided to participants to chronicle their health improvements over the course of the year. It was rolled out in early 2015 by OHAI staff at both its Oklahoma City and Tulsa Centers of Healthy Aging (CHAs), engendering a very positive response by its participants to date.

We have translated this program into Spanish ("Mente Sana, Cuerpo Sano"), addressing the growing older Hispanic adult population in our community. This Spanish-language program is generalizable to Hispanic elders internationally.

P21: Morning type, mental illness, personality and quality of life in a Community Sample of Korean Elderly

Jae-Nam Bae; Seong-Jin Cho; Won-Hyoung Kim; Seung-Min Oh; Bong-Jin Hahm

Background: Although primarily determined genetically, chronotype changes with increasing age towards a more morning type. The aim of this study was to investigate whether the morning type is associated with mental illness, personality, and quality of life by considering a community sample of elderly individuals in Korea.

Method: The study used data from the 2011 Epidemiological survey of mental disorder in Korea. A total of 1,621 individuals aged 60 to 74 from five catchment areas were selected and 737 elderly completed the interviews. The Composite Scale of Morningness was used to investigate morning type. The Korean Composite International Diagnostic Interview was used to investigate psychiatric diagnoses. The EuroQol health classification system and life satisfaction scale were used to assess quality of life, and the Big Five Inventory-10 to measure personality traits.

Results: The prevalence of morning and evening type were 49.8 % and 2.3%. Compared with other type, the subjects with morning type were likely to be unemployed status. After adjusting for gender, age, area of residence, marital status, education, and employment, the morning type had significantly negative relationships with lifetime prevalence of any DSM-IV major mental disorder except for nicotine use disorder. In terms of quality of life, the subjects with morning type reported superior health outcome of usual activities and anxiety/depression. The subjects with morning type scored significantly higher than other type on extraversion and conscientiousness and lesser on neuroticism.

Conclusion: Morning type was significantly associated with less mental illness, good quality of life, and diverse personality. Further investigation is needed to examine the causal relationship between morning type and mental illness, quality of life, and personality.

P22: Building Intraprofessional Collaboration for Mental Health Practice with Older Adults Through Problem Based Learning

Elaine Jurkowski; Sharon Smaga; Cherie Kelly; Ruth Heitkamp

Repeatedly as multidisciplinary professionals we are concerned about the individual patient we serve – especially as we consider their cognitive and mental health needs. Intraprofessional collaboration across disciplines such as primary care medical practice, physician assistants, social workers and psychologists does not occur naturally, since educational programs are often taught independently of each other. Ironically though, these professional disciplines are required to work collaboratively with each other and expected to function to promote the best mental health outcomes for older adults. This poster presentation will illustrate a strategy employed within a rural based physician residency program to begin to address the issue of intraprofessional collaboration through problem based learning.

Objective: The objective was to promote communication across disciplines (Medicine, Social Work, Physician Assistant and Psychology) and help each discipline understand the roles played in promoting mental health and general health for older adults.

Methods: An educational seminar was conducted using cases and guide questions focused on professional teams identifying strategies for care. The teams consisted of Medical Residents, a Social Work student, a Psychology student and a Physician Assistant student. The teams were given a series of guide questions and asked to discuss the case, and identify a care plan. Debriefing followed to discuss the outcomes across all teams. The cases all had elements of mental health issues such as dementia, depression, anxiety and Alzheimer's disease.

Results: Overall, professionals were surprised at what they learned from the other disciplines they were collaborating with. They also learned about community based resources available as well as strategies to promote the well-being of their older adult patient and improve mental health outcomes. All participants felt that the opportunity to collaborate outside of their disciplines would strengthen their impact when working with older adults and their families.

Conclusion: The problem based learning approach coupled with the opportunity to collaborate with other disciplines through intraprofessional education (IPE) is a venue to improve overall collaboration across professionals and ultimately improve mental health outcomes of consumers.

P23: Validation of Korean version of Delirium Motor Subtype Scale (K-DMSS)

Jeong Lan Kim; Miji Lee; Hyunkyung Kim

Objectives: The Delirium Motor Subtype Scale (DMSS) was developed from previous different methods focusing on pure motor disturbances. The aim of this study was to investigate validity and reliability of the Korean version of DMSS.

Methods: 145 patients who were referred to consultation of psychiatry from June 2015 to February 2016 met DSM-5 diagnostic criteria for delirium. These patients received the K-DMSS, Liptzin & Levkoff's criteria, and the Korean version of Delirium Rating Scale Revised-98(K-DRS-R-98) to compare delirium motor subtypes.

Results: The internal consistency of the K-DMSS was acceptable (Cronbach's alpha=0.794). The delirium motor subtypes using K-DMSS and Liptzin & Levkoff's criteria met substantially agreement (Cohen's Kappa=0.776) and K-DMSS and K-DRS-R-98 met almost perfect agreement (Cohen's Kappa=0.809).

Conclusions: These results suggest that the K-DMSS is a valid and reliable tool for identifying the subtypes of delirium.

P24: Emergency Department Use by Community-Dwelling Persons with Dementia: A Systematic Review

Lauren Hunt; Caroline Stephens

Objective: Impending changes in healthcare reimbursement have spurred efforts to identify populations at high-risk of inappropriate use of the ED. The purpose of this systematic review was to: compare ED use by community-dwelling persons with and without dementia; and examine characteristics of community-dwelling PWD associated with higher ED use.

Methods: We searched several databases (Pubmed, Cinahl, PsycheInfo, Cochrane Library) with terms related to dementia, cognitive impairment, ED use, and acute care use. Study quality was assessed with AHRQ guidelines.

Results: Of the 4594 titles identified, 17 met inclusion criteria after title, abstract, and full-text screening. Eleven studies compared ED use by dementia status. Ten of these 11 studies found that PWD had higher ED use than the comparison group. The proportion with an ED visit ranged from 14-75% of PWD, compared to 12-41% for the comparison groups. Rates of ED visits for PWD ranged from 0.5-2.3 visits/year, compared to 0.26-1.4 visits/year for comparison groups. Differences between persons with and without dementia were attenuated in the last 1-3 years of life. Ten studies examined risk factors for ED use by community-dwelling PWD. Comorbid illnesses, symptoms such as pain, and increased severity of dementia tended to increase ED use. Most studies had multiple risks of bias that potentially affected the validity of findings.

Conclusion: For persons living in the community, dementia appears to be associated with higher ED use, although this association diminishes with proximity to death. Rigorous studies that address potential risks of bias are needed to bolster evidence for these findings.

P25: An educational program for nurses and caregivers incorporating a serious game to simulate care process for elderly individuals with Alzheimer's disease in Japan

Miwa Yamamoto; Yasuko Maekawa; Tomoharu Nakashima; Yoko Miyoshi; Junko Yoshimura; Kiyoko Tokunaga

Introduction: A serious game, or applied game, is a game designed to educate or train users, rather than to entertain them. As indicated by the adjective "serious," it is normally used in educational and industrial sectors (e.g., defense, scientific exploration, health care, emergency management, city planning, engineering, politics). Recently, the use of serious games in nursing education has drawn attention.

Objective: This study aimed to evaluate the effects of an educational program for nurses and caregivers using a serious game to simulate care processes for elderly individuals with Alzheimer's disease in Japan.

Methods: A serious game simulating elderly Alzheimer's disease care: An elderly woman with Alzheimer's disease is hospitalized, and the player of the game (nurse) is to take care of her. She presents with the symptoms of dementia, and the nurse is expected to react properly to what the elderly woman says, by selecting the most appropriate word from candidate words. Her symptoms keep changing according to the nurse's word choice as the game progresses. This game virtually provides an experience of dementia care by simulating changes in the patient. Digital learning materials also include a sample test from previous national nursing exams.

Participants: Eighty-three nurses and caregivers working at N hospital in Japan.

Analysis: Data were analyzed by the paired t-test.

Ethical considerations: Anonymity was ensured, and the study was approved by the ethics committee of Tottori University.

Results and Conclusion:

Participants were more likely to have a positive attitude toward seven of the 17 items after playing the serious game simulating elderly Alzheimer's disease care ($p<0.05$). In particular, nurses and caregivers were able to better appreciate the behavioural and psychological changes that result from Alzheimer's disease through the serious game. Our educational program incorporating elderly dementia care simulation may be useful for nurses and caregivers who provide elderly Alzheimer's disease care.

P26: A Quick Test of Cognitive Speed: Detecting Alzheimer's Disease in Korean Elderly

Youngsung Cho; Suyeon Pyo; Soowon Park; Jun-Young Lee

Objective: A Quick Test of Cognitive Speed (AQT) is a brief test for identifying cognitive impairment by measuring perceptual and cognitive speed. The purpose of this study was to evaluate the reliability and validity of AQT in the diagnosis of Alzheimer's disease (AD) in the Korean elderly.

Methods: A total of 75 partcipants were included in this study: 25 patients with AD, 25 patients with amnestic mild cognitive impairment (aMCI) and 25 adults with normal cognition. All of the participants performed the Mini-Mental State Examination (MMSE), the Clinical Dementia Rating (CDR) and AQT.

Results: The color-form reading time was significantly longer in AD patients (AD > normal, $p = .013$; AD > aMCI, $p = .028$). The color and color-form reading scores were higher in normal controls than the scores in AD patients, $p = .029$ and $p = .002$, respectively. The area under the curve of the color-form reading time was 0.75 (95% confidence interval: 0.61 - 0.88, $p = .003$), and the cut-off value was 92.5 seconds with a sensitivity of 0.72 and specificity of 0.64.

Conclusion: AQT is a useful test for detecting AD in the Korean elderly population. Specifically, compared to the color reading test, the color-form reading test showed greater potential to clinically distinguish AD from both aMCI and normal control.

P27: Study on Cognitive Reserve Using Cognitive Reserve Index Questionnaire

Chi Hyun Choi; Jae Yeon Hwang; Soowon Park; Hyeon-Ju Park; Youngsung Cho; Bo Kyung Sohn; Jun-Young Lee; Kang Seob Oh

Objectives: To evaluate cognitive reserve in Korea using Korean Version of Cognitive Reserve Index questionnaire (K-CRIq) and to investigate the effects of gender and age.
Methods: A total of 358 healthy subjects aged 25-85 years old in one community participated in the study. K-CRIq was developed and administered to all subjects to see the effects of gender and age on cognitive reserve and Mini Mental Status Exam and Montreal Cognitive Assessment were administered to subjects over 65 years old to test concurrent validity.
Results: Age and gender as well as their interaction significantly affected Cognitive Reserve Index (CRI) score. Men had higher cognitive reserve than women over 45 years old, but in young group there was no gender difference in cognitive reserve. CRI score and sub-scores had high and significant correlations with neurocognitive tests.
Conclusion: The above results indicate that gender effect on cognitive reserve is disappearing in young generation in Korea. And CRI score and cognitive functions were well correlated.

P28: Long-term culture of organotypic hippocampal slice of 3xTg Alzheimer’s disease model mouse

Soo Ah Jang; Hyungjeong Kim; Su Kyoung Lee; Hyejin Kim; Eun Woo Kim; Kee Namkoong; Eosu Kim; Byung Hoon Oh

Objective: Organotypic hippocampal tissue slice culture (OHSC), as an 'ex vivo' brain system, has provided an excellent platform to characterize specific features of the brain such as dynamics between neurons and glia, which cannot be examined by cell line or primary neuronal culture. However, OHSC system conventionally used has several limitations owing to using neonatal brain (not suitable for brain ageing studies) and limited time duration (several days; not proper to see long-term effects of psychotropic drugs). Most of all, it has not been identified yet whether brain tissues from neurodegenerative disease models could be used for this system. Therefore, we tried to establish OHSC from 3xTg Alzheimer’s disease (AD) model mice for longer period (up to 4 weeks) using the same method by which we had succeeded in long-term OHSC of adult mice.
Methods: We used serum-free media for OHSC from younger (2-4 month) versus older (12-14 month) AD mice, and also from control C57BL/6 mice (12-14 month). We assessed neuronal viability, metabolic efficiency, and histological features in hippocampal slices of older AD mice following 28 DIV. To validate the usefulness as an ex vivo disease model, we examined whether OHSC from AD mice still maintains the characteristics of the disease by measuring levels of amyloid-beta in slice tissue and culture media.
Results: Following 4-week culture in serum-free media, neuronal viability, metabolic efficiency and histological features were well preserved in OHSC from older AD mice. Intracellular and secreted levels of amyloid-beta were obviously higher in OHSC from older AD compared to younger AD and control mice ($p < 0.001$). Moreover, we could obtain several decades of brain slices from a single mouse.
Conclusion: Long-term OHSC from 3xTg AD mice may be a promising ex vivo system for pathophysiological and pharmacological studies on AD, while minimizing the number of sacrifice of experimental animals. This study was supported by a grant from Korea government, Ministry of Environment (RE201403111).

P29: Quality of Life and depressive symptoms in Alzheimer disease

Patricia Buchain; Eron Santos; Carlos Eduardo Marra; Regina Netto; Tania Alves

Objective: Quality of Life (QOL) in the elderly population is directly correlated with the autonomy in the performance of daily life activities, and therefore to the independency level in a socioeconomic and cultural context. It has been previously suggested that depressive symptoms had a strong correlation with the perception of QOL. This study aimed to investigate the presence of depressive symptoms and the perception in QOL in individuals with Alzheimer Disease (AD) compared to healthy elderly.

Methods: We investigated 42 AD patients, selected among outpatients of the Old Age Research Group, Institute of Psychiatry, and the reference center for cognitive disorders of the Clinical Hospital of the Faculty of Medicine of São Paulo; and compared to 42 elderly controls from local community. Statistical analysis were performed using Pearson correlation coefficient (r) for each group (cases x controls) for both depressive symptoms (accessed by using the Hamilton –D31) and quality of life domains, investigated by QoLAD and Whooqol Old/, Whoqol brief). The reference values of 0-0.35 related to poor correlation; 0.35-0.6 moderate correlation and above 0.6 strong correlation in all analysis.

Results: The correlation coefficient of Pearson (r) for the measures quality of life and humor in groups of cases and controls, indicate moderate correlation values of Hamilton and quality of life measures in cases and controls (see table1).

Conclusion: It was possible to verify that there is a moderate correlation measure of depressive symptoms with the perception of independent QOL in both cases and controls. The correlations show more than causal associations, and our findings were consistent with data reported in the literature. The perception of QOL in patients with AD seems to have a strong relation with depressive symptoms.

P30: A Prospective Study on Change of Hippocampal Volume by the Occurrence of APOE e4 in Mild Cognitive Impairment (MCI)

Kee Baik Seok; Seok Woo Moon

Objective: The aim of this study was to examine the relationship between APOE ε4 and the change in the hippocampal volume in MCI continued and MCI to AD converter group during 2 years.

Methods: This study had 50 subjects in all (25 men, 25 women), all of whom were diagnosed with MCI via CERAD-K at the beginning of this study. Subjects aged 65-85 years were included in this analysis for MCI, and their CDR score was 0.5. APOE genotyping was done in this group. To evaluate the change in the hippocampal volume, volumetric measurements were performed in the right and left hippocampus for two years. The hippocampal-volume measurements were conducted using BrainSuite, and the Pearson correlations between the hippocampal volumes were obtained manually and automatically. Two years later 50 subjects were diagnosed again as MCI or AD.

Results: It was found via repeated-measures ANCOVA that there was a significant correlation between APOE ε4 and hippocampal-volume atrophy. Over two years, statistically significant reductions of both the right and left hippocampal volumes were found. Two years later 35 subjects were diagnosed as MCI (MCI continued) and 15 subjects were diagnosed as AD (MCI to AD converter). The change in the hippocampal volume in MCI to AD converter group was more influenced by APOE ε4 than in MCI continued group.

Conclusions: In the current study, the longitudinal changes in the bilateral hippocampal volumes over two years through the occurrence of APOE ε4 were examined. The change in the hippocampal volume in MCI to AD converter group was more influenced by APOE ε4 than in MCI continued group. These results suggest that the possession of APOE ε4 may lead to greater predilection for converting to AD in former MCI subjects

	QdV-DA (paciente)		**QdV-DA** (cuidador)		**QdV-DA** (total)		**WHOQOL-BREF**		**WHOQOL-OLD**	
	r	*P*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Hamilton cases (n=24)	-0,323	0,124	-0,597**	0,004	-0,428*	0,037	-0,590**	0,002	-0,519*	0,013
Hamilton controls (n=26)	-0,449*	0,021	-0,401*	0,042	0,516**	0,007	-0,469*	0,016	-0,522*	0,006

Table 1. Buchain, et al.

P31: Direct and Indirect evaluation of functionality in AD patients

Janaina Harder; Patricia Buchain; Tania Alves; Pmela Quiroga; Everton Duarte; Pamela Cotting Homem de Mello; Alexandra Oliveira

There are many instruments developed to evaluate independency level and functional status in the elderly population with Alzheimer disease (AD). The majority of those instruments are indirect interviews that use caregivers answers to estimate functional status. They have the advantage of being brief, however they might be subject of influence of mood status and stress level from the caregivers and not adequatedely represent the independency level of AD patient.

Objective: we aimed to compare both indirect and direct interviews designed to estimate functional status in AD patients and helath elderly.

Methods: we evaluated 21 AD patients (CDR =1) with their caregivers, 23 healthy elderly (CDR =0) with their imediate family using inderect interviews (Lawton&Brody, Pfeffer, IQCode, Bayer-ADL) and compare to a direct evaluation of functionality by DAFS. The caregivers/family were investigated to cognitive deficts (MOCA), Zarit, and caregiver burden inventory, BAI and BDI. Statistical analysis were performed using Kappa score for the investigation of both total score of the direct and indirect interview as well as investigated specific domains. Descritive analisys were performed using either Chi-square or t-test.

Results: the total score of both indirect and direct evaluations did not show statistical diference, showing a strong correlation in both AD and healthy elderly. However, individuals domains directly evaluated by DAFS showed an weaker correlation to inderect evaluation, specifically in the AD patients when compared to healthy elders.

Conclusion: the inderct interviews are interesting tools for screening functional status in AD patients and health elders, however in AD patients, the functional status is better assessed by direct ecological interviews.

P32: Apraxia evaluation in nonagenarian: data from an Ambulatory Geriatrics

Jose Martinelli; Livia Galeote; Isadora Araujo; Barbara Stella; Nicole Costa; Juliana Cecato

Introduction: Population growth is a challenge for health professionals mainly provide quality services for those who cross the 90 years.

Objective: To evaluate and to compare the performance of nonagenarian patients with AD and healthy elderly to the results obtained in the subtests for apraxia.

Methods: We evaluated 78 subjects with more than 90 years old both genders and at least 1 year of schooling, through the Mini-Mental State examination (MMSE), Cambridge Cognitive Examination (CAMCOG) and the Clock drawing Test. To analyze the presence of apraxia, eight subitems of CAMCOG were selected: the drawings of the pentagon, spiral, house, clock; and the tasks of putting a piece of paper in an envelope; the correct one hand waiving "Goodbye" movements; paper cutting using scissors; and brushing teeth.

Results: It is observed average MMSE of 18.48 points, CAMLOG 59.94 points and sub Apraxia 8.65 points in the group receiving diagnosis of AD, while the control group had a mean MMSE 26.15 points, CAMLOG 82, Apraxia 23 points and 9.96 points, statistically significant differences between the groups in the tests, respectively, p = 0.007, p <0.0001 and p <0.0001. A negative moderate and significant correlation coefficient can be found between apraxia and PFAQ (r = -0.57; p <0.0001), indicating that the lower score in subitem apraxia greater the patient's difficulty in performing functional activities.

Conclusion: Apraxia research in nonagenarian becomes an important aspect to present results with a significant number of subjects with more than 90 years, and an important indicator for psychotherapy and occupational therapy, contributing to the quality of life of older people, especially with cognitive decline.

P33: Lack of information about apraxia in Mini-mental State Exam: evaluating Alzheimer's disease

Juliana Cecato; Ivan Aprahamian; Livia Galeote; Isadora Araujo; Barbara Stella; Nicole Costa; Jose Martinelli

Objective: The purpose of this study was to compare the performance of apraxia using Pentagon Drawing Test (PDT) in healthy elderly and those with AD diagnosis by Bourke' scale.
Method: We evaluated 390 elderly patients, aged 60 years or more with at least two years of schooling who underwent medical and neuropsychological evaluation. The neuropsychological evaluation including the Cambridge Cognitive Examination (CAMCOG), MMSE, Clock Drawing Test (CDT) ranked according Mendez' scale and PDT by Bourke' scale.
Results: Outcomes analyses demonstrated that in the AD group had no significance differs from healthy elderly in MMSE pentagons drawing test (p = 0,839). Although, when it was analyzed PDT by Bourke' scale it was able to distinguish AD group from healthy elderly (p<0,0001).
Conclusion: Bourke' scale analyzed PDT using six scores, representing a better way to correct the performance in elderly patients to give more data about organic brain impairment. In can be concluded that should be applied because it can yield valuable information about praxis.

P34: Development of a Virtual Reality-experience to improve compassion in caregivers of people with dementia

Marjolein Veerbeek; Bernadette Willemse; Marleen Prins;
Anne Margriet Pot

Objctive: Family caregivers often find it difficult to understand en cope with the changing functioning and behavior of their family member with dementia (Peeters *et al.*, 2012; Van den Wijngaart *et al.*, 2007). Improved understanding of the person with dementia reduces stress and leads to a more empathetic relationship, thereby reducing care burden (Lamm *et al.*, 2007a; Lamm *et al.*, 2007b). To enhance understanding and compassion in caregivers, a Virtual Reality (VR)-experience accompanied by an e-learning is developed, called 'Through the D'mentia Lens' (TDL).
Methods: The script of TDL is based on an existing real-life intervention called 'Into D'mentia' (www.intodmentia.nl) and supplemented with new input of caregivers (N=6). In the e-learning following the VR-experience, the theory of 'person centered care' is incorporated. Both the VR-experience and e-learning are tested again by six caregivers to finalize TDL. Subsequently, a pilot study is carried out (N=40) to investigate whether or not TDL has an impact on empathy, attitude towards people with dementia, quality of the relationship, self-efficacy in caring for someone with dementia and perceived pressure. A process evaluation will give insight into the feasibility and acceptability of TDL.
Results: During this poster session the development and content of TDL and the design of the pilot study will be presented.
Discussion: On the basis of the results of the pilot, TDL will be adapted if needed. The final version of TDL will be ready and implemented at a nationwide level in Autumn 2016.

P35: Idalopirdine, a 5-HT6 antagonist in phase III development as adjunctive therapy to cholinesterase inhibitors in patients with mild-to-moderate Alzheimer's disease: the observed care analyses of the phase II study

Jeffrey Cummings; Kristian Windfeld; Tomas Odergren

Presented by: Dan Michel

Objective: To further assess the efficacy results of idalopirdine as adjunctive therapy to cholinesterase inhibitors (ChEI) in the phase II (Ladder) study in patients with moderate Alzheimer's disease (AD).

Background: A Phase II double-blind, placebo-controlled, parallel-group study explored the efficacy/safety of 90 mg/day of idalopirdine as add-on to donepezil background therapy in 278 individuals with moderate AD (MMSE 12–19). A statistically significant benefit on ADAS-Cog, the primary endpoint, was demonstrated in the Intention-to-treat analyses with supportive data consistent with potential benefits on function and clinical global impression instruments. This was based on a mixed-effects model for repeated measures (MMRM) (change score-MMRM) analysis of post-baseline changes from baseline in efficacy assessments, the primary endpoint being defined at week 24. Observed case (OC) analysis is commonly used for analysing clinical trials in AD, basing the results on those patients who actually completed the planned visits. We utilized this method to further evaluate the results for individual clinical domains.

Methods: Changes from baseline of the key efficacy endpoints ADAS-Cog, ADCS-ADL and ADCS-CGIC, were analysed using analysis of covariance (ANCOVA) with treatment and pooled site as factors and baseline score as covariate, for Weeks 4, 12, and 24, separately based on observed cases, i.e. including measurements for those patients who completed the corresponding visits.

Results: The estimated treatment effects in the OC analyses at week 24 was -2.40 (95% CI: -3.89; -0.91, p=0.0017) for ADAS-Cog, 2.39 points (95% CI: 0.05; 4.74, p=0.046) for ADCS-ADL, and -0.26 (95% CI: -0.53; 0.01, p=0.062) for ADCS-CGIC. These results concur with the primary analysis with slightly higher estimated effect sizes. At Week 24 there were 114 and 118 completers on idalopirdine and placebo, respectively. A global Phase III program to further evaluate the efficacy and safety of idalopirdine (10-60 mg/day) in individuals aged ≥50 years with mild and moderate AD (MMSE 12-22) on stable background ChEI therapy is at an advanced stage of enrolment targeting ~2500 patients worldwide.

P36: Synergistic effects of Aβ on a-synuclein-induced neurotoxicity and behavioral deficits in dementia with Lewy bodies (DLB)

Te-Jen Lai; Yen-Ting Chang; Hsin-Hua Li; Ching-Chi Chang; Ying-Jui Ho; Pai-Yi Chiu; Chih-Li Lin

Objective: Dementia with Lewy bodies (DLB) is a common cause of cognitive impairments in elderly. Such disease is incurable, resulting in progressive neuron degeneration and disordered behavior. The underlying biology of DLB is complex, but the presence of aggregated α-synuclein is the most important feature. It is interesting that many DLB cases are often displayed amyloid β (Aβ) depositions that are associated with Alzheimer's disease (AD). Additionally, α-synuclein and Aβ are also frequently co-localized in Lewy bodies. However, it remains unclear how Aβ contributes to the deposition and neurotoxicity of α-synuclein.

Methods: To provide a basic understanding of Aβ in DLB molecular pathogenicity, we delivered a wild-type α-synuclein expressional vector into rats' brain ventricular space in mimicking primarily cerebral type of DLB by a stereotaxic surgery. In addition, Aβ peptides were also injected bilaterally into the hippocampus to imitate the action of Aβ. Once behavioral testing was completed after 6 weeks of stereotaxic injection, these rats were sacrificed and the brains were dissected and collected for further analysis.

Results: Our results demonstrated that Aβ could promote α-synuclein aggregation, and enhance neurotoxicity in a synergistic effect. Moreover, Aβ also decreased the degradation of aggregated α-synuclein by interfering mTOR-suppressed autophagy, and inhibited antioxidative genes expression by downregulation of Sirt1 and SOD1 protein levels.

Conclusion: In summary, our results confirmed and extended the contributing role of Aβ in DLB pathogenesis, and demonstrated the confluence of aggregated α-synuclein neurotoxicity and behavioral deficits. We therefore postulate that Aβ may contribute to α-synuclein-induced neurotoxicity by protein modification, aggregation, clearance and oxidative stress in DLB. Based on these findings, we hope these new insights will provide a better understanding in preventive or therapeutic strategies of DLB in the future.

P37: Potential Treatments for Lewy Body Dementia Investigated in Three-Randomized, Double-Blind, Placebo-Controlled Phase 2 Studies of Intepirdine and Nelotanserin

Lawrence Friedhoff; Ilise Lombardo; Warren Wen; Geetha Ramaswamy; Jason Olin

Objective: To evaluate the safety and efficacy of RVT-101 and nelotanserin in Lewy body dementia.
Background: Lewy body dementia (LBD) is a progressive neurodegenerative disease, affecting approximately 1.4 million elderly in the U.S. LBD includes two related disorders: dementia with Lewy bodies (DLB) and Parkinson's disease dementia (PDD). Although cognitive dysfunction is a core component of LBD, approximately 80% of patients also exhibit behavioral disturbances, including visual hallucinations (VH) and REM behavior disorder (RBD). RVT-101, a potent antagonist of the 5-hydroxytryptamine 6 (5-HT6) receptor, is being evaluated in the HEADWAY-DLB study. Nelotanserin, a highly potent and selective inverse agonist of the 5-HT2A receptor, is currently being evaluated in two phase 2 studies in LBD.
Methods: HEADWAY-DLB is a 24-week, randomized, double-blind, placebo-controlled study of RVT-101 in subjects with a diagnosis of DLB. Key efficacy evaluations will focus on measures of cognition and function. Subjects must have an MMSE score of 14 – 26 (inclusive) at screening. Completing subjects from HEADWAY-DLB will be eligible to enroll in an active extension arm.
The first study of nelotanserin will be in subjects with a diagnosis of DLB or PDD. This is a randomized, double-blind, placebo-controlled, crossover study in subjects experiencing frequent VHs. There will be two 28-day treatment periods separated by a washout period. The second study of nelotanserin is a randomized, double-blind, placebo-controlled study in DLB subjects experiencing frequent episodes of RBD. Subjects will undergo assessments of RBD at baseline and at the end of the treatment period. Completing subjects from both nelotanserin studies will be eligible to enroll in an open-label study.
Each study requires subjects to have a reliable caregiver or study partner.
Results: N/A
Conclusion: Three studies evaluating RVT-101 and nelotanserin in LBD were initiated in early 2016. The studies focus on core symptoms of LBD: cognitive dysfunction, visual hallucinations, and REM behavior disorder.

P38: Comparison of Different Cognitive Function Scales for Screening the Mild Cognitive Impairment Among the Older Taiwanese People

Jhan Yi Lin; Hui-Chuan Hsu; Jiun-Yi Wang

Purpose: Mild cognitive impairment (MCI) is easily neglected among older adults. Most prevalent cognitive assessment tools in Taiwan, such as mini-mental state examination (MMSE), are not sensitive enough to screen for MCI. The purpose of this study was to compare different cognitive function screening scales in their adaptation, sensitivity, and specificity.
Methods: The participants were community-based samples, aged 65 or above, from community care centers in Taichung, Taiwan. The data was collected through face-to-face interviews, with a total of 145 individuals having completed the assessment. The interviews ranged from thirty to fifty minutes. Three cognitive assessment scales (Mini-mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA), and Addenbrooke's Cognitive Examination-III (ACE-III)) were employed in the questionnaire.
Results: The kappa coefficient of ACE-III with MMSE was 0.275, and that of MoCA with MMSE was 0.481, indicating low to moderate consistency. When using MMSE as the golden standard, the sensitivity of MOCA compared to MMSE was 97.6% and its specificity was 23%; whereas the sensitivity of ACE-III was 94.0% and specificity was 31.1%. Many cognitive dimensions were covered across the scales (visual memory and executive function, naming, immediate memory, understanding and executive function, calculation, verbal fluency, delayed memory, and orientation), though only ACE-III screened for episodic memory. ACE-III detected a greater degree of MCI than MoCA in calculation and verbal fluency, while MoCA detected a greater degree of MCI than ACE-III in naming, immediate memory, delayed memory, and orientation.
Conclusion: The consistency among the three scales ranged from fair to moderate. The progression of MCI should be considered to evaluate the appropriateness of the application of screening tools, and validation of the Taiwanese versions of the scales by psychiatric physicians is suggested.

P39: Extrapyramidal signs as a risk factor for progression from mild cognitive impairment to dementia: a CREDOS study

Jae Wong Chung; Woojae Myung; Jinhong Park; Sook-young Woo; Myeong-Il Han; Seonwoo Kim; Sang Ha Kim; Hyo Shin Kang; Shinn-Won Lim; Junbae Choi; Duk Na; Seong Yoon Kim; Jae-Hong Lee; Bernard Carroll; Doh Kwan Kim

Objective: Extrapyramidal signs (EPS) are common in patients with mild cognitive impairment (MCI). However, few studies have assessed the effect of EPS on the clinical course of MCI. We aimed to evaluate whether patients with EPS show more frequent progression from MCI to Alzheimer disease (AD) and to other types of dementia.

Design: Prospective cohort study.

Setting: Academic neurology and psychiatry services in university hospitals.

Participants: A total of 882 participants with MCI diagnoses at baseline. Participants were followed for up to 5 years.

Measurement: Associations of progression to AD or dementia other than AD during follow-up with baseline characteristics including EPS status and potential confounders (gender, age, education, diabetes mellitus, hypertension, baseline cognitive function, depressive symptoms, white matter hyperintensity severity, and type of MCI). The EPS positive group was defined by the presence of at least one EPS based on a focused neurologic examination at baseline. We used Cox regression for competing risks to analyze the effect of EPS on AD, treating dementia other than AD as a competing risk, and then on dementia other than AD, treating AD as a competing risk.

Results: Among the 882 patients with MCI, a total of 234 (26.5%) converted to dementia during the follow-up period. The risk of progression to AD was lower in the patients with EPS after adjusting for potential confounders (hazard ratio [HR] = 0.70, 95% confidence interval [CI] = 0.53–0.93, p = 0.01). In contrast, the patients with EPS had a six-fold elevated risk of progression to dementia other than AD (HR = 6.33, 95%CI = 2.30–17.39, p < 0.001).

Conclusion: EPS in patients with MCI is a strong risk factor for progression of MCI to non-Alzheimer dementia. The careful neurologic examination for EPS in patients with MCI can yield important clinical information for prognosis.

P40: The Influence of Polypharmacy in Cognitive Decline for an Elderly Population: a Nationwide Population-Based Survey

Chih-Ming Cheng; Wen-Han Chang; Cheng-Hong Yang; Chia-Fen Tsai

Objective: Polypharmacy was defined as the concomitant use of 5 or more medications, has a potential negative association with cognitive decline in literature. However, there is a dearth of study analyzing the effects of polypharmacy on mild cognitive impairment (MCI) and dementia. We performed a nationwide population-based cross-sectional survey to investigate the association among polypharmacy, MCI and dementia.

Methods: Participants were recruited via computerized random sampling according to the proportion of all 19 Taiwan counties to achieve a nationally representative sample. Subjects were identified through in-person interviews and enrolled between December 2011 and March 2013. Demographic data and clinical information included of medical histories and medicine use, mental status measured by the Taiwanese Mini Mental Status Examination (MMSE) and Clinical Dementia Rating (CDR), and function in daily living were collected and subjects were distributed to normal, MCI or dementia groups based on the criteria recommended by the National Institute on Aging-Alzheimer's Association. Logistic regression model was used for the association between those three cognitive groups and polypharmacy.

Results: 7422 people aged 65 years or older (mean age 76.05 ± 6.7, 52.4% women) were interviewed and recruited. After adjusting age, gender, body matric index, education and medical history of DM, HTN, stroke, hyperlipidemia, polypharmacy addressed elevated risk of MCI (OR: 1.95,95% CI: 1.61- 2.36) and dementia (OR=2.62, 95% CI: 1.91-3.61). Polypharmacy was associated with a 0.43 ± 0.182 decreased on MMSE scores (P=0.02) and was associated with a 0.42±0.645 increased on CDR scores (P=0<0.001).

Conclusion: Polypharmacy is an important factor associated with higher risk of MCI and dementia. Beforehand, we should pay more attention to arrange cognitive evaluation and related intervention advance in those patients.

P41: Cognitive Impairment and Depressive Symptoms among Elderly Patients presenting with Fall injury in Orthopaedic clinics in South western Nigeria

Olusegun Baiyewu; Olufisayo Elugbadebo

Background: Falls are major cause of morbidity and mortality in the elderly. Common old age mental health problems such as depression and cognitive impairment are also identified as risk factors for fall in this population. In particular, there is little or no research into these associations among the elderly population in the Sub-Saharan Africa.

Objective: This study set out to determine the prevalence of cognitive impairment and depressive symptoms and also describe the association between falls, cognitive impairment and depressive symptoms among elderly patients presenting with fall injury in orthopaedic clinics in Southwestern Nigeria.

Method: A Cross sectional descriptive study of Seventy elderly patients presenting at the orthopaedic clinics of the University College Hospital and Oyo State Government Hospital for treatment of injuries sustained following a history of fall . Sociodemographic data was collected using a data collection sheet. Cognitive status was assessed using Mini Mental State Examination, Animal Fluency Test, Delayed Word Recall, Stick Design Test. Functioning was assessed by Instrumental Activity of Daily Living Scale, severity of dementia by Clinical Dementia Rating Scale and presence of depressive symptoms was assessed using GDS 15.The SPSS -17.0 was used to generate frequency tables, cross tabulations and tests of significance; the level of significance was set at 0.05, 95%CI.

Results: The prevalence of dementia and mild cognitive impairment among the participants were 22.9% and 14.35% respectively. Prevalence of depressive symptom was 20% with 44.3% of the participants reporting more than one fall in the last 12 months. Presence of depressive symptoms, mild cognitive impairment were not significantly associated with having had more than one fall while dementia had a significant association ($p<0.05$). On regression analysis, those with dementia were 1.6 times likely to have had more than one fall but was insignificant (OR: 1.6, CI: 0.44 -1.71).

Conclusions: Presence of depressive symptoms, mild cognitive impairment and dementia are common among elderly patients presenting with fall injury. Although the presence of depressive symptoms, dementia and mild cognitive impairment were not significantly associated with more than one fall, the prevalence of these mental health problems are notable in this high risk group.

P42: Client experiences following a clinical diagnosis of mild cognitive impairment and cognitive disorder not otherwise specified

Alison McKinlay; Janet Leathem; Paul Merrick

Mild cognitive impairment (MCI) is a label used to describe impaired cognition beyond what is expected for an individuals' age. Clinically, it is increasingly being used to label symptoms that indicate an elevated risk of developing dementia (Petersen et al., 2014). In New Zealand (NZ), there is great variation in the terminology being used to describe cognitive impairment in older age, including MCI and cognitive disorder not otherwise specified (CD-NOS). In a study involving three older adult healthcare services, we present the qualitative experiences of nine clients following MCI and CD-NOS diagnosis.

All participants were interviewed within three months of receiving a diagnosis from their psychogeriatrician. Interpretative phenomenological analysis was used to analyse interview transcripts from four older adults diagnosed with MCI, and five diagnosed with CD-NOS.

Diagnosis itself was not described as concerning or upsetting. Many did not agree with their geriatrician on the cause of their diagnosis, but spoke about symptom development in terms of their personal biography (e.g., age, retirement, personality). Experiences of struggle were tied to presence of other illnesses and self-blame for symptoms.

Several participants reported difficulty in coming to terms with their diagnosis, but most felt hopeful based on steps they were taking to maintain their cognitive health. This was aided by information provided by healthcare services during the process of diagnosis. The tendency to self-blame may represent a space for clinicians to address with their clients during diagnosis delivery or follow-up.

P43: Subjective cognitive impairment, mental health disorders and global cognitive functioning among older adults in primary care

Marie-Christine Payette; Lina Roy; Sebastien Grenier

Presented by: Fethia Benyebdri

Objective: This study aimed at determining if global cognitive functioning varies according to subjective cognitive impairment and the presence or absence of a mood disorder or an anxiety disorder (based on a structured clinical interview), while controlling for age and education.

Methods: Data came from the ESA-Services study, which was conducted in Quebec (Canada) from 2011 to 2013. Older adults with probable cognitive impairment (MMSE below 10th percentile based on norms from Hudon *et al.*, 2009) were excluded. Participants (n=1458; 57.1% women; mean age=73.56, range=65-96) were asked how much they had been concerned about a memory problem in the past month. A factorial between subject ANCOVA was performed, with DV=MMSE score, IV_1=Memory concern (Not at all, A little, Moderately, A lot or extremely), IV_2=Anxiety disorder (Yes or No), IV_3=Mood disorder (Yes or No), $Covariate_1$=Age and $Covariate_2$=Education.

Results: After adjustment by covariates, MMSE scores varied significantly with memory concern, with F(3,1428)=4.998, p=.002, but not with the presence or absence of an anxiety disorder, with F(1,1428)=0.00, p=.988 or a mood disorder, with F(1,1428)=0.114, p=.736. The interaction between memory concern and the presence or absence of an anxiety disorder or a mood disorder was not, but almost, statistically significant, with F(3,1428)=2.285, p=.077. Bonferroni *post hoc* tests revealed that older adults who were “A lot or extremely” concerned with their memory had significantly lower MMSE scores (M=27.99, SD=0.24) than those who were “not at all” (M=28.75, SD=0.10, p=.022), “a little” (M=28.88, SD=0.12, p=.006) or “moderately” (M=29.14, SD=0.19, p=.001) concerned.

Conclusion: This study demonstrates that older adults with severe memory concerns differ from their counterparts with less concerns on global cognitive functioning, although their scores remain within the normal range. They are therefore likely to go undetected, but subjective memory complaints without objective evidence of deficits have been identified as predictors of incident mild cognitive impairment and dementia (Reisberg *et al.*, 2008). Depression and other mental disorders have previously been associated with cognitive complaints (Piras *et al.*, 2016; Stewart, 2012) and the nearly statistically significant interaction between memory concern and mental disorders suggests there may be a different global cognitive pattern among groups.

P44: Relationship between Serum Homocysteine Level, Drinking and Partners of Dementia Patients

Jian-Kang Chao

Background: Prevalence of degenerative dementias and dementias associated with cerebrovascular disease is increasing. Dementia is one of the most significant public health problems.

Aims: This research used demographic data, medical history, general biochemical data and serum homocysteine (tHcy) levels to examine the differences between dementia and normal control groups.

Methods: A cross-sectional study was collected the data from 236 individuals who were above the age of 65. These participants went through the Mini-Mental State Examination (MMSE), Clinical Dementia Rating (CDR), demographic characteristics, biochemical data and homocysteine level. Each of the above mentioned factors was assessed.

Results: The two groups showed significant differences in terms of history of hypertension, diabetes mellitus and heart disease, marital status, alcohol consumption, BMI value, and triglyceride and serum tHcy levels. Results are analyzed in logistic regression analysis, which showed significant differences in marital status, alcohol consumption and tHcy.

Conclusions: We propose that plasma tHcy, alcohol consumption and partner interaction have a combined effect on cognitive impairment in older adults.

P45: A Quasi-Randomized Controlled Trial of Brain-Activating Rehabilitation on the Day Care Setting at an Acute Hospital

Kenji Tsuchiya; Tomoharu Yamaguchi; Takaaki Fujita; Maya Taguchi; Aoi Honda; Yuki Satou; Hiroshi Sekiguchi; Noriko Kimura; Tenshi Osawa; Masanori Terauchi

Objective: We aimed to confirm the effectiveness of brain-activating rehabilitation (BAR) performed in the day care setting at an acute hospital. BAR is based on 5 principles: developing a pleasant atmosphere, promoting communication, praising patients; giving patients a social role; and providing supportive care. A previous randomized controlled trial demonstrated that an intervention based on the principles of BAR was effective at maintaining and improving daily life functions in elderly patients with dementia that were living in residential care homes (Yamagami T. et al. 2012) Another study found that BAR was useful for maintaining and improving cognitive function, BPSD, depression, and motivation (Sekine A. et al. 2013). There have not been any studies about the use of BAR in the acute hospital day care setting.

Methods: A total of 48 patients with dementia or cognitive impairment were selected and randomly divided into the intervention and control groups. The BAR-based intervention was conducted for 1 hour, 3 times a week. The subjects' score of the multidimensional observation scale for elderly subjects (MOSES) was used as outcome measures.

Results: Repeated-measures analysis of covariance (ANCOVA) was performed with age, sex, and the intervention period as covariates at the end of the study. ANCOVA detected a significant interaction between the MOSES disorientation (F = 4.437, p = 0.041) and withdrawal (F = 5.052, p = 0.030) subscales.

Conclusion: A BAR-based intervention performed at our acute hospital was effective at maintaining and improving the cognitive and psychosocial functioning of patients with dementia or cognitive impairment.

P46: Prevalence of Mild Behavioral Impairment (MBI) in a Memory Clinic Population and the Impact on Caregiver Burden

Faisal Sheikh; Zahinoor Ismail; Philip Barber; Alicja Cieslak; Moyra Mortby; Karyn Fischer; Robert Granger; David Hogan; Aaron Mackie; Colleen Maxwell; Bijoy Menon; David Patry; Dawn Pearson; Jermey Quickfall; Eric Smith

Objective: Mild Behavioural Impairment (MBI) is a proposed pre-dementia syndrome (Ismail et al., 2016) that is described by acquired later-life Neuropsychiatric Symptoms (NPS) in the domains of apathy, mood, impulse control, social appropriateness, and psychosis, in advance of or in concert with Mild Cognitive Impairment (MCI). However, limited data exist on the prevalence of NPS categorized by MBI domains in symptomatic patients with MCI or subjective cognitive decline, and their impact on caregiver burden.

Methods: Data from Neuropsychiatric Inventory questionnaires (NPI-Q) and Zarit caregiver burden scale (15 item) administered in a memory clinic population between 2010-2015 were analyzed. Patients had subjective cognitive decline (n=95) or MCI (n=148). The prevalence and characteristics of NPS, MBI domains and the association with caregiver burden were determined using descriptive statistics with Chi square, Mann Whitney U and Bootstrapping analyses performed when appropriate.

Results: Mean age and education were 61.1 and 13.9 years respectively. Significant differences were not found in any MBI domain with regards to gender (p=0.72) age difference(p=0.89), MMSE(p=0.41) or MoCA score (p=0.31). The prevalence of any NPS was 81.6% (n=230). For MBI domains frequencies of NPS were: 1) mood 77.8%; 2) impulse control 64.4%;3) apathy 51.7%;4) social appropriateness 27.8%; and 5) psychosis 8.7. Mean caregiver burden scores were significantly greater with any MBI domain (19.1 vs. 5.4;p<0.0001), and linearly increased with multiple MBI domains.

Conclusions: MBI symptoms are very common in pre-dementia clinical states, with similar frequency in subjective cognitive decline and MCI. MBI domains were clinically relevant because they were associated with greater caregiver burden. These data suggest that MBI is a common and clinically relevant syndrome, independent of the effects of cognitive decline.

Because the NPI-Q was designed for use in a dementia population, future MBI-specific questionnaires may be more appropriate for use in non-demented persons as a possible predictive tool for future onset of dementia and ongoing caregiver burden.

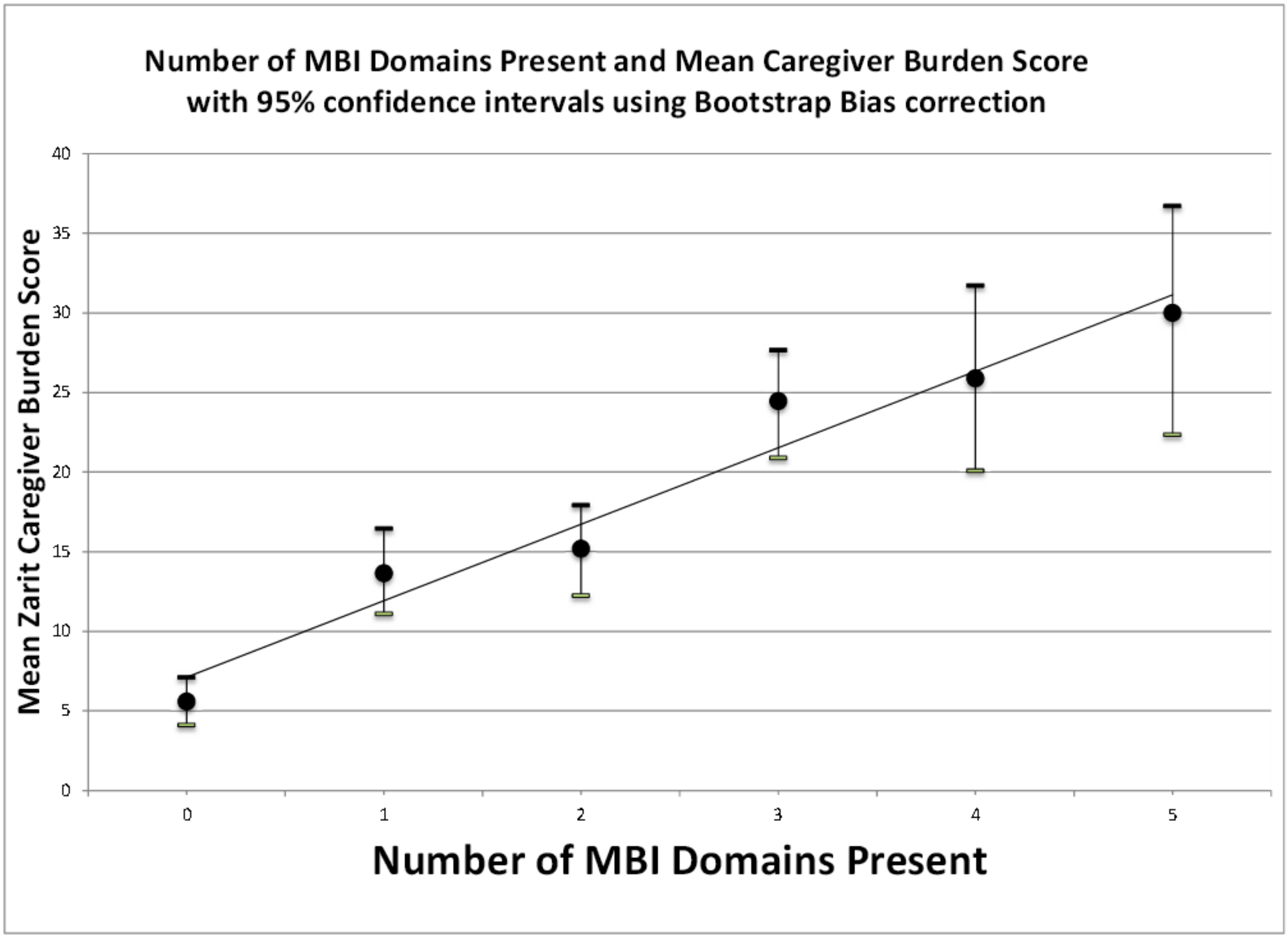


Figure 1. Sheikh, et al.

P47: An abbreviated scale measuring social cognition in dementia syndromes

John Papatriantafyllou; Vasiliki Kamtsadeli; Theodoros Parthymos; Evi Lykou; Maria Hatzopoulou; Tatianna Dimitriou-Kirchoff; Niki Tsinia; Sokratis Papageorgiou;

Objective: The domain of social cognition is in the criteria of DSM-5 for dementia.

A small and accurate scale is lacking that could be used in outpatient clinics and as bedside instrument for the diagnosis and follow up of this domain.

Method: From a 3rd Age Center we screened 401 subjects. For diagnosis we used the established criteria.

Multi-domain-MCI, Alzheimer's Disease, Fronto Temporal Degeneration's subtypes (behavioral-variant-bv, Progressive-non-fluent-Aphasia, semantic-variant, Cortico Basal Degeneration /Supranuclear Pulsy), Lewy Body Dementia/Parkinson's Dementia and Parkinson's Disease.

All subjects screened by Addenbrooke's Cognitive Examination-revisited, Frontal Assessment Battery, Geriatric DepressionScale, Neuro PsychiatricInventory.

For Social Cognition we used the scales from NACC/FTD module 2012.

1) For the caregiver

Interpersonal Reactivity Index, the subscales Empathic Concern and Perspective Taking

Revised-Self-Monitoring Scale Behavioral Inhibition Scale

2) For the patient

Social Norms Questionnaire

We added the matching of face affect from CATS.

Results: We run discriminant analysis to find which questions better discriminate the syndromes.

IRI-PTS

He/She sometimes tries to understand his/her friends better by imagining how things look from their perspective

He/She believes that there are two sides to every question and tries to look at them both

RSMS

Once he/she knows what the situation calls for, it's easy for him/her to regulate his/her actions accordingly

SNQ -Is it socially acceptable?

Pick your nose in public?

Talk out loud during a movie at the theater?

Tell a coworker you think they have lost weight?

Face Match Affect

Fear/Anger

Conclusion: Eight (8) items seem to evaluate social cognition in dementia syndromes an give an easy way to the clinician to follow up his patients.

mean	No **401**	ACER	FAB	GDS	NPI total	IRI ECS	IRI PTS	RSMS	SNQ Y/N	MATCH AFFECT	BIS
Normal	151	94.3	17.5	5	8.6	24.3	18.1	62.8	.65	8.7	14.5
mdMCI	81	78	14.1	9.1	17.3	20	12	49.7	.59	6.8	15.3
AD	69	59.7	12	7.1	17.3	19.8	10.2	49.5	0.56	5.9	13.9
FTD											
bvFTD	27	68	9.5	5.4	35.5	13.2	5.8	35.3	.47	5.4	16.9
PnFA	8	64.5	10.3	8.3	20.4	18.4	9	46.6	.82	3	14.5
svFTD	21	45.7	10.8	5.1	28.5	17.3	6.6	35.2	1.2	3.4	14.8
CBD/PSP	16	54.5	8	7.1	22.5	16.5	8.9	41.7	.48	4.5	14.2
LBD/PDD	19	58.7	12.6	10.6	28	17	10.3	46	.56	6.3	13.3

Table 1. Papatriantafyllou, et al.

P48: Stigma kills! A case report of a Ugandan woman suffering from HIV; the psychological effects of emotional abuse and discrimination into old age

Simon Ruffell

Introduction: Stigma surrounding HIV remains, regardless of improvements in education and understanding. WHO 2015 guidelines attempt to combat barriers to HIV treatment such as stigma and discrimination[1]. Despite this HIV is often associated with infidelity and sex work, especially in sub-Saharan Africa.

Psychological effects of stigma and discrimination

After the death of her husband in 1994, Mrs X was forced to leave home. Learning she had HIV, the consensus of her late husband's family was Mrs X should die alone. She suffered from insomnia, anxiety, panic attacks, poor concentration, hopelessness and worthlessness. Socially isolated, after years of self-neglect, she prepared to overdose and left a suicide note. In 2007 Mrs X became open regarding her status. Although the majority of her psychological symptoms ended at this time, she has ongoing issues with anxiety, regularly visiting counsellors. She is plagued by night terrors, flashbacks and panic attacks; reliving emotional abuse.

The effects of psychological support

In 1996 Mrs X met her current husband. Also suffering from HIV, he attended hospital with Mrs X to receive treatment. Fortunately, Mr X did not believe the majority opinion within their village; that antiretroviral therapy was a fatal hoax, designed to end the lives of those with HIV. She attended counselling sessions and her well-being significantly improved. She opened her home as an HIV clinic with the help of a local doctor, and the gossip of local villagers regarding her HIV status only served to promote the service. As Mrs X now says "Everyone wants to be my friend, there isn't a family in this village unaffected by HIV".

Conclusions: Mrs X is now 58 and has an undetectable viral load. She understands only too well the psychological effects of stigma, and conducts regular counselling sessions for patients. It is essential, both in developed and developing countries, that patients receive support in combination with medication. Psychological input not only reduces mortality and morbidity by reducing depression and suicide, but through improving adherence. Complete treatment regimes should focus on psychological aspects HIV, improving physical health outcomes and preventing mental health issues from progressing into old age.

P49: Reduced fronto-subcortical white matter connectivity in association with suicidal ideation in major depressive disorder

Ki Won Kim; Woojae Myung; Cheol Han; Maurizio Fava; David Mischoulon; George Papakostas; Jung-Yoon Heo; Sung Tae Kim; Doh Kwan Kim; Sang Won Seo; Joon-Kyung Seong; Hong Jin Jeon

Major depressive disorder (MDD) and suicidal behavior have been associated with structural and functional changes in the brain. However, little is known regarding alterations of brain networks in MDD patients with suicidal ideation. We investigated whether or not MDD patients with suicidal ideation have different topological organization of white matter networks compared to MDD patients without suicidal ideation. Participants consisted of 24 patients with MDD and suicidal ideation, 25 age- and gender-matched MDD patients without suicidal ideation, and 31 healthy subjects. A network-based statistics (NBS) and a graph theoretical analysis were performed to assess differences in the interregional connectivity. Diffusion Tensor Imaging (DTI) was performed to assess topological changes according to suicidal ideation in MDD patients. The Scale for Suicide Ideation (SSI) and the Korean version of the Barrett Impulsiveness Scale (BIS) were used to assess the severity of suicidal ideation and impulsivity, respectively. Reduced structural connectivity in a characterized sub-network was found in patients with MDD and suicidal ideation by utilizing NBS analysis. The sub-network included the regions of the fronto-subcortical circuits and the regions involved in executive function in the left hemisphere (rostral middle frontal, pallidum, superior parietal, frontal pole, caudate, putamen, and thalamus). The graph theoretical analysis demonstrated that network measures of the left rostral middle frontal had a significant positive correlation with severity of SSI ($r = 0.59$, $P = 0.02$) and BIS ($r = 0.59$, $P = 0.01$). The total edge strength that was significantly associated with suicidal ideation did not differ between MDD patients without suicidal ideation and healthy subjects. Our findings suggest that the reduced fronto-subcortical circuit of structural connectivity, which includes regions associated with executive function and impulsivity, appears to have a role in the emergence of suicidal ideation in MDD patients.

P50: Lifetime suicidal ideation and attempt in adults with full major depressive disorder versus sustained depressed mood only

Hye Jin Yoo; Jin Pyo Hong; Maeng Je Cho; Maurizio Fava; David Mischoulon; Jung-Yoon Heo; Ki Wong Kim; Hong Jin Jeon

Background: Major depressive disorder (MDD) is a well-known risk factor for suicidality, but depressed mood has been used non-specifically to describe the emotional state. We sought to compare influence of MDD versus sustained depressed mood on suicidality.
Methods: A total of 12,532 adults, randomly selected through the one-person-per-household method, completed a face-to-face interview using the Korean version of Composite International Diagnostic Interview (K-CIDI) and a questionnaire for lifetime suicidal ideation (LSI) and lifetime suicidal attempt (LSA).

Results: Of 12,361 adults, 565 were assessed as 'sustained depressed mood group' having depressed mood for more than two weeks without MDD (4.6%), and 810 adults were assessed as having full MDD (6.55%) which consisted of 'MDD with depressed mood group' (6.0%) and 'MDD without depressed mood group' (0.5%). The MDD with depressed mood group showed higher odds ratios for LSI and LSA than the sustained depressed mood group. Contrarily, no significant differences were found in LSI and LSA between the MDD group with and without depressed mood. MDD showed significant associations with LSI (AOR=2.83, 95%CI 2.12-3.78) and LSA (AOR=2.17, 95%CI 1.34-3.52), whereas sustained depressed mood showed significant associations with neither LSI nor LSA after adjusting for MDD and other psychiatric comorbidities. Interaction effect of sustained depressed mood with MDD was significant for LSI but not for LSA.
Conclusions: Sustained depressed mood was not related to LSI and LSA after adjusting for psychiatric comorbidities, whereas MDD was significantly associated with both LSI and LSA regardless of the presence of sustained depressed mood.

Table 1. Sociodemographic characteristics and clinical variables of subjects in the major depressive disorder (MDD) with depressed mood group, the MDD without depressed mood group, the sustained depressed mood group, and the neither group, from a nationwide sample of Korean adults (*n* = 12,361)

Variables	**Neither group (n =10986)**	**Sustained depressed mood group (n =565)**	**MDD without depressed mood group (n =65)**	**MDD with depressed mood group (n =745)**	**Statistics F or χ^2 *p*-value**
	% (N)	% (N)	% (N)	% (N)	
Age (Mean, SD)	44.25 (14.13)	45.47(14.863)	39.11(13.591)	45.47(14.163)	
Age groups (years)					
≤29	16.7 (1834)	15.8 (89)	27.7 (18)	15.0 (112)	0.019
30-39	24.2 (2661)	25.1 (142)	24.6 (16)	22.3 (166)	
40-49	23.7 (2606)	17.9 (101)	20.0 (13)	23.1 (172)	
50-59	18.1 (1990)	18.4 (104)	20.0 (13)	21.1 (157)	
≥ 60	17.2 (1895)	22.8 (129)	7.7 (5)	18.5 (138)	
Gender					
Male	40.9 (4492)	26.0 (147)	29.2 (19)	22.4 (167)	<0.001
Female	59.1 (6494)	74.0 (418)	70.8 (46)	77.6 (578)	
Education (years)					
≤ 11	26.8 (2942)	35.0 (198)	18.5 (12)	35.7 (266)	<0.001
12	34.2 (3761)	28.0 (158)	33.8 (22)	30.5 (277)	
≥ 13	39.0 (4283)	37.0 (209)	47.7 (31)	33.8 (252)	
Marital status					
Married	68.7 (7547)	58.1 (328)	67.7 (44)	56.1 (418)	<0.001
Widowed/divorced/separated	11.6 (1272)	21.6 (122)	4.6 (3)	25.6 (191)	
Unmarried	19.7 (2167)	20.4 (115)	27.7 (18)	18.3 (136)	
Monthly income ($)					
≤ 2000	44.1 (3996)	48.5 (225)	49.0 (25)	55.2 (344)	<0.001
2000-3000	26.2 (2370)	24.1 (112)	17.6 (9)	20.2 (126)	
≥ 3000	29.7 (2692)	27.4 (127)	33.3 (17)	24.6 (153)	
Living area					
Cities	80.7 (8867)	81.1 (458)	87.7 (57)	79.5 (592)	5.04
Rural area	19.3 (2119)	18.9 (107)	12.3 (8)	20.5 (153)	
Psychiatric comorbidities					
Any anxiety disorder	5.4 (590)	25.1 (142)	41.5 (27)	37.7 (281)	<0.001
Alcohol use disorder	12.9 (1313)	15.4 (87)	24.6 (16)	19.6 (146)	<0.001
Panic disorder	0.1 (16)	1.6 (9)	3.1 (2)	4.4 (33)	<0.001
PTSD	0.7 (75)	5.8 (33)	7.7 (5)	9.9 (74)	<0.001
GAD	0.8 (83)	7.6 (43)	18.5 (12)	16.0 (119)	<0.001
OCD (F)	0.4 (43)	2.3 (13)	3.1 (2)	3.4 (25)	F <0.001

PTSD, Posttraumatic stress disorder; GAD, Generalized anxiety disorder; OCD, Obsessive Compulsive Disorder

Table 1. Yoo, et al.

Table 2. Multivariate logistic regression analysis to evaluate the four group difference of lifetime suicidal ideation (LSI), lifetime suicidal attempt (LSA), and psychiatric comorbidities in a nationwide sample of Korean adults (*n* = 12,361)

Subgroups	Lifetime suicidal ideation (LSI)		Lifetime suicidal attempt (LSA)	
	OR	AOR	OR	AOR
Neither group				
vs. Sustained depressed mood group	1.42 (1.36-1.49)*	1.40 (1.34-1.47)*	1.45 (1.34-1.57)*	1.42 (1.30-1.54)*
vs. MDD without depressed mood group	1.57 (1.39-1.78)*	1.57 (1.39-1.78)*	1.55 (1.27-1.89)*	1.58 (1.29-1.93)*
vs. MDD with depressed mood group	1.75 (1.68-1.82)*	1.73 (1.66-1.80)*	1.78 (1.68-1.89)*	1.72 (1.62-1.83)*
Sustained depressed mood group				
vs. MDD without depressed mood group	1.11 (0.97-1.26)	1.11 (0.97-1.26)	1.07 (0.87-1.32)	1.11 (0.89-1.27)
vs. MDD with depressed mood group	1.23 (1.17-1.30)*	1.23 (1.17-1.31)*	1.23 (1.12-1.34)*	1.22 (1.12-1.34)*
MDD without depressed mood group				
vs. MDD with depressed mood group	1.12 (0.98-1.27)	1.11 (0.98-1.26)	1.15 (0.94-1.40)	1.12 (0.92-1.38)

OR, odd ratio; AOR, adjusted odd ratio; CI, confidence interval; MDD, major depressive disorder

AOR; Estimates were adjusted for gender, marital status, and education years.

Bonferroni's correction (†p < 0.0083) for p-values; *p < 0.001

Table 2. Yoo, et al.

Table 3. Multivariate logistic regression analysis to evaluate the main effect and interaction effect of sustained depressed mood and MDD on lifetime suicidal ideation (LSI) and lifetime suicidal attempt (LSA) in a nationwide sample of Korean adults (*n* = 12,361)

Variables	Lifetime suicidal ideation (LSI) AOR (95% CI)	Lifetime Suicidal attempt (LSA) AOR (95% CI)
Sustained depressed mood	0.98 (0.41–2.31)	1.14 (0.42–3.16)
MDD	2.83 (2.12–3.78)*	2.17 (1.34–3.52)*
Gend		
Male		
Fema		
Educ		
≥ 13		
12		
≤ 11		
Marit		
Marri		
Wido		
Unma		
Psychiatric comorbidities		
Any anxiety disorder	1.72 (1.40–2.10)*	2.01 (1.45–2.79)*
Alcohol use disorder	1.77 (1.48–2.10)*	2.65 (2.04–3.44)*
Panic disorder	1.90 (1.03–3.51)*	2.11 (0.97–4.60)
PTSD	2.37 (1.65–3.39)*	3.10 (2.01–4.77)*
GAD	1.31 (0.94–1.82)	1.29 (0.81–2.04)
OCD	2.49 (1.44–4.31)*	1.77 (0.91–3.47)
Interaction with sustained depressed mood		
MDD	0.54 (0.31–0.97)*	0.76 (0.29–1.99)
Alcohol use disorder	0.69 (0.49–0.96)*	0.45 (0.28–0.73)*
Panic disorder	0.33 (0.10–1.12)	0.61 (0.13–2.85)
PTSD	0.76 (0.39–1.48)	0.56 (0.26–1.20)
GAD	0.58 (0.32–1.04)	0.49 (0.21–1.13)
OCD	1.42 (0.49–4.14)	1.80 (0.48–6.73)

AOR, adjusted odds ratio; CI, confidence interval; PTSD, Posttraumatic stress disorder; GAD, Generalized anxiety disorder; OCD, Obsessive Compulsive Disorder; *p-value < 0.05

P-values were corrected by the Bonferroni's method and considered significant at the level of < 0.05

Figure 1. Comparisons of lifetime suicidal ideation (LSI) and lifetime suicidal attempt (LSA) between MDD and no MDD subjects with and without sustained depressed mood (*n* = 12,361)

Table 3. Yoo, et al.

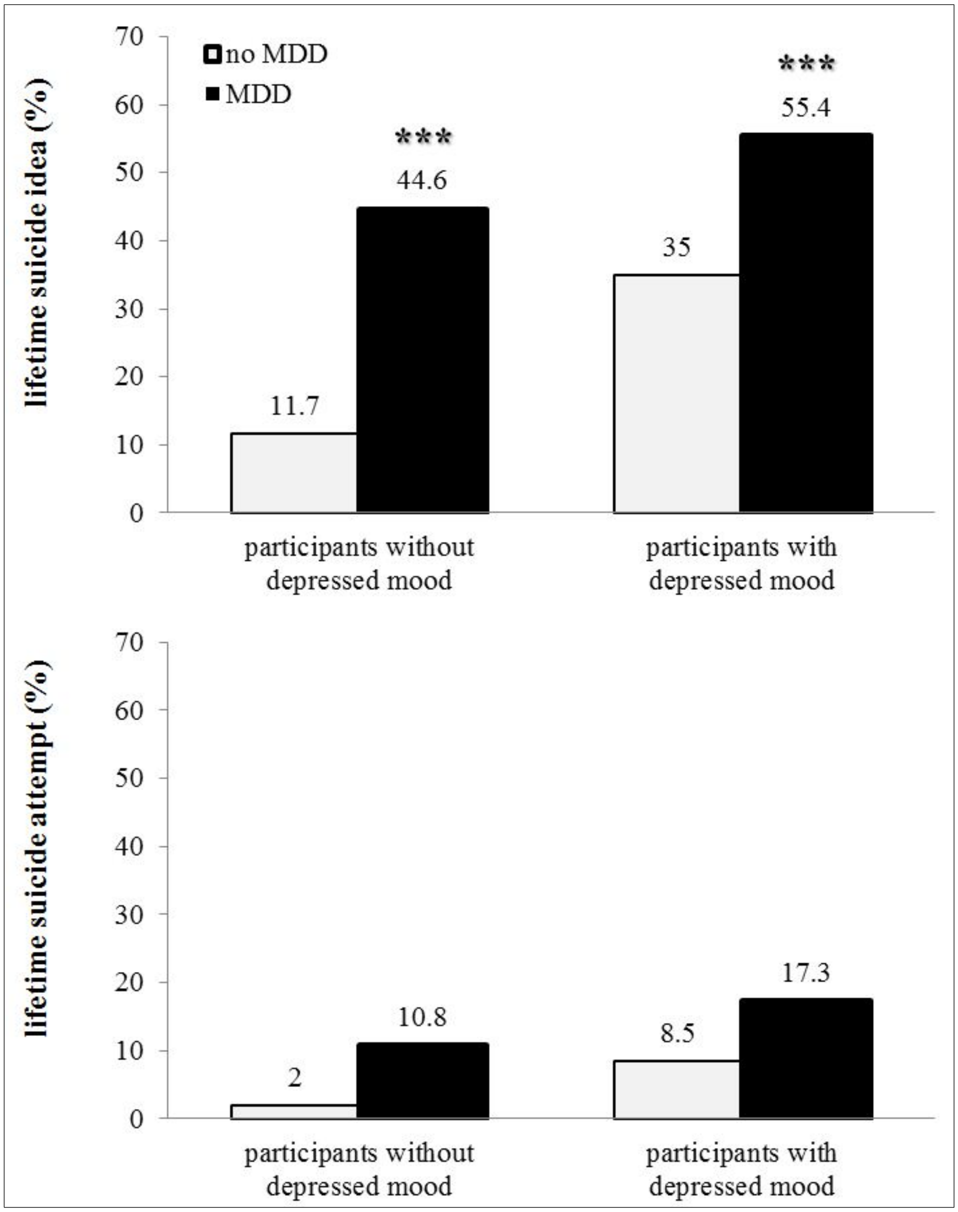


Figure 1. Yoo, et al.

P51: Cross-national differences in hypochondriasis symptoms between Korean and American outpatients with major depressive disorder

Ji Yeon Kim; Kyung Ah Chang; Kiwon Kim; Maurizio Fava; David Mischoulon; Jin Pyo Hong; Daniel Kim; Jung-Yoon Heo; Hong Jin Heon

Background: Hypochondriasis is defined as the tendency to worry excessively about having a serious illness. Although previous studies have focused on hypochondriasis as a type of somatoform disorder in the DSM-IV, the DSM-5 has removed the term hypochondriasis. The aim of this study was to investigate cross-national differences in hypochondriasis symptoms between Korean and American patients with major depressive disorder (MDD).

Method: This study examined 1592 Korean and 3744 American MDD outpatients of age ≥18 years using the 17-item Hamilton Depression Rating Scale (HDRS) and the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q-SF).

Results: Korean MDD patients exhibited significantly higher scores for hypochondriasis than Americans after controlling for total HAM-D scores and demographic variables ($p<0.0001$), even though American patients had significantly higher total HAM-D scores ($p<0.0001$). Whereas hypochondriasis appeared to be common among Koreans regardless of age, years of education, and employment status, Americans showed an increased tendency for hypochondriasis with greater age, fewer years of education, and unemployment. Multivariate logistic regression analyses revealed that hypochondriasis was significantly associated with somatic and psychic anxiety, middle insomnia and suicide for both Korean and American MDD patients after adjusting for demographic covariates. Among all factors, somatic anxiety was the most strongly associated with hypochondriasis in both Korean (AOR=2.14, 95% CI 1.31-3.52) and American (AOR=1.98, 95% CI 1.69-2.31) MDD outpatients.

Conclusions: Hypochondriasis symptoms are more prevalent among Korean than American MDD patients but appear to be associated with high levels of somatic anxiety regardless of culture. This suggests that cultural and personal factors play a shared role in the presentation of hypochondriasis symptoms.

P52: Prevalence and predictors of late-life depression in Korea: Association of risk factors and cognitive function

Sung Man Chang; Seong Jin Cho; Jun-Young Lee

Background: Depression in the elderly significantly decreases the quality of life and may lead to serious consequences, such as suicide(Blazer 2003). Depression is generally characterized as a mood disorder. However, there is increasing understanding that it also associated with cognitive impairment in the elderly(Walker and Steffens 2010). In Korea, the relationship between elderly depression and cognitive impairment has not been widely studied, and prevalence of elderly depression based on DSM-IV has rarely been reported. Most of studies adopted the self-reporting scale for the assessment of depression in the elderly(Park, Kim et al. 2012). The aims of this study are to investigate prevalence of elderly depression and socio-demographic factors associated with elderly depression and cognitive function.

Methods: Data were analyzed from a total of 563 participants aged over 65 by cross-sectional community-based random sampling study in a metropolitan area of South Korea. Depression was diagnosed with DSM-IV criteria using a questionnaire based on the Korean version of the Composite International Diagnostic Interview (K-CIDI). Cognitive function was evaluated by the Mini Mental Status Examination in the Korean version of the CERAD assessment packet (MMSE-KC) and the Korean version of the Dementia Rating Scale (K-DRS). Multivariate logistic regression was used to investigate factors associated with depression in terms of their sociodemographic characteristics.

Results: The estimated prevalence of Major depressive disorder was 9.5% with the K-CIDI interview. Female (OR=2.52, $p=0.050$), illiteracy (OR=0.51, $p=0.007$), living alone (OR=0.46, $p=0.049$), and inoccupation (OR=0.40, $p=0.043$) were significantly associated with MDD in later life. The group diagnosed as MDD showed significantly lower scores on K-DRS (initiation/perseveration; $t=2.88$, $p=0.004$). But there were no significant differences in MMSE-KC scores. The most frequent symptoms of depression in the elderly were fatigue (100%) and insomnia (81.5%), worthlessness/guilt (81.5%)

Conclusion: The prevalence rate of depressive disorder of the Korean elderly was relatively higher than adults aged under 64. People without occupation and living alone are high risk group of elderly depression. Probability of depression is considered in the elderly with complaining somatic symptoms like fatigue and insomnia. Cognitive function like executive function was significantly low according to the K-DRS.

P53: Association of depressive symptoms to nutritional status and habits in sample of elderly from the community: a Brazilian cross-sectional study

Salma Rose Imanari Ribiez; Lucas Bassolli; Clovis Alexandrino-Silva; Cassio Bottino

Objective: To evaluate the association of the presence of depressive symptoms to nutritional status and habits of life in a sample of Brazilian elderly from the community.

Methods: This cross-sectional study was conducted in the West region of the city of São Paulo, Brazil. We estimated the prevalence of depressive symptoms within a household community sample of 2,598 subjects aged 60 years old or more. The criteria used to define the presence of depressive symptoms were: CES-D ≥13 and MMSE ≥ 13. Nutritional status was evaluated by the body mass index (BMI). Nutritional habits were evaluated by the consumption of food supplement (omega 3, folic acid, B complex or isoflavones), salt addition, consumption of chocolate, olive oil, red wine, and oleaginous, daily water consumption, visible fats from meats or chicken, and daily average amounts consumption of: vegetable, bean, milk and milk products, protein, and fruits. We used univariate analysis (Chi-square).Results with p <0.05 were considered statistically significant.

Results: The mean age of the sample was 69 years (SD=6.5) and 63.3% were women. Regarding their level of education: 18.2% were illiterate, 50.9% refered as primary, 16.1% secondary, 9.3% high school, 2.1% university degree/post graduation, technical college 0.7%, did not know/did not answer 0.3%.

The univariate analysis showed that slimness (BMI<22) was associated to a higher frequency of depressive symptoms (p=0.026). By the other hand, drinking red wine more often was associated to a lower frequency of depressive symptoms (p=0.003). A higher frequency of depressive symptoms was associated to a lower amount of daily: vegetable consumption (<3 tablespoons/day, p<0.001), bean consumption (<1 tablespoon/day, p<0.001), milk and milk products consumption (<2 portions/day, p<0.001), protein consumption (<1 portion, p<0.021), fruits consumption (<3 portions/day, p=0.034).

Conclusion: Low BMI and specific nutritional habits may be associated to a higher frequency of depressive symptoms. On the other hand, it seems that moderate consumption of wine may be associated to a lower chance of depressive symptoms.

P54: Association of depressive symptoms to leisure activities in a sample of Brazilian elderly from the community: a cross-sectional study

Cassio Bottino; Clovis Alexandrino-Silva; Lucas Bassolli; Salma Rose Imanari Ribeiz

Objective: To evaluate the association of the presence of depressive symptoms to leisure habits of life in a sample of Brazilian elderly from the community.

Methods: This cross-sectional study was conducted in the West region of the city of São Paulo, Brazil. We estimated the prevalence of depressive symptoms within a household community sample of 2,598 subjects aged 60 years old or more. The criteria used to define the presence of depressive symptoms were: CES-D ≥13 and MMSE ≥ 13. We evaluated the frequency of watching television, listening to radio, playing games, reading newspapers, reading books, going to museums and going to the cinema/theatre/shows. The functional status of the elderly was evaluated by being able of making a call, buying food or clothes, being able of going to places using a means of transport, cooking, doing home-work, taking medicine, organizing finances.

We used univariate analysis (Chi-square) and also a multivariate logistic regression model with the variable described above. Results with p <0.05 were considered statistically significant.

Results: The mean age of the sample was 69 years (SD=6.5) and 63.3% were women. Regarding their level of education: 18.2% were illiterate, 50.9% were coded as primary, 16.1% secondary, 9.3% high school, 2.1% university degree/post-graduation, technical college 0.7%, did not know/did not answer 0.3%.

The univariate analysis showed that watching tv, listening to radio, reading newspapers (daily or weekly) and going to museums (at least once a year) were significantly associated to a lower frequency of depressive symptoms.

When we used a univariate logistic regression model, practicing at least 2 of the 7 leisure activities described above showed association with depressive symptoms.

Besides, we used a multivariate logistic model adjusted by gender and functional status. According to it, practicing at least 3 leisure activities were associated to a 2.09 lower odds of having depressive symptoms OR= 0.477 (CI: 0.235-0.843; p=0.02) when compared to elderly who did not practice or practice less than 3 leisure activities.

Conclusion: Practicing at least 3 leisure activities was associated to a lower chance of depressive symptoms independently of the gender and functional status.

P55: Depressive symptoms among Chinese older adults treated in primary care: an epidemiological survey

Helen Fun-kum Chiu; Adam Zhong

Objectives: Depression is a common mental health problem that frequently co-occurs with physical illnesses and are often underdiagnosed and undertreated in older adults. Diagnosing and managing depression in primary care is an effective way to decrease the treatment gap, however, the epidemiology of depression in Chinese older adults treated in primary care is understudied in China. This study aims to examine the rates of depressive symptoms in this group of subjects.
Methods: A total of 228 older patients (65+ years) were consecutively recruited from 10 primary care clinics in Wuhan, China, and interviewed with a standardized socio-demographic questionnaire, the 15-item geriatric depression scale (GDS-15) and a single-item question on loneliness. Logistic regression was used to identify factors significantly associated with depression.
Results: 26.8% primary care older patients had clinically significant depressive symptoms. Female (OR=2.52), being widowed or divorced (OR=3.08), poor economic condition (OR=3.24), feeling lonely (OR=3.77) and feelings of burden to their families (OR=4.59) were significantly associated with higher risk of depression.
Conclusion: Chinese primary care older patients are at high risk for depression. Screening for depression may be warranted, together with expanded social support services, and, when necessary, psychiatric assessment and treatment.

P56: Bayesian analyses showed more evidence for apathy than for depression being associated with cognitive functioning in nursing homes

Ruslan Leontjevas; Lily Fredrix; Martin Smalbrugge; Raymond Koopmans; Debby Gerritsen

Background: Depression and apathy are widespread conditions in nursing home (NH) residents. Because treatment of depression may be ineffective for apathy, insight is needed into which factors can be used for differentiating apathy from depression.
Aim: This study aimed to compare the strength of the evidence for the relationship between cognitive impairments and apathy, to that between cognitive impairments and depression in NH residents.
Methods: Cross-sectional data from sixteen NH somatic care units (N=190 residents; Mean age 77.2[SD, 12.9]), and seventeen dementia special care units (N=243 residents; Mean age 82.7[SD, 6.8]) were analyzed using regression models built with the BayesFactor package in R. The Frontal Assessment Battery (FAB), and Mini-Mental-State Examination (MMSE) were administered for cognitive functioning. The Apathy Evaluation Scale (AES), and Cornell Scale for Depression in Dementia (CSDD) were administered to professional carers as proxy-measures of apathy and depression. Jeffreys' classification was used for Bayesian Factors, i.e. BF of 1, no evidence; 1 to 3, anecdotal evidence; 3 to 10, substantial evidence; 10 to 30, strong evidence; 30 to 100, very strong evidence; and >100, extreme evidence.
Results: Regarding apathy, Bayesian factors indicated extreme evidence for the relationship with MMSE (standardized ES, -0.57[-0.66 to -0.48], BF=3.4E+28), and with FAB (-0.50[-0.59 to -0.42], BF=3.0E+24). Regarding depression, evidence was a minor fraction of that for apathy (MMSE, -0.17 [-0.27 to -0.06], BF=15.45; FAB, -0.12[-0.22 to -0.02], BF=2.11). Of the FAB items corrected for each other's effects, conceptualization (-0.11[-0.20 to -0.02]), flexibility (-0.16[-0.26 to -0.07]), and autonomy (-0.21[-0.30 to -0.12]) showed effects on apathy with credible intervals containing no zero-scores. Regarding MMSE, only subscales for orientation in time and place (-0.36[-0.50 to -0.22]), and language-praxis (-0.18[-0.33 to -0.04]) predicted apathy-scores. Depression-scores were not predicted by individual FAB items nor MMSE subscales. Differences between somatic and dementia units were only found for the FAB total score related to apathy (dementia, -0.63[-0.75 to -0.50]; somatic, -0.37[-0.49 to -0.25]; BF=7.0).
Conclusion: Bayesian analyses showed more evidence for apathy, compared to depression, being associated with cognitive problems. Professionals should suspect apathy rather than depression in NH residents with executive dysfunctions, and with problems in orientation in time and place, and language&praxis.

P57: Association among Depressive Symptoms, Physical Activity and Use of Substances in Community-Dwelling Older Adults: Results of the "Prevention and Treatment of Depression in Elderly" Study, Brazil

Clovis Alexandrino-Silva; Maria Beatriz; Salma Ribeiz; Lucas Bassolli; Cassio Bottino

Objective: To analyze the association among depressive symptoms, physical activity and use of substances in a sample of 2,598 subjects aged 60 or more living in the community.
Methods: We estimated the association among depressive symptoms, physical activity and use of substances (tobacco, alcohol, tranquilizers and sleeping pills). CES-D ≥ 13 was used as the cutoff point for depressive symptoms, and MMSE < 13 was used as an exclusion criterion for cognitive decline. Continuous variables were expressed as central tendency and dispersion measures, whereas categorical variables were described as absolute and relative frequency. The proportion of subjects in different groups according to the CES-D score was analyzed by chi-square test. All analyzes were done in SPSS v. 22. We assumed a significance level of 0.05.
Results: Individuals who do not practice physical activity were more likely to present depressive symptoms compared to those who practice ($p < 0.001$). Regarding the frequency of the activity, there was a statistically significant difference between subjects who practice "several times a week" ($p < 0.001$) or "every day / almost every day" ($p = 0.001$) compared to those who do not exercise. Subjects who use tranquilizers and sleeping pills were nearly three times more likely to present clinically significant depressive symptoms, compared to those who do not use it ($p < 0.001$). Interestingly, alcohol consumption was associated with a lower chance of having depressive symptoms compared with those who do not drink ($p < 0.001$), and this finding remained significant when we separated alcohol consumption per drinking day. Physical activity was least common among current smokers (21.1%) *vs* nonsmokers (27.4%); $p = 0.020$.
Conclusion: Physical activity and its higher frequency are associated with lower chance of presenting depressive symptoms, highlighting the role of exercise in preventing depression in the elderly. In addition, it is associated with healthier lifestyle habits, such as lower chance of smoking, a known risk factor for cerebrovascular diseases. Important is also the high association between use of tranquilizers and sleeping pills with depressive symptoms – an interaction often neglected in clinical practice. Future studies are needed to deepen understanding regarding the findings of alcohol and its association with lower chance of presenting depressive symptoms.

P58: Effects of Social Support on Treatment Response in Late-Life Depression

Yiu Ho Au; David Bickford; Krista Farley; Kelly Scherer; Roksana Sadeghi; Duygu Tosun; Craig Nelson; Scott Mackinn

Background: Loneliness and isolation are commonly reported with depression, and these feelings can become more pronounced in older adults, with the experience loss/death of both friends and family. Previous research has supported that increased social support alleviates feelings of isolation
(Saito et al., 2012; Prince et al., 1997); our study aims to examine the effects of social support on depressive symptoms. We hypothesize that participants with higher levels of social support at baseline are more receptive to treatment, and will experience a greater reduction of depressive symptoms with treatment.
Objective: To determine the effects of social support on treatment response among older adults with major depression
Methods: 18older adults (mean age: 71.1; 76% female, 73% White) who were diagnosed with major depression with the Structured Clinical Interview for DSM Disorders, 4th edition (SCID-IV) underwent either a 12 week trial of protocol guided Problem Solving Therapy(n=14) or sertraline treatment (n=4). Depression severity was evaluated with the Hamilton Depression Rating Scale (HAMD).Social support was evaluated with the Duke Social Support Index (DSSI) across four social support domains: size of social network size, frequency of social exchanges, perceived social support and instrumental social support. Correlational and regression analysis were performed, controlling for age and gender.
Results: Preliminary correlational analysis showed that baseline instrumental social support ($r=0.54$, $p<.05$) had a significant correlation with reduction in HAMD; perceived social support ($r=.45$, $p=.053$) had a trending correlation. Social exchange frequency ($r=.35$, $p=.14$) and social network size ($r=.20$, $p=.41$) showed no significant correlations.
After controlling for age and gender, instrumental support remained significantly associated with greater reduction in depressive symptoms at 12 weeks ($b=3.47$, $t(14)=2.57$, $p<.05$).
Conclusions: Our results demonstrate the importance of psychosocial factors on treatment response in depression.
Consistent with prior research (Travis et al., 2004; Hays et al., 2001), our results suggest that it is not the size of social networks or the frequency of social interactions that influences outcome in depression, but the concrete benefits of instrumental support (ex. having someone help with chores, give advice on life problems) that predicted better outcomes in reduction of depressive symptoms

P59: Cortical Thickness and Executive Function in Late Life Depression

Krista Farley; David Bickford Yiu Ho Au; Kelly Scherer; Craig Nelson; Scott Mackinn; Duygu Tosun

Background: Late life depression (LLD) has been associated with executive dysfunction(ED), and more recently has been suggested to be associated with reduced cortical atrophy. However the association between frontal lobe atrophy and ED is not well characterized. Our study evaluates the association of ED and frontal lobe cortical atrophy in LLD. We hypothesize that relative to controls, LLD participants will demonstrate reduced bilateral cortical thickness in the frontal lobe, lower performance on measures of executive function (EF), and a positive linear relationship between cortical thickness and EF.

Methods: Patients selected were65and older, who had DSM IV Major Depression based on the Structured Clinical Interview and a depression score ≥ 19 on the Hamilton Depression Rating Scale. Cognitive measures were information processing speed (IPS) (Symbol Digit Modalities Test), and EF (Stroop Color and Word Test). MRI scans were performed on a 4-Tsystem.

Results: Participants included 157individuals, 92with LLDand65 normal controls (NCs).Of those, 44 LLD and 20 NC participants received neuroimaging. LLD and NC participants did not differ in age, education, or IQ ($p>.05$), but did differ on gender ($p<.05$), with the LLD group consisting of more females. LLD participants performed lower on both measures of cognitive functioning,[(SDMT [F(1, 148)=10.88, p=.001]and Stroop[F(1, 123)=9.60, p=.002].After averaging cortical thickness across left and right hemispheres,

LLD participants showed significantly thinner cortex in the left middle, inferior frontal, and middle frontal orbital regions ($p<.05$for all regions). No significant differences were shown in other frontal regions or the cingulate gyrus. When analyzing hemispheres separately, LLD participants demonstrated significant thinner cortex in the left lateral fronto-orbital regions compared to NCs. Cortical thickness of middle frontal orbital gyrus was negatively associated with SDMT performance [b=-3.33, p=.026], and with Stroop performance[b=-4.753, p=.013].

Conclusion: Our data confirms earlier work showing ED prominence in LLD, and supports the notion that LLD may be characterized by cortical thickness abnormalities primarily in the frontal lobe. However our data does not show a link between cortical atrophy and ED in LLD, leaving the etiology unclear and warranting further investigation.

P60: Subclinical Depression in Community dwelling Elderly of Rural Nigeria

Olusegun Baiyewu; Abdulkareem Yusuf; Adefolakemi Ogundele

Background: Depression in old age is a matter of public health concern. Risk factors for depression in old age in rural population include poverty, loneliness, poor facilities for health care and attitudinal disposition of older rural dwellers. Suicide rate in older adults is higher in rural areas. Generally the situation in the developing countries is pathetic and information is limited. Subclinical depression in rural is a subject hardly studied in developing countries.

Method: Community residents aged 65 years or older were interviewed in four villages in the Southwest and the Northwest regions of Nigeria. Firstly, they were screened with the Mini Mental State Examination (MMSE) and those who scored 13 or less were eliminated. Then 30 item Geriatric Depression Scale (GDS) was administered to the rest and those who scored 11 and above were seen at a second stage when Geriatric Mental State Schedule (GMSS) was administered and diagnoses based on both GMSS-Automated Geriatric Examination for Computer Assisted Taxonomy (GMSS-AGECAT) and ICD-10 were made. Here we report the analysis of those with AGEACAT diagnoses of subclinical depression and anxiety compared with normal. Report on Major Depression has been made elsewhere

Result: Twenty three persons (5.9%) received the diagnosis of subclinical depression/anxiety, while373 were diagnosed normal. There were 19 (8.4%) females and 4(2.4) males, p=0.008) Mean age and mean years of education were not significantly different. Mean MMSE was higher in normal group compared with subclinical depression 22.2(4.4) vs 19.6(4.1) t=2.93, p=0.006 Mean GDS-30 was higher in subclinical depression 8.8(2.4) vs2.4(1.7) t=-12.5, p=0.000

Comparison for the group for income below a dollar a day and self- assessed health showed significant differences p= 0.014 and 0.018 respectively, however the trend is not very clear. On multiple logistic regression, only female gender was significant associated with subclinical depression. Odds ratio 0.301 (CI =0.099-0.91)

Conclusion: Subclinical depression is commoner in females, just as Major Depressive Disorders and it shares similar sociodemographic risk factors. The implication is that it is necessary to begin prevention of depression at the subclinical or sub threshold level. A limitation of this study is the small sample size.

P61: Evaluation of 5HTTLPR and BDNF rs6265 polymorphism in a Brazilian elderly population

Thais Chile; Gisele Rodrigues Gouveia; Homero Vallada Filho; Clovis Alexandrino-Silva; Salma Rose Imanari Ribeiz; Cassio Bottino

Background: Depression is a major public health problem, accounting for 40.5% of the adjusted life years across the disability world (Whiteford et al., 2013).Despite the abundance of diagnosis based on symptoms tools, late depression is often under-recognized and undertreated, showing poor prognosis and a higher illness burden when compared to early life depression (Kohn and Epstein-Lubow, 2006;Sullivan et al., 2000).The heritability of depression was estimated at around 40% (Kendler et al., 2006),but few genetic variants have been identified (Ripke et al., 2013), among them, 5HTTLPR (5HTT-linked polymorphic region) and BDNF rs6265 polymorphism (Iga et al., 2016; Januar et al., 2015).The short allelic variant of 5-HTTwasassociated with a lower three times transcriptional activity than the long allele, increased risk of developing depression under stress (Karg et al.,2011), and caused higher neuroticism and the development of anxiety and mood disorders (Stein et al., 2009).BDNF rs6265 polymorphism was related to depressive symptoms in men and elderly individuals (Czira et al., 2012).In this study, we will evaluate these variants in a Brazilian elderly population from Basic Health Units in the region of Butanta, in Sao Paulo city.

Objectives: We will aim to investigate5HTTLPR and BDNF rs6265 polymorphism and their correlation with subsyndromic depressive and / or anxiety symptoms in the elderly. Moreover, we will examine whether age and gender have a modifying effect on this association.

Methods: We will screen 2,700 individuals, 60 years and older, for subsyndromic depressive and / or anxiety symptoms. To assess the severity of depressive symptoms, all participants will complete the Brazilian version of the CES-D with face-to-face interviews (Lewinsohn et al., 1997) and “Mini International Neuropsychiatric Interview” (MINI) (Sheehan et al., 1998; de Azevedo Marques and Zuardi, 2008). Participants with subsyndromic depressive and / or anxiety symptoms must present CES-D ≥13, but does not meet criteria for a depressive or anxiety disorder, assessed by applying the MINI. The allelic variant of 5-HTT analysis will be performed by conventional PCR, PCR products will be separated on a 2% agarose gel containing ethidium bromide, and bands will be visualized under UV light. The analysis of BDNF rs6265 polymorphism will be carried using Real Time PCR allelic discrimination.

Results: Until the present moment, 2,635 individuals were interviewed. Of these, 180 were diagnosed with depression and 226 showed CESD≥13 without meeting criteria for depressive or anxiety disorder (subsyndromal depression and / or anxiety). Regarding the collection of biological material, 812 blood samples were collected for DNA extraction. In the next steps, we will continue with the blood collection and will begin the genotyping of the variants proposed.

Conclusion: With the rapid increase of the elderly population and the growing impact of depression, the determination of biological markers may contribute to the diagnoses and understanding of the neurobiology of this disorder.

P62: Association between chief complaints and subsequent psychiatric diagnosis in Thai elderly

Tinakon Wongpakaran; Nahathai Wongpakaran; Peerasak Lerttrakarnnon; Surin Jiraniramai’ Thanitha Siriruk; Sawatri Assanangkornchai; Unchulee Tameyapradit; Nopporn Tantirangsee; Surang Lertkachatharn; Suwanna Arunpongpaisal; Suwit Charoensak; Poonsri Rangseekajee

Objectives: This study aimed to investigate the psychiatric disorder diagnoses made among elderly who complain of at least one common depressive symptom. Association among the chief complaints and psychiatric diagnoses made was also analyzed.

Methods: Eight hundred-three new elderly Thai patients were recruited from 4 tertiary care centers if they complained at least one symptom of feeling sad, feeling bored, sleep disturbances, poor appetite, fatigue, subjectively impaired memory, and unexplained somatic symptoms.

Results: Seven hundred-ninety-two cases yielded complete data with 557 (70%) were female. Mean age, was 69.24 years (SD, 6.9). Number of years of education (mean, SD) was 6.63, 4.9 years. Marital status were 63.5%, 28.4%, 4.5%, and 3.6% in living together, widow, divorce, and single, respectively. Among the 7 chief complaints, subjectively impaired memory (n=515, 65%) and sleep disturbances (n=509, 64.3%) are two most common chief complaints. Feeling bored (n=236, 29.8%) and feeling sad (n=194, 24.5%) were ranked 4th and 5th. Least complaint was unexplained somatic symptom. (n=98, 12.4%). After controlling for gender, age, and level of education, most chief complaints were significantly related to depressive disorders and to comorbid depressive disorders and anxiety disorders. Only the complaint of impaired memory was significantly and specifically related to anxiety disorders (Wald = 4.599, df =1, p = .032).

Conclusions: Two most common chief complaints of depressive disorder in elderly is subjective memory impairment and sleep disturbances. Unexplained medical symptoms were the least chief complaint. All but memory complaint were specific to depressive disorders rather than to anxiety disorders.

P63: Are the correct tools used in the geriatric depression studies? A review of the literature from methodological perspectives

Ying-Jyun Shih; Hsuan-Jui Chang; Yung-Jen Yang

Objective: Geriatric depression is a hot topic in contemporary psychogeriatric studies because of its high correlation with elderly mortality and detrimental impact upon quality of life in people with elderly depression. However, instead of the scales specifically measuring severity, most studies adopt depression screening scales to evaluate the treatment response, and this phenomenon is more prominent in the non-pharmacological treatment studies. In the present study, we examined the prevalence of different classes of scales used in the studies of reminiscence therapy for geriatric depression to measure treatment response, and attempted to explore its potential influence in this field.

Methods: We performed systematic search in the databases of MEDLINE, EMBASE and Cochrane CENTRAL for the studies of reminiscence therapy for geriatric depression. We aimed at studies that should have higher quality in nature and robust methodological consideration, and hence only include randomized controlled trials with non-dementia participants of 55 years or older were considered. The outcome assessment tools were categorized into screening and severity scales according to the nature defined in their original studies. The primary outcome was the prevalence of the tools used to assess depressive severity, while we also assessed and summarised the methodological characteristics of the included studies. The process during screening, searching and data extraction was independently performed by at least two researchers with electronic data extraction form.

Results: A total of 151 reports were initially identified, and 86 studies were finally included for assessment. We found a high prevalence rate of studies adopting screening scales for measuring depressive severity, and we also noticed preferential use of some specific scales, namely Geriatric Depression Scale (GDS) and Centre for Epidemiologic Studies Depression Scale (CES-D). In addition, we also noticed other potential methodological flaws that might lead to misleading results. Detailed resulted will be presented in the presentation.

Conclusion: We strongly urge that researchers should adopt appropriate and validated rating scales in the studies evaluating the severity of geriatric depression. We also recommend including methodologists in the research team as early as the planning stage of the study.

P64: Role of neuroticism in the development of depressive symptoms among elderly patients with and without depression

Nahathai Wongpakaran; Tinakon Wongpakaran; Peerasak Lerttrakarnon; Surin Jiraniramai; Thanitha Siriruk; Sawitri Assanangkornchai; Unchulee Tameyapradit; Nopporn Tantirangsee; Surang Lertkachatharn; Suwanna Arunpongpaisal; Suwit Charoensak; Poonsri Rangseekajee

Objectives: Neuroticism has been found to be related to depression across all age groups. In terms of depressive symptoms, it has been found to be related to suicidal ideation, but not to other depressive symptoms such as, in particular, somatic–related symptoms. The aim of this study was to compare the role of neuroticism in the development of depressive symptoms among depressed and non-depressed patients.

Methods: Eight hundred and three elderly patients were recruited from 4 tertiary care centers, to help investigate psychiatric disorders. All were diagnosed for the presence of depressive disorder using M.I.N.I. and by completing the Hamilton Depression Rating scale (HAMD-7) and the neuroticism inventory. All seven symptoms of HAMD-7 were compared to find which of these was predicted by neuroticism scores among both the depressed and non-depressed groups of patients. Logistic regression analysis was also used for the analysis. Adjustments were made for socio-demographic variables.

Results: All the patients were aged 60 years or over; 70% was female, and 167 (21%) were diagnosed for the presence of depressive disorder. In the depressed group, neuroticism predicted the presence of suicide ideation, but did not predict other depressive symptoms. On the other hand, in the non-depressed group, higher neuroticism scores significantly aligned with higher scores for work problems (OR=1.03, 95%, CI,= 1.02-1.05, and B= .03, p <.001), and the anxiety-psychological OR=1.06, 95%, CI,= 1.04-1.08, and B= .06, p <.001) and anxiety-somatic items of HAMD-7 (OR=1.03, 95%, CI,= 1.01-1.04, and B= .03, p < .001) having controlled for gender, age and education level.

Conclusions: As consistently found in younger patients, suicide is related to neuroticism. Therefore, neuroticism is promising as a predicting factor for suicide in depressed patients. Even when depression was controlled for in this study, neuroticism was found to be useful as a predictor, as it was associated with psychological anxiety and somatic-related symptoms, as well as work problems.

P65: Optimal Cut-Off Score for Defining Remission in Elderly with Depression using GRID-HAMD-7

Nahathai Wongpakaran; Tinakon Wongpakaran

Objectives: HAMD-7, a short version of Hamilton Depression Rating scale, was a valid and reliable tool for assessing remission. The recommended cut-off score for defining remission was ≤ 3. However, it was unclear about the score when it came to old age with depression. The aim of the present study was to find a cut-off score in Thai elderly with depression using the GRID- HAMD-7, an improved version of HAMD.
Methods: Eight hundred and three elderly patients were recruited from 4 tertiary care centers, to help investigate psychiatric disorders. All were diagnosed for the presence of depressive disorder using M.I.N.I. and by completing the GRID-Hamilton Depression Rating scale (HAMD-7). In order to find the optimal cut-off in the GRID-HAMD-7 scale, the Receiver Operating Characteristics (ROC) curves was used.
Results: Our results show that a score of ≤ 4 were associated with a maximum of specificity and sensitivity for defining remission (AUC = 0.92, 95% CI 0.898 to 0.938; sensitivity = 87.68 (95% CI, 81.0 - 92.7); specificity = 79.58 (95% CI, 76.2 - 82.7), +LR = 4.29, -LR = 0.15, PPV = 48.8, NPV = 96.7).
Conclusions: the higher cut-off score than that of recommended score (≤ 3) was due to the fact that some items might be less sensitivity to detect depressive symptom in this population since the nature of depression in elderly may be different from the younger.

P66: Confirmatory Factor Analysis of the revised Thai Multidimensional Scale of Perceived social support (revised MSPSS) in Elderly with depression

Tinakon Wongpakaran; Nahathai Wongpakaran

Objectives: Although some problem of unfitting model of the *Multidimensional Scale* of Perceived *social support (MSPSS;* Zimet, Dahlem, Zimet, & Farley, 1988) had occurred and been corrected by the revise version of Thai *MSPSS* (Wongpakaran & Wongpakaran, 2012). Testing the revised questionnaire in some vulnerable sample such as elderly should be further examined. The aim of the present study was to explore the factor structure of the revised version of *MSPSS* in elderly with depression group.
Methods: Eight hundred and three elderly patients were recruited from 4 tertiary care centers, to help investigate psychiatric disorders. All completed the revised Thai *MSPSS* which consisted of twelve items rated on a five-point Likert-type scale. There are three sub-scales used by the scale: Significant Others, Family and Friends. In the revised version, the sentence "Note: special person excludes friends and family" to the instructions, in order to warn the respondents to be aware of the existence of the Significant Others sub-scale (Wongpakaran & Wongpakaran, 2012).
Results: The revised version provided excellent internal consistency. The three-factor model (Friends, Family, and Significant Others) was clearly superior to other models in both depressed and non-depressed groups. Confirmatory factor analysis revealed an acceptable model fit: χ^2 147.44, df 45, $p < 0.001$; Tucker-Lewis Index 0.978; Comparative Fit Index 0.985; GFI 0.971; and a root-mean-square error of approximation 0.053 (0.044-0.63).
Conclusions: These results support the use of the revised MSPSS as a brief instrument for assessing the perceived social support in a variety of samples especially elderly and/or depressed population due to its robust factor structure.

P67: Structural Brain Changes Associated with Positive Response to Psychotherapeutic Treatment

Kelly Scherer; David Bickford; Yiu Ho Au; Krista Farley; Scott Mackinn; Craig Nelson; Duygu Tosun-Turgut; Michael Weiner; Derek Satre

Background: Depression is prevalent in the senior community age 65 and older, causing not only emotional distress but also physical disability, increased risk of suicide, and increased risk of dementia. Recent studies suggest cortical thickness is reduced in depressed patients and may be a marker for treatment response in Late Life Depression (LLD). However, it is unclear if positive response to treatment in LLD impacts cortical thickness.

Objective: The aim of our study was to evaluate if cortical thickness increases following a positive response to 12-weeks of Problem Solving psychotherapy.

Methods: All participants had a diagnosis of unipolar Major Depressive Disorder (MDD) using the SCID diagnostic interview, a score of >19on the Hamilton Depression Rating Scale (HDRS), a Mini Mental State Exam (MMSE) score >25, and did not have a clinical diagnosis of dementia. Neuroimaging was performed with a 4T Siemans Skyra multimodal MRI system before and after treatment. The image processing was performed using Freesurfer version 4.5 (http://surfer.nmr.mgh.harvard.edu/).Participants included 14 LLD individuals who received 12-weeks of Problem Solving Therapy (PST) treatment. Response was defined as ≥50% change on the HDRS. We examined change in cortical thickness in 3 regions (frontal, temporal, and parietal) on the right and left.

Results: Participants had a mean age of 71.4 (SD=5.8), 73% of the subjects were women, and half responded to treatment.

Participants who demonstrated a positive response to the psychotherapy treatment had an increase (p<.05) of cortical thickness bilaterally in the frontal lobe (superior, middle and inferior frontal cortexes).

Conclusion: These preliminary findings suggest cortical thickness may change after 12-weeks of treatment and that the decrease in thickness associated with depression may be in part reversible. It is noted that while responders appeared to show greater change, the non-responders did show some improvement in depression. These findings underscore the potential importance of adequate treatment for LLD.

P68: Assessing Cognitive Function in Elderly Chinese Immigrants

Clara Li; Judith Neugroschl; Carolyn Zhu; Mari Umpierre; Jane Martin; QiYing Huang; Ziaoyi Zeng; Mary Sano

Objective: Many cognitive tests have been translated and validated for assessing dementia and cognitive impairment in China, but little is known regarding the clinical utility of these translated measures in elderly Chinese immigrants in U.S.A. This study aimed to examine a battery of Chinese cognitive tests for identifying elderly Chinese immigrants with mild cognitive impairment (MCI) and Alzheimer's disease (AD).

Methods: 108 participants (AD, n=11; MCI, n=34; normal controls, n=63) were identified via community outreach in NYC. All participants were 65 years or older, primarily Mandarin or Cantonese speaking, and able to complete the clinical evaluation developed by the Mount Sinai Alzheimer's Disease Research Center (MSADRC), including medical, cognitive, and mobility examinations. Data collection through the Uniform Data Set (UDS) was submitted to the National Alzheimer's Coordinating Center (NACC). Composite scores were created to summarize 14 cognitive measures covering overall cognition as well as cognitive domains of memory, attention executive function, and language. The test scores were validated against expert consensus diagnosis according to the diagnostic criteria used at the MSADRC for MCI and AD. The clinical diagnostic approach involved a combination of informant reporting and clinical evaluation by an experienced "dementia expert" physician who conducted the medical and mental status examinations.

Results: Participants were primarily female (66%) and Mandarin speaking (55%), with a mean age of 73.0±6.5 years and education of 13.0±4.5 years. The overall composite scores for the normal, MCI, and AD groups were 6.0±0.8, 4.6±1.0, and 3.5±1.4, respectively. The memory composite scores for normal, MCI, and AD groups were 3.0±0.6, 1.9±0.6, and 0.8±0.3, respectively. The attention executive function composite scores for normal, MCI, and AD groups were 3.5±0.5, 2.9±0.7, and 2.4±0.9, respectively. The language composite scores for normal, MCI, and AD groups were 1.2±0.1, 1.0±0.1, and 0.9±0.2, respectively. After adjusting for age, gender, education, and primary language, multivariate regression results indicated significantly worse cognitive performance in AD and MCI for overall and all domain specific composite scores.

Conclusion: The battery of Chinese cognitive tests is useful for identifying elderly Chinese immigrants with MCI or AD.

P69: Clinical Utility and Patient Acceptability of the Six-Item Cognitive Impairment Test (6-CIT) as a Cognitive Screening Tool in the Acute Hospital Setting

Clodagh Power; Richard Duffy; Helena Bates; Mike Healy; Petrina Gleeson; Elaine Green

Objectives: Cognitive screening is increasingly important as our population ages but is not performed routinely during the acute admission process. The perceived time required to perform a cognitive screen may be an important barrier to widespread screening (Gordon et al. 2009). This study aimed to (a) explore the clinical utility of a short cognitive screening tool (6-CIT) and (b) examine its acceptability to the patient in the acute hospital.

Methods: All patients aged over 65 who were admitted to St. James's Hospital, Dublin, over a 2-week period were invited to participate. Those who met the inclusion criteria were screened for delirium then underwent a cognitive screening battery that included the 6-CIT and sMMSE. Participants were classified into 3 groups: normal cognition, mild cognitive impairment ((MCI), cognitive impairment without functional impairment) and dementia (cognitive and functional impairment). Time to administer the 6-CIT was recorded. Patient experiences of the 6-CIT were explored using a simple questionnaire.

Results: Complete data were obtained for 139 participants. A high correlation was achieved between the 6-CIT and sMMSE (r = -0.848, p=0.000). Using a score of ≥ 11 on the 6-CIT and ≤ 23 on the sMMSE to indicate cognitive impairment, the 6-CIT detected MCI or dementia with a sensitivity of 0.67 and specificity of 0.94. The area under the curve (AUC) for detecting MCI or dementia was 0.87 (95%CI 0.812-0.936, p = 0.00), (Figure 1). To detect dementia alone, the sensitivity of the 6-CIT was 0.79 and specificity 0.81 with an AUC of 0.9 (95% CI 0.842-0.967, p = 0.00), (Figure 2). The mean time taken to administer the 6-CIT was 2.1 minutes. Patient experience of the tool was overwhelmingly positive (see table).

Conclusions: The 6-CIT correlates well with the sMMSE. It may be of more clinical utility in the detection of dementia than MCI. However, the time to administer the tool is brief and it is acceptable to patients. Additional advantages include not needing a pen and paper and its insensitivity to educational level. As such, the 6-CIT is a reasonable choice as an initial bedside cognitive screening tool in the acute hospital setting.

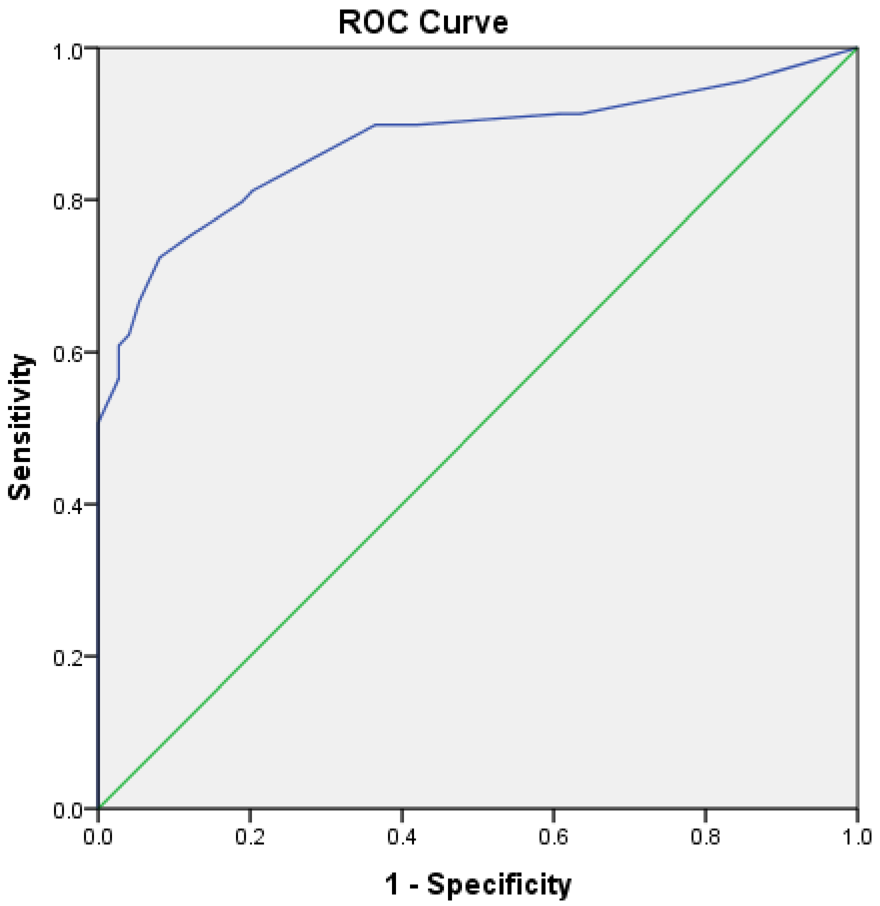


Figure 1: Receiver Operated Curve (ROC) for 6-CIT using sMMSE to detect MCI or dementia

Figure 1. Power, et al.

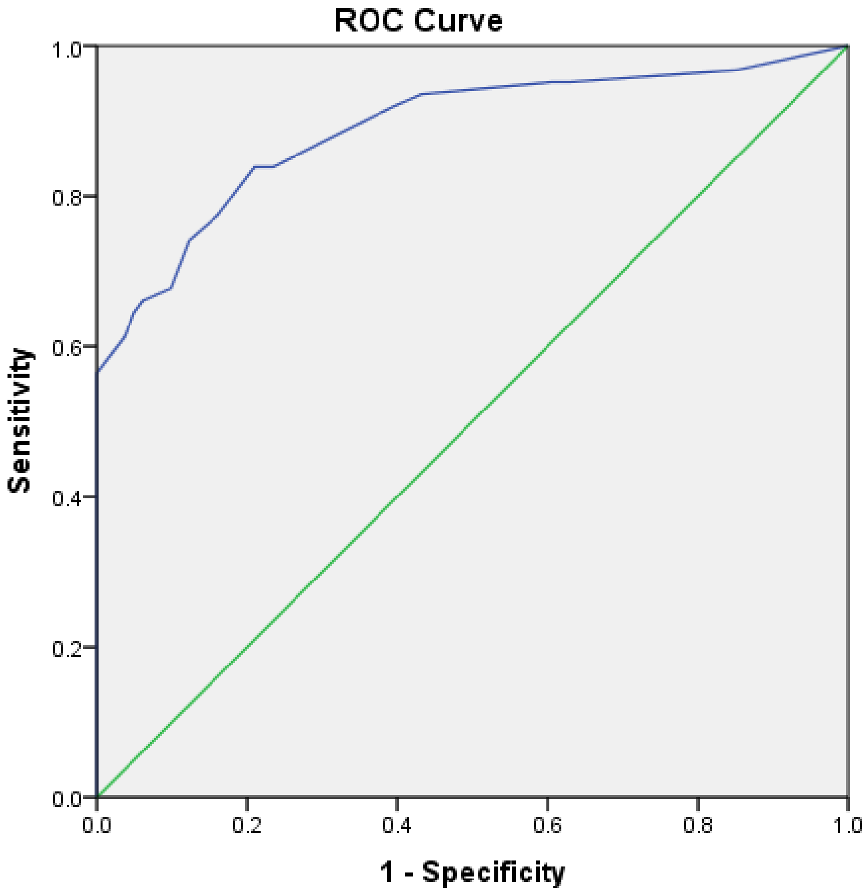


Figure 2: ROC for 6-CIT using sMMSE to detect dementia

Figure 2. Power, et al.

	Strongly Agree	Agree	Don’t Know	Disagree	Strongly Disagree
This memory test was easy	20.1%	61.2%	8.6%	7.9%	2.2%
This memory tests took a long time	2.2%	14.4%	7.9%	56.8%	18.7%
This memory test made me feel uncomfortable	3.6%	6.5%	3.6%	54.0%	32.4%
I would be happy to do this memory test again	40.3%	58.3%	0.7%	0.7%	0%

Table 1: Patient Experience of 6-CIT

Table 1. Power, et al.

P70: The Dementia Outcomes Measurement Suite: facilitating dementia assessment

Adam Bentvelzen; Liesbeth Aerts; Katrin Seeher; Belinda Goodenough; Henry Brodaty

Objective: The Dementia Outcomes Measurement Suite (DOMS) was created with the aim of using an evidence based approach to recommend a standard battery of tools for dementia assessment including instruments for measuring cognition, global severity/staging, function, behaviors, delirium and quality of life.

Methods: Clinical scales assessing these domains were quantitatively rated based on their psychometric properties, international presence, user-friendliness, cost and appropriateness to a diverse range of practice settings and patient types. Results were collated to devise a simple traffic light system to make recommendations for different situations.

Results: The DOMS online platform (www.dementia-assessment.com.au) presents the complete updated ratings and recommendations for dementia assessment, covering different dementia types, severities of impairment, clinical settings and assessment modalities. Focusing on cognitive screening, for example, the more recent Montreal Cognitive Assessment (MoCA) achieved a similarly high rating to the Modified Mini Mental Status Examination, General Practitioner Assessment of Cognition (GPCOG), and Rowland Universal Dementia Assessment Scale (RUDAS). As regards informant-based instruments, the newer Ascertain Dementia 8 (AD8) may provide a quicker alternative to the equally rated Informant Questionnaire on Cognitive Decline (IQCODE).

Conclusions: While there is no one-size-fits-all approach for dementia assessment, if clinicians can agree on commonly used tools it will facilitate them “speaking the same language”. Globally accessible online platforms like the DOMS help promote the use of internationally validated measures and streamline dementia assessment in clinical practice.

P71: Comparison of DSM-IV and DSM-5 dementia criteria among elderly with low education levels living in a developing country

Rebeca Mendes Pessoa; Natália Chagas; Livio Leal; Marcos Chagas

Dementia is a clinical syndrome characterized by cognitive decline and functional impairment with significant impact on patient’s and caregiver’s quality of life. Recently, the American Psychiatric Association, beyond the reformulation of cognitive domains, established new criteria by dementia/major neurocognitive disorder diagnosis. The main change in the DSM-5 criteria was that the memory decline is no longer essential item for diagnosis. The main objective of the study was to evaluate the impact of changes in diagnostic criteria in the estimates of dementia prevalence.

Method: Neurocognitive tests were applied to individuals over 60 years living in the catchment area covered by a family health program. The following tests were used for evaluation of specific cognitive domains: Brief Cognitive Battery (delay memory), verbal fluency, clocking drawing test, subtest abstraction of CAMCOG, constructional praxis of CERAD battery, digit span task, and Boston Naming. According to cut-off scores proposed by previous studies in Brazilian population, cognitive impairment was calculated for each domain. The participant who had memory decline and another test below the cutoff score was considered as positive according to DSM-IV. The participant with only one test below the cutoff score was considered as positive for the DSM-5 criteria.

Results: The sample consisted of 137 elderly people with a mean age of 70.6 (SD: ±7.7) years old and a mean of 2.9 (SD: ±3.1) years of schooling. Considering the DSM-IV criteria, 33.6% had positive screening with memory decline and another domain impairment. Regarding the DSM-5 criteria, 98.5% of elderly people had at least one cognitive domain impairment.

Conclusions: The criteria changes possibly will have a significant impact on the prevalence studies of dementia. The high number found of elderly people with positive screening points to the difficulty of evaluation and definition of cutoff scores of neurocognitive tests for low schooling elderly living in developing countries. This research is supported by FAPESP (process 2015/16412-1)

P72: Comparison between two brief cognitive screening tools in a psychogeriatric outpatient clinic

Natália Chagas; Marcos Chagas

Objective: The aim of this study was to compare the Montreal Cognitive Assessment (MoCA) and the Mini-Mental State Examination (MMSE) in the discrimination between patients with dementia and with other mental disorders in a specialized outpatient clinic.

Method: MoCA and MMSE are brief screening tools and require about five minutes to be completed. Total scores in both instruments range from 0-30. A cut-off of 18 points in the MMSE was used to diagnose dementia in patients with low education and the unique Brazilian study on the validity of MoCA suggested a cut-off score of 25. From 46 patients assessed, 17 had dementia (DEM) and 29 had other mental disorders such as depressive disorder, bipolar disorder and schizophrenia (PSY) without dementia. MoCA and MMSE were applied consecutively and the order of application was inverted to each patient to avoid learning effects. The diagnosis of mental disorders was based on DSM-IV criteria. **Results:** Mean age was similar in the two groups (DEM: 72.53 ±6.78 years; PSY: 70.28 ±6.08 years; p=0.25). Statistically significant differences were found between groups regarding the mean scores in the two instruments. MoCA mean scores were 8.94 (±7.64) for DEM and 14.69 (±4.84) for PSY (p<0.01); whereas mean scores in the MMSE were 15.87 (±8.83) for DEM and 23.11 (±3.96) for PSY (p<0.01). The area under the ROC curve was low for both instruments, with values of 0.191 for MMSE and 0.207 for MoCA. The time of application was approximately 12 minutes for the MoCA and 7 minutes for the MMSE.

Conclusion: Despite differences between the means, MoCA and MMSE did not show good psychometric qualities to discriminate between patients with dementia and patients with other mental disorders in a sample with low education. Furthermore, mean scores in the MoCA were very low in both groups according to the cut-off proposed in the MoCA validity study, possibly as a result of the low education of the sample. Discrimination between dementia and other psychiatric disorders appears to be more complex in samples with low education deserve further attention.

P73: Higher heart rate and leukocyte count associated with coronary heart disease in old patients with bipolar disorder

Shang-Ying Tsai; Yen-Kuang Lin; Pao-Huan Chen; Meng-Ling Chen

Background: Coronary heart disease (CHD) remains the principal cause of excessive natural deaths in bipolar patients; however, electrocardiogram (ECG) analyses and clinical features predicting CHDs in old bipolar patients remain limited.

Methods: We recruited bipolar I outpatients (DSM-IV) who were more than 50 years old and had at least one psychiatric admission. Subjects were divided into two groups based on the presence or absence of CHD diagnosed by ECG analysis at entry of study. Clinical data were obtained by a combination of interviewing patients and family members and retrospectively reviewing medical records of the most recent acute psychiatric hospitalization.

Results: A total of 86 bipolar patients aged 60.1 years were recruited in the study. There were 24.7% of bipolar patients having CHD proved via ECG. Multivariate regression revealed that the variables most strongly associated with CHD were higher heart rate at rest shown by ECG in euthymia (odds ratio=1.071, 95% CI=1.017~1.126), increasing leukocyte count in acute episode (odds ratio=1.000, 95% CI=1.000~1.001), and older age of illness onset (odds ratio=1.029, 95% CI=0.986~1.073).

Conclusion: The CHD is relatively prevalent in bipolar disorder to general population. The pathophysiology of bipolar disorder, particularly inflammation and autonomic dysfunction, may play an important role of higher coronary artery risk in addition to traditional risk factors.

P74: Potentially inappropriate medications in the elderly in Korean long-term care homes

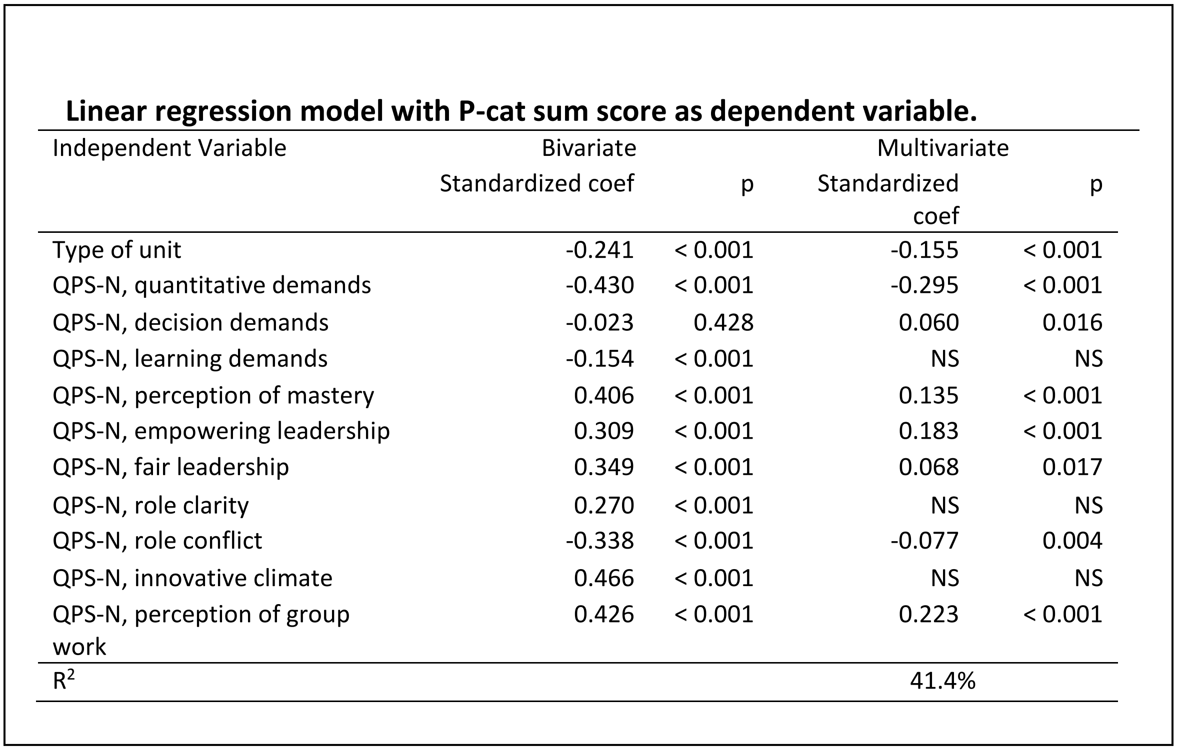
Kang Soo Lee

Objective: We evaluated the frequency of potentially inappropriate medications and factors influencing their frequency.
Methods: A retrospective cross-sectional study was conducted in 20 long-term care facilities which located in northwest regions of the south Korea for 824 patients aged 65 years and over who were assessed between January and February of 2012. Potentially inappropriate medications were identified using the 2012 American Geriatric Society's Beers Criteria. We assessed the relationship between the frequency of potentially inappropriate medications prescribed and patient age, sex, co-medications, comorbidity, activities of daily living, length of stay, grade of long-term care insurance for seniors and the bed size and business type of the long-term care facility.
Results: Of the 529 participants who satisfied our inclusion criteria, 308 (59.2%) had received at least one inappropriate medication according to the 2012 Beers Criteria. The most frequently prescribed classes of inappropriate medications were central nervous system drugs (58.5%), anti-cholinergics (21.5%) and cardiovascular medications (10.8%). The most common drugs involved were quetiapine (28.4%), chlorpheniramine (15.8%), risperidone (6.5%), and zolpidem (5.8%). Inappropriate medication use was associated with the number of co-medications and long-term care insurance grade 3 which means lesser dependency and the requirement for low level care.
Conclusion: Central nervous system (58.5%) was the most prescribed class of inappropriate medication. Quetiapine was the drug most often given inappropriately (28.4%). There was a relationship between inappropriate medication use and the number of co-medications. The frequency of inappropriate medication prescriptions was higher among patients whose long-term care insurance for seniors was grade 3 which means lesser dependency and the requirement for low level care.

P75: The association between Psychological and Social factors at work and the degree of Person Centred Care in Nursing Homes

Irene Røen; Geir Selbaek Oyvind Kirkevold; Ingelin Testad; Knut Engedal; Sverre Bergh

Objective: To explore the association between Psychological and Social Factors at Work and the degree of Person Centred Care (PCC) in Nursing Home.
Methods: Participants in this cross-sectional survey were 1171 health care staff from 185 nursing-home units, 65 Special Care Units (SCU) and 120 Regular Units (RU), from 45 Norwegian Nursing Homes.
Psychological and social factors at work, were measured by the General Nordic Questionnaire for Psychosocial and Social Factors at Work (QPS-Nordic)(Dallner et al., 2000), using nine subscales (table 1). Each sub-scale consists of 3 or 4 items; each item can be scored from 1 to 5, were a higher score indicates more positive factors.
PCC was measured by the Person-centred Care Assessment Tool (P-CAT), a 13-item scale, range 1-5 giving a sum score 13-65; a higher score indicates a higher degree of PCC (Edvardsson et al., 2010, Rokstad et al., 2012).
The association between QPS-Nordic scores and PCC was analysed in a linear regression model with P-CAT-scores as dependent variable and the subscales of QPS-Nordic as independent variables, adjusted for type of ward. The difference in mean P-CAT scores between SCU and RU was compared with t-test.
Results: The overall mean P-CAT score was 45.7 (SD 7.8). It was higher in SCU, 48.4 (SD 7.2), than in RU, 44.4 (SD 7.8), $p<0.001$. Quantitative demands and role conflict were negatively associated with P-CAT-scores, while empowering leadership, perception of mastery and perception of group work were positively associated with P-CAT scores. Fair leadership and decision demands were also positively associated with P-CAT-scores, but weaker than the other variables (see table 1).
More than 41 % of the variation of the P-CAT scores was explained by the model.
Conclusion: Psychological and social factors at work were strongly associated with the staff's rating of PCC, , and 41.4% of the variance of the P-CAT was explained by the model. This indicates that work-related psychosocial factors may impact the degree of PCC performed in Nursing Homes.



Linear regression model with P-cat sum score as dependent variable.

Independent Variable	Bivariate		Multivariate	
	Standardized coef	p	Standardized coef	p
Type of unit	-0.241	< 0.001	-0.155	< 0.001
QPS-N, quantitative demands	-0.430	< 0.001	-0.295	< 0.001
QPS-N, decision demands	-0.023	0.428	0.060	0.016
QPS-N, learning demands	-0.154	< 0.001	NS	NS
QPS-N, perception of mastery	0.406	< 0.001	0.135	< 0.001
QPS-N, empowering leadership	0.309	< 0.001	0.183	< 0.001
QPS-N, fair leadership	0.349	< 0.001	0.068	0.017
QPS-N, role clarity	0.270	< 0.001	NS	NS
QPS-N, role conflict	-0.338	< 0.001	-0.077	0.004
QPS-N, innovative climate	0.466	< 0.001	NS	NS
QPS-N, perception of group work	0.426	< 0.001	0.223	< 0.001
R^2			41.4%	

Table 1. Røen, et al.

P76: The effect of the Initial-phase Intensive Support Team for dementia in Maebashi City, Japan

Tomoharu Yamaguchi; Masamitsu Takatama; Haruyasu Yamaguchi

Object: In Japan, the Initial-phase Intensive Support Team for dementia (IPIST) was launched in 2012, and all municipalities are required to set the team by April 2018 as part of the Japanese national dementia strategy. The mission of IPIST is to organize supporting system for early detection and education for family caregiver. The IPIST arranges supports for those with dementia who have not receive medical or care service. We are running the IPIST from 2013. Here, we report the effect of the IPIST in Maebashi City, Japan.

Methods: Achievement of the IPIST for 28 months, from August 2013 to December 2015 was analyzed in 129 subjects. Effect was analyzed in 3 assessment scales: dementia severity in Dementia Assessment Sheet for the Community-based Integrated Care System (DASC-21); behavior disturbance in 13-item short version of the DBD scale (DBD-13); and care burden in the short version of the Japanese version of the Zarit Caregiver Burden Interview (J-ZBI_8).

Results: Mean age of 129 subjects was 80.2 ± 5.9 years, mild dementia accounted for 75.2 % of them, and subjects with difficulties in intervention accounted for 60.7 %. We visited 2.8± 2.1 times/each subjects (0 to 12 times). In 110 subjects completed, 43 subjects (39.0 %) newly connected to appropriate medical service, and 46 subjects (41.8 %) newly connected to care service. Finally, 84.5 % of total subjects (n=93) continued home living with supports. In 3 scales, care burden improved significantly from 14.1 ± 9.0 to 11.7 ± 7.9 in J-ZBI_8, paired-t test, p=0.035 (n=46), and behavior disturbance tended to improve from 19.7 ± 9.0 to 18.3 ± 8.6 in DBD-13 (p=0.490, n=46), although dementia severity did not change from45.2 ± 13.9 to 46.0 ± 13.9 in DASC-21 (p=0.827, n=50).

Conclusion: The IPIST reduced care burden and supported demented subjects to continue home living well.

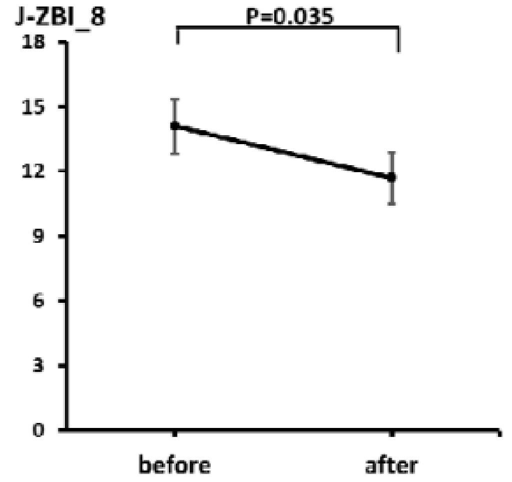


Figure. Change of care burden scale (J-ZBI_8) between before and after the support.

Figure 1. Yamaguchi, et al.

P77: The course of quality of life in nursing home residents with dementia

Anne Van Der Zon; Roland Wetzels; Hans Bor; Raymond Koopmans; Debby Gerritsen

Objective: Quality of life (QoL) is one of the most important goals of care for nursing home residents with dementia. However, only a few studies are available on the course of QoL in this group, showing inconclusive results with either no change or a decline in QoL (Lyketsos et al., 2003, Hoe et al., 2009, Castro-Monteiro et al., 2014). Evidence on the course of QoL is necessary to be able to evaluate interventions aimed at improvement of QoL. Therefore, the aim of this study is to assess the course of QoL in nursing home residents with dementia.

Methods: In this longitudinal, multi-centre, observational cohort study, 290 nursing home residents with dementia living in fourteen dementia special care units of nine nursing homes in the Netherlands were included. Data was collected at baseline and each six months during two years. QoL was assessed with the Qualidem, providing a QoL profile with a total score and nine subscale scores. Both subscale- and total scores were converted to a scale ranging from 0-100, a higher score corresponding with a better QoL. A linear mixed model was used for data analysis.

Results: In preliminary analyses the average total Qualidem score did not change over two years (b=-0.31 (=change per six months), SE=0.26 , p-value=0.235). A significant increase of QoL over time was found in the subscales 'care relationship', 'negative affect', 'restless tense behaviour', 'positive self image' and 'feeling at home', in which 'negative effect' showed the largest increase (b=1.46, SE=0.51, p-value=0.004). A significant decrease of QoL was seen in the subscales 'positive affect', 'social relations' and 'having something to do'. The latter showed the largest decline over time: 5.84 points per six months (SE=0.70, p-value<0.000).

Conclusion: In this large study on the course of QoL, the total QoL score was stable over a two-year period. However, there were many shifts in QoL subscale scores, in which the subscale 'having something to do' showed the largest decline over time. This indicates that specific QoL domains need extra attention in the care for nursing home residents with dementia.

P78: Differences in the neural correlates of frontal lobe tests

Teruyuki Matsuoka; Yuka Kato; Ayu Imai; Hiroshi Fujimoto; Keisuke Shibata; Kaeko Nakamura; Kei Yamada; Jin Narumoto

Objective: The Executive Interview (EXIT25) (Royall *et al.*, 1992) and the Executive Clock Drawing Task (CLOX) (Royall *et al.*, 1998) were developed to assess executive function at the bedside. Our previous study suggested that the Japanese versions of the EXIT25 (J-EXIT25) and CLOX (J-CLOX) might assess different aspects of executive function (Matsuoka *et al.*, 2014). The aim of this study was to examine differences in the neural correlates of the EXIT25, CLOX1, and Frontal Assessment Battery (FAB) using Magnetic Resonance Imaging (MRI).

Methods: Fifty-eight subjects (30 with Alzheimer disease, 10 with mild cognitive impairment, and 18 healthy controls) participated in this study. The Ethics Committee of Kyoto Prefectural University of Medicine approved the study and informed consent was obtained from all participants. Multiple regression analysis was performed to examine the brain regions correlated with the J-EXIT25, J-CLOX1 and FAB scores using Statistical Parametric Mapping (SPM8). Age, gender, and years of education were included as covariates. Statistical thresholds were set to uncorrected P-values of 0.001 at the voxel level and uncorrected P-values of 0.05 at the cluster level.

Results: The J-EXIT25 score correlated inversely with the regional GM volume in the left lateral frontal lobe (Brodmann area 6, 9, 44, 45), the J-CLOX1 score correlated positively with the regional GM volume in the right orbitofrontal cortex (Brodmann area 11) and the left supramarginal gyrus (Brodmann area 40), and the FAB score correlated positively with the regional GM volume in the right precentral gyrus (Brodmann area 6). The GM volume in the left lateral frontal lobe (Brodmann area 9) and the right lateral frontal lobe (Brodmann area 46) correlated inversely with the J-EXIT25 score and positively with the J-CLOX1 and FAB scores; although the uncorrected p-values were not significant at the cluster level.

Conclusion: There were differences in the neural correlates between the EXIT25, CLOX1, and FAB, although the bilateral dorsolateral prefrontal cortex (DLPFC) was found to be a common neural correlate of them when the liberal threshold was used. The results of this study suggest that the EXIT25, CLOX1, and FAB evaluate different aspects of frontal lobe function.

P79: Identifying research directions for a radiological nursing approach in elderly care in Japan

Miwa Yamamoto; Yoko Miyoshi; Junko Yoshimura; Yusuke Sakurai; Kiyoko Tokunaga

Purpose: This study aimed to determine research directions for a radiological nursing approach in elderly care in Japan

Design: We conducted a literature search of articles in an electronic database established by the NPO Japan Medical Abstract Society (Ichushi Service). This database is one of the most well-known databases of Japanese studies in the fields of medicine and nursing, comprising roughly 5,000 journals and 6,300,000 articles that are indexed using a thesaurus structure. We performed a search with keywords "Radiological," "Nursing," and "Elderly." Articles containing these terms were analyzed using Trend Search, commercially available text mining software developed by FUJITSU. The analysis yields a concept map of related words, in which the strength of relationship between words is indicated by the thickness and distance of the line connecting them.

Ethical considerations: Only anonymous articles were selected.

Results and considerations: Hitting articles number was four Original articles, moreover, Original articles number was nothing articles with abstract.

Mapping yielded two wedges: "ion beam radiotherapy and QOL" and "adverse event, struggle against disease."

Wedge 1. Ion beam radiotherapy and QOL

The first wedge, ion beam radiotherapy and QOL, had a keyword "ion beam radiotherapy" associated with terms such as "hormonal therapy," "prostatic carcinoma," "thamuria," and "dysuria." "QOL" was associated with terms such as "breast cancer patients," "symptoms," "radiations," "lowering," and "symptoms score."

Wedge 2. Adverse event, struggle against disease

The second wedge, adverse event and struggle against disease, had a keyword "adverse event" associated with terms such as "steroid cream," "radiodermatitis symptoms," and "pharyngitis." "Struggle against disease" was associated with terms such as "experience," "nurses," "nuclear radiation," and "cancer."

Conclusion: Text mining analysis revealed two wedges, which helped determine research directions for a radiological nursing approach in elderly care in Japan.

P80: Executive Function Performance Test-Br in Alzheimer Disease: cultural adaptation and inter rater reliability

Patricia Buchain; Adriana Vizzotto; Janaina Harder; Patricia Cotting Homem de Mello; Alexandra Oliveiera; Tania Alves

Objective: The EFPT is an objective test to assess executive function deficits in the performance of ecological tasks .We performed the cross-cultural adaptation to Brazilian Portuguese and inter rater reliability of the Executive Performance Test (EFPT) in a sample of healthy elderly and patients with AD.

Methods: In order to perform the validation of EFPT-Br after the translation to Brazilian Portuguese we performed the cultural adaptation when we needed to adapt the ecological tasks to the Brazilian population. A group of expert occupational therapists was formed in order to examine and adapt culturally the four tasks proposed by the EFPT original version (simple cooking, using telephone, taking medication and paying bills). An evaluation of reliability was performed, investigating a sample of 15 elderly individuals (9 with AD, and 6 controls). The patients were selected among outpatients of the Old Age Research Group of Institute of Psychiatry (HCFMUSP).The reliability analysis between 3 different examiners. For the statistical analysis we used the Kendall test bivariate correlation analysis.

Results: The cooking task was the one that needed more attention once oatmeal was not a usual cooking habit in the Brazilian population. The adapted task decided in the cooking activity was to prepare and serve coffee. The mean of years of education in the total sample was 9,73 (SD=+-5,40). The mean MMSE score for the control group was 28.67 and the mean for the AD group was 17.44. The total score of the EFPT-Br was 45.11 (SD=+ - 20.18) for patients and 2.67 (SD=+ - 2.16) for controls, Significant difference at $p <0.001$. The correlation between examiners for the total score with Kendall test: r=.85 ($p <0.001$) demonstrating strong interrater reliability. The analyses for the separate tasks and for each EF domain also demonstrated strong correlations.

Conclusion: The data shows high interrater reliability for the total score, each tasks and Executive Functions components. Thus verifying that the changes and cultural adaptations made to the EFPT tasks are reliable. Moreover it should be noted that a validity of an ecological test should have the cultural adaptation to address the functionality and EF domains.

P81: Healthcare costs among chronically ill older adults: does mental health status matters?

Samantha Gontijo Guerra; Helen-Maria Vasiliadis; Veronica Chudzinski

Intro: Besides the numerous and known effects on different health outcomes (e.g. increased morbidity and mortality, reduced quality of life), chronic disorders have also been associated with significant higher healthcare costs due to increased hospitalizations, physician visits and pharmaceutical drug use. Specially, the economic impact on society associated with the healthcare of older adults depends on the joint effects of certain diseases.

Objectives: The aim of this poster presentation is to show the results of a study in which the excess costs associated with co-morbid mental and physical disorders were estimated.

Method: study data came from a health survey of 2004 French-speaking community-dwelling older adults. Two-year healthcare costs were identified from administrative databases. Generalized linear models were used to study healthcare costs as a function of co-morbid mental disorders (MDs) and chronic physical conditions [arthritis, cancer, cerebral vascular accident (CVA), diabetes, heart diseases (HDs), and respiratory diseases (RDs)].

Results: Participants with HDs and CVA with MDs incurred higher costs reaching $1696 (95%CI: $30, $3422) and $14 772 (95% CI: $1909, $31 454) than those without MDs. Respiratory diseases and MDs incurred higher costs reaching $5343 (95% CI: $343, $10 343) than those without RDs. The excess annual adjusted healthcare costs associated with co-morbid MDs and physical disorders reach close to $600 M per 1 000 000 population of older adults.

Conclusion: The presence of comorbid MDs with HD, CVA and RDs has a synergistic effect on healthcare costs. These findings underline the need for improved primary care for the prevention and treatment of co-mental and physical disorders that can potentially save hundreds of millions to society.

P82: Worry and depressive symptoms are associated with subjective memory complaints

Victoria Liou-Johnson; Nehjla Mashal; Abigail Kramer; Nathan Hantke; Nicholas Bott; Sherry Beaudreau

Objective: Subjective memory complaints (SMC) are hypothesized to be a predictor of mild cognitive impairment (MCI) and possibly further cognitive decline, leading to dementia (Slavin et al, 2015). Additionally, mood disorders, such as depression and anxiety, have been associated with MCI and dementia, as well as SMC (Balash, et al., 2013; Lehrneret al., 2014). However, the role of worry, a common experience among individuals with elevated anxiety or depression, has not been the focus of studies on SMC, but could account for associations between anxiety and depression with SMC. In the current study, we expected that worry would be uniquely associated with SMC.

Methods: Self-reported memory problems were recorded from118 participants who also completed questionnaire measures of psychiatric symptoms. A logistic regression was performed with SMC as the dependent variable and worry symptom severity as the independent variable (Model 1), in addition to adjusting for anxiety and depression symptom severity (Model 2). Anxiety was measured with the Beck Anxiety Inventory (BAI; Beck et al., 1988), depression with the Beck Depression Inventory-Second Edition (BDI-II; Beck et al., 1996), and worry with the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990).

Results: Results were significant for worry in association with SMC ($\chi 2$ (1) =15.42, p<.001) (Model 1), and in the overall model which included anxiety, depression, and worry ($\chi 2$ (2) =21.39, p<.001) (Model 2). Wald tests indicated both depressive symptoms (BDI: Wald f=6.78, p<.01) and worry (PSWQ: Wald f=3.73, p=.05) were significantly associated with SMC, but not anxiety (BAI: Wald f=.221, p > .05).

Conclusions: Findings indicate that worry is uniquely associated with SMC along with depressive symptoms. Interestingly, anxiety was not significantly associated with SMC. It would be valuable in prospective studies to examine interactions among worry, anxiety, and depression, to further elucidate the relationships of the three variables and SMC.

P83: Older Adults, Mental Health Prevention & Promotion: Aspects of CBA, CUA and CEA Analysis

Sabine Bährer-Kohler

Introduction: The increase in the ageing population implies a changing process in the demographic structures with an increased risk of mental disorders, several age-related diseases, and chronic diseases.

The direct and indirect costs of poor mental health are estimated between 3% and 4% of GDP (gross domestic product) in developed countries. Evaluation of prevention of mental disorders and the promotion of mental health are important, e.g. to justify public investment in mental health promotion.

Cost-effectiveness of interventions depends on defined decision markers. Cost-benefit analysis (CBA) compare an intervention with its costs in detail, using a generic monetary outcome, the cost-effectiveness analysis (CEA) compares alternatives and measures, analyse the intervention, outcomes and other factors, and the cost-utility analysis (CUA) uses a more generic outcome measurement.

No country to date can present an implemented mental health strategic policy or added investment decisions with an evidence-based assessment of what intervention or intervention programs actually work best and sustainable and at what cost within multiple *timeframes and perspectives.*

Methods: *Systematic review of bibliographic databases* (2015-2016) and search of key publications.

Results: The current results of CEA- and CBA analysis in this area are limited, only a few provide and document strong evidence that preventive interventions are cost-effective.

Due to the specific analysed program and content context of many interventions, the scope for generalizability, transferability and the interrelationship between the two may be very restricted; there is an urgent need for more common and consistent markers to improve comparability across different interventions and intervention programs, settings and timeframes.

More country, population, and sub-group specific economic evaluations are required; there is a need for detailed analysis between resource capacities, resource use and costs in a scientific transparent manner, including several impacts and critical contributory factors outside of public, social& health care systems. Other co-morbid physical health problems, e.g. chronic diseases have to be more included.

Conclusion: Options in the context of scientific economic analysis are e.g. more country, population and context specific economic evaluations to strengthen the measurable evidence and e.g. the replication of interventions and intervention programs.

P84: Is the experienced stigma in dementia related to clinical symptoms and quality of life? The MeetingDem project

Joanna Rymaszewska; Katarzyna Urbanska; Dorota Szczesniak; Elisabetta Farina; Francesca Lea Saibene; Rabih Chattat; Simon Evans; Shirley Evans; Dawn Brooker; Martin Orrell; Iris Hendriks; Meiland Franka; Rose-Marie Dröes

Introduction: In 2014 the JPND MeetingDem project started, aiming to adaptively implement the Dutch Meeting Centers Support Programme (MCSP) in Italy, Poland and the UK. The aim of the MCSP is to provide support attuned to the individual needs of people with dementia and their carers. Experienced stigma may negatively influence the well-being of people living with dementia. However, individual differences, depressive symptoms and the stage of the disease may play a role in the process of perceiving stigmatisation.

Objectives: To describe, compare and investigate the interrelationship between perceived stigma, depressive symptoms, quality of life and the stage of dementia among participants of Meeting Centres project in I, PL and UK.

Methods: All (n=100) participants (control and experimental groups) at baseline of the Meetingdem project in I, PL and UK were assessed with the Stigma Impact Scale (Burgener&Berger, 2008), Cornell Scale for Depression in Dementia (Alexopoulos et al, 1988), Global Deterioration Scale (Reisberg et al, 1982) and quality of life scales.

Results: The comparison of perceived stigma, depressive symptoms, quality of life and stage of dementia will be presented. The hypothesis is that better cognitive functioning and more depressive symptoms will be associated with a higher level of perceived stigma. Moreover, some quality of life aspects may be significantly linked with the experience of stigmatization.

Conclusions: Insight in the interrelationship between perceived stigma, cognition, depressive symptoms and life values may help to attune the support provided in MC to the individual needs of participants.

P85: Cohort differences in cognitive aging in the Longitudinal Aging Study Amsterdam (LASA)

Anamaria Brailean; Martijn Huisman; Martin Prince; Matthew Prina; Dorly Deeg; Hannie Comijs

Background: There is evidence that cognitive test scores increase across generations and that cohort differences in cognitive performance are maintained in old age (e.g., Dodge *et al.*, 2014; Finkel *et al.*, 2007; Flynn, 1987; Gerstorf *et al.*, 2011; Karlsson *et al.*, 2015). However, it is not clear whether cohort differences in cognitive performance are differentially preserved overtime, leading to different rates of cognitive decline between cohorts (i.e., *differential preservation* hypothesis), or whether cohort differences in cognitive performance are similarly preserved across time, leading to similar/parallel rates of cognitive decline between cohorts *(i.e., preserved differentiation hypothesis)* (e.g., Dodge *et al.*, 2014; Finkel *et al.*, 2007; Gerstorf *et al.*, 2011; Karlsson *et al.*, 2015; Salthouse, 2006; Zelinski and Kennison, 2007). Moreover, the factors that can account for cohort differences in cognitive performance and rates of decline are poorly understood.

Objective: This study aims to examine cohort differences in cognitive performance and rates of change in episodic memory, processing speed, inductive reasoning and general cognitive performance, and to investigate whether these cohort effects may be accounted for by education attainment.

Methods: The first cohort (N = 705) was born between 1920 and 1930, whereas the second cohort (N = 646) was born between 1931 and 1941. Both birth cohorts were aged 65 to 75 at baseline and were followed up 3 years and 6 years later. Data were analyzed using linear mixed models.

Results: The later born cohort had better general cognitive performance, inductive reasoning, and processing speed at baseline, but cohort differences in inductive reasoning and general cognitive performance disappeared after adjusting for education. The later born cohort showed steeper decline in processing speed. Memory decline was steeper in the earlier born cohort but only from time 1 to time 3 when the same memory test was administered. Education did not account for cohort differences in cognitive decline.

Conclusions: Higher cognitive reserve (i.e., education attainment) may offer later born participants an initial edge in cognitive functioning, but it may not offset the aging related brain changes that underlie cognitive decline. This finding carries implications for healthy cognitive aging.

P86: The Successful Use of Electroconvulsive Therapy to Treat Akathisia

A. Umair Janjua; Meena Kumari; Adriana Hermida

Objective: To highlight electroconvulsive therapy (ECT) use in a case of akathisia. A 66-year-old female with depression, anxiety, and akathisia was admitted due to depressed mood, constant pacing, reports of inner restlessness, and inability to function. Her family reported continuous pacing for up to six hours without rest and substantial weight loss. No clear pharmacological agent was identified as a cause for her current clinical presentation, though she was previously prescribed quetiapine, haloperidol, lithium, paroxetine, and fluoxetine for the treatment of depression. To address her significant akathisia, a number of pharmacotherapies including clonazepam, lorazepam, diazepam, propranolol, and mirtazapine were attempted, but her symptoms worsened.

Methods: A case report is described of a patient with debilitating akathisia treated with ECT.

Results: Brain CT and MRI were unremarkable. During the inpatient admission she was titrated on duloxetine to 40 mg BID, mirtazapine 30 mg QHS, and clonazepam 1 mg TID. Considering her worsening mood and akathisia symptoms along with past medication failures, ECT was initiated. Her inpatient medications remained unchanged during ECT sessions. She received six treatments with right unilateral ultrabrief pulse-width stimulation over the course of two weeks without any major side effects. The patient experienced a significant improvement of her depression, anxiety, and most remarkably her akathisia completely resolved. She stopped pacing, denied feelings of inner restlessness, and began sleeping at least seven hours at night. Her mood was better as she started eating the majority of her meals and became more interactive in daily group.

Conclusion: The pathophysiology behind akathisia is not completely understood. In our case, the specific offending medication was unknown; nonetheless, psychotropic medications such as first-generation neuroleptics, SSRI-class antidepressants, and lithium are often implicated. ECT is known to modulate neurotransmitter levels and is a valuable alternative, particularly in cases where prior pharmacotherapy options have failed. Additionally, ECT can be useful among the elderly, where drug-drug interactions are more common. Whether its application is appropriate for both drug-induced akathisia and primary akathisia is still worth exploring. This case supports previous publications that have highlighted the use of ECT for the treatment of akathisia with successful clinical results.

P87: Electroconvulsive Therapy (ECT) in a Heart Transplant Patient

Adriana Hermida; Oliver Glass

Objective: Heart transplant patients may face depression before and after a transplant(Jones, 1991). Electroconvulsive therapy (ECT) is a treatment for a wide variety of psychiatric conditions. As the practice of modern ECT continues to evolve, results of research consistently demonstrate this to be a treatment with significant efficacy and safety. As ECT uses an electrical current to produce a seizure, some practitioners may be hesitant to use it in patients who have a history of heart transplant surgery(Bloch et al., 1992). We present a case of a 68-year-old Caucasian male who recently had an orthotropic heart transplant and successfully tolerated and responded to six ultrabrief right unilateral (UB-RUL) ECT treatments. Methods of modifying ECT to treat patients after a heart transplant will also be discussed.

Methods: A case report of a geriatric patient that was status-post orthotopic heart transplant and who was successfully treated with UB RUL ECT. We will also present a review of literature on this topic(Lee et al., 2001).

Results: 68-year-old Caucasian male with significant depression, postoperative confusion, and a suicidal plan to shoot himself with a gun. Primary team prescribed escitalopram 20mg qday with no response. Olanzapine was given for post-operative confusion. Patient failed mirtazapine in the past. No other prior psychiatric history. Family history was significant for two brothers dying by suicide. Due to his failure to thrive and his suicidal thoughts with expressed plan the ECT service was consulted for the consideration of ECT. Six UB-RUL ECT treatments resulted in improvement of depressive symptoms and confusion.

Conclusions: While literature is significantly limited on this topic, our case demonstrates the promise of ECT in treating depressive symptoms in geriatric patients who have undergone a heart transplant. This case also brings to light the importance of doing a thorough psychiatric assessment on patients prior to performing a heart transplant(Fusar-Poli et al., 2006). It could be argued that if psychiatry was consulted earlier, the patient's outcome may have been more favorable.

P88: Trichotillomania in Geriatrics: a Case Report

Mairead Bartley; Maria Lapid

Background: Trichotillomania or hair pulling disorder is a poorly understood psychiatric disorder resulting in significant distress and social avoidance. Epidemiological data is lacking. We present a case of an elderly female presenting with new onset trichotillomania.

Case Report: A 69 year old female was referred to Geriatric Psychiatry from primary care with a three week history of hair pulling behavior that had already resulted in significant hair loss. Past medical history was significant for lifelong anxiety disorder for which she was taking Citalopram, obsessive-compulsive traits and an IQ of 82. There had been an escalation in her obsessive behaviors about frequent toileting, such that she was going to the bathroom every five minutes. She also had delusional ideas about a former male acquaintance that she believed was trying to contact her again. She reported that when she heard the snap or pop after she pulled her hair out it would give her an enjoyable and calm feeling. She admitted that it was painful and she did not want to do it but said she was unable to stop. She described herself as looking like George Washington because of the extent of frontal hair loss. Thyroid function and routine laboratory tests were normal. A diagnosis of trichotillomania was made. She was commenced on Clomipramine at 25mg and referred to a therapist. Dermatology opinion was sought. At 2 weeks follow-up hair loss was more extensive; however, she reported feeling less anxiety. Staff at the foster home noted a reduction in her obsessive behaviors. She was using a scarf and a hair piece which she liked. Behavioral strategies (coloring, using a squeeze ball) were noted to be helpful. She continues on regular follow-up.

Discussion: Although described over a century ago, trichotillomania has only been recognized as a psychiatric disorder for less than 30 years. It is classified as an obsessive and compulsive related disorder. Typically, it is a chronic disorder with onset in early teens with a female preponderance. Given the lack of data for older patients, treatment is challenging. A combination of habit reversal behavioral therapy and pharmacotherapy may be most effective.

P89: Analyzing Berg Balance Scale and Time Up and Go test in people with Parkinson's disease: Video Game as an intervention method

Livia Galeote; Juliana Cecato; Marcos Martinelli; Raissa Marraccini; Jose Martinelli

In patients with Parkinson's disease, balance and fear of falling are factors associated with constant falls. The aim of this study was to analyze balance through the Berg Balance Scale and gait through Time Up and Go test in elderly with Parkinson's disease with pre and post intervention with Nintendo Wii games. It was selected 13 individuals of both sexes, aged over 60 years, with recent clinical diagnosis given by the doctor, staging of PD between 1.0 and 2.5 points in Hoehn & Yahr scale, dopaminergic medication, normal eyesight and hearing and minimum education of 4 years. The scale of Berg Balance and Time Up and Go was applied before and after 14 sessions of intervention. The statistic has showed pre and post intervention differences. It was observed average of 49.52 pre intervention and 52.77 points after intervention ($p = 0.002$) for Berg scale and 15.39 pre intervention and 14.12 seconds intervention ($p = 0.048$) for Time Up and Go test. It can be concluded that the intervention with the Nintendo Wii games have resulted in better performance in balance and gait of elderly patients with Parkinson's disease.

P90: Difference between Older Japanese Inpatients and Outpatients in Occupational Performance, Health-related QOL, and Well-being

Emi Miki; Risa Matsuo

Purpose: The purpose of this study was to identify the difference between older Japanese inpatients and outpatients in occupational performance, health-related quality of life (QOL), and well-being.

Methods: Participants were selected from among patients aged ≥65 years, without dementia, who received rehabilitation services at either a designated hospital or geriatric health services facility between October and December 2014. Data were collected through a structured questionnaire. The Canadian Occupational Performance Measure (COPM), 36-Item Short-Form Health Survey (SF-36), and Philadelphia Geriatric Center Morale Scale (PGCMS) were used to measure occupational performance, health-related QOL, and well-being.

Results: There were 44 total participants (12 men, 32 women; mean age, 79.0±7.81 years), comprising 21 inpatients and 23 outpatients. Their primary diagnoses were musculoskeletal disorders (66%), cerebrovascular disorders (11%), cancer (7%), cardiovascular disease (5%), or other (11%). Comparison of the rates of occupational performance problems in regard to what the participants wanted to do, needed to do, or were expected to do shows that problems concerning roles and leisure were higher among outpatients, but problems concerning self-care, instrumental activities of daily living, and walking or other locomotion were higher among inpatients. The outpatients had higher performance scores and satisfaction scores on the COPM, though the difference was not statistically significant. Physical functioning, role physical, social functioning, physical component summary, and role/social component summary score were higher among outpatients than inpatients, and bodily pain, general health, vitality, role emotional, mental health, and mental component summary were higher among inpatients than outpatients. Interestingly, all scores on the PGCMS were higher among inpatients.

Conclusions: The results showed that outpatients tend to place higher value on role or leisure occupations and their health-related QOL scores in the role and social component were higher than for inpatients, though all scores on the PGCMS and for QOL concerning physical and mental component were lower for outpatients. These results showed that the occupations that older people want, need, and expect to do, and their satisfaction will change dependent on their environment and their roles in life. Adaptation to a new environment or roles will affect satisfaction with occupational performance or QOL.

P91: The efficacy of individual occupational therapy in a long-term schizophrenic inpatient: A case study

Fumiko Kaneko; Hitoshi Okamura

Objective: Individual occupational therapy was provided to a schizophrenic patient (a female in her late 60s) who had been hospitalized at a psychiatric hospital for approximately 10 years, with no hope of discharge, and her psychosocial changes were investigated.
Methods: A total of 6 weekly 60-minute individual intervention sessions were provided. The intervention consisted of life-review and creation of collages of topics raised in the life-review. The collage works were bound into a book and handed to the patient. Assessment was performed at 3 time-points using the Recovery Assessment Scale (RAS) and Life Skills Profile (LSP): before the intervention, just after completion of the intervention, and 3 months after completion of the intervention.
Results: Before the intervention, she said, “I want to stay here (in the hospital) forever.” The occupational therapist (OT) asked her about her old memories, but she seemed unable to recall them well. The OT looked for photographs, illustrations, etc. (e.g., photographs of festivals in her hometown) based on what she told, and the patient created collages using these photographs. She recalled more memories and looked brighter in later sessions. She was able to recall what happened when she was shining and words that saved her when suffering from illness. Three months after completion of the intervention, her bad relationship with her daughter improved, and she happily said, “The snow has melted.” In addition, she expressed her desire: “I want my daughter to take me downtown by car.” She also talked about her collage book, “I have watched this many times. This makes me calm.” The RAS and LSP scores at the 3 points were 72, 89 and 95, and 136, 139 and 142, respectively; thus, both scores increased.
Conclusion: The intervention allowed her to positively review her life. In addition, whenever she watched the collages she was able to reconfirm the feeling of that time, thereby probably allowing her recovery process to progress further. As a result, she became able to keep an appropriate distance from her daughter, leading to improvement in her relationship with her, which was likely to allow her to have positive feelings.

P92: Development of an E-learning for Caregivers to Manage Challenging Behavior of People with Dementia

Iris Van Asch, Marleen Prins; Bernadette Willemse

Community-dwelling people with dementia living often are taken care of by informal caregivers like spouses, children, other relatives or acquaintances. Providing care to a person with dementia often leads to negative psychological and physical outcomes for the caregiver. One of the reasons is the so-called challenging behavior (CB) of the person with dementia. A large percentage of the caregivers in the Netherlands indicate that they desire some kind of support in managing challenging behavior. Psychosocial interventions which give the caregiver insight into the CB and teach them how to cope with this behavior, are increasingly offered online. Therefore, an e-learning to support caregivers in managing CB is developed. The e-learning consists of six video sequences where alternately experts and caregivers provide information or experiences about a frequently occurring type of CB (for example dependent or aggressive behavior). The behavior is first analyzed comprehensively, then possible causes of the behavior will be discussed and finally caregivers will think of ways in which they can manage the CB based on this new information. From the very beginning, caregivers of people with dementia play a major role in the development of the e-learning by providing feedback on the design of the video’s and the content of the scripts (n=20). Besides the caregivers, experts in the field of dementia, challenging behavior and caregiving, are involved in the development of the e-learning.

P93: A Novel Psychosocial Intervention “Programme d’Aide au Succès du Sevrage» (PASSE-65+) Designed to Help Older Benzodiazepine Users to Gradually Wean their Medication: An Overview of the Protocol

Fethia Benyebdri; Virginie Proulx-Tremblay; Marie-Michelle Duhaime; Vanessa Léveillé; Arnaud Allary; Guillhème Pérodeau; André Marchand; Kieron O’Connor; Cara Tannenbaum; Helen-Maria Vasiliadis; Carol Hudon; Sebastien Grenier

Background: Benzodiazepines (BZD) are one of the most used group of pharmaceuticals. They are used in a wide range of indication such as anxiety and insomnia. In addition to their various adverse effects such as psychomotor impairments and the decline of cognitive function, long-term BZD use causes physical and psychological dependence as evidenced by the withdrawal syndrome (Balestrieri *et al.*, 2005; Cook *et al.*, 2007). Presently, the only recommended strategy by general physicians (GP) to facilitate the withdrawal of BZD is gradual BZD dose tapering, a procedure with limited results (Landry and Mainguy, 2003; O'Connor *et al.*, 2003).
Objective: This single-blind randomized controlled trial is designed to test the effectiveness of a novel psychosocial intervention called PASSE-65$^+$ to facilitate the BZD withdrawal in the older users, thus providing a new therapeutic tool to physicians.
Methods: The 75 BZD user participants will be randomly allocated to one of the following three groups: minimal intervention, GP intervention, and psychosocial intervention (PASSE-65$^+$). These interventions will last 12 sessions and the research study will be conducted over a year. All groups will undergo three additional assessments (2 to 14 days, 3 months, and 12 months) following the end of interventions. Finally, 15 participants will also be randomly chosen and divided into 3 groups: BZD users who completely stopped taking their drug, BZD users who diminished their consumption and participants who relapsed or dropped out. They will be interviewed at home to collect their opinion about the PASSE-65$^+$ program. Moreover, a cost-effectiveness study will also be conducted.
Results: Enrolment began in December 2014 and will be completed by January 2017.
Conclusion: The development of specifically designed cognitive-behavior approach, the psychological intervention (PASSE-65$^+$), will likely have a significant impact on the management of BZD withdrawal symptoms by improving the general psychological well-being of patients, thus increasing the success rate of BZD discontinuation.

P94: A Novel Psychosocial Intervention Designed to Help Older Benzodiazepine Users to Gradually Wean Their Medication: Preliminary Evidence for its Effectiveness

Fethia Benyebdri; Virginie Proulx-Tremblay; Marie-Michelle Duhaime; Vanessa Léveillé; Arnaud Allary; Guillhème Pérodeau; André Marchand; Kieron O’Connor; Cara Tannenbaum; Helen-Maria Vasiliadis; Carol Hudon; Sebastien Grenier

Background: Benzodiazepines (BZD) are widely used to treat anxiety, insomnia, and depression. In addition to their various adverse effects, long-term BZD use causes physical and psychological dependence as evidenced by the withdrawal syndrome (Balestrieri *et al.*, 2005; Cook *et al.*, 2007). Presently, the only recommended strategy by general physicians (GP) to facilitate the withdrawal of BZD is gradual dose reduction (GDR), a procedure with limited results and low success rate (Ashton, 2005; Landry and Mainguy, 2003; O'Connor *et al.*, 2003). It is therefore essential to find strategies that, combined with the GDR, help BZD users to discontinue their medication.
Objective: This study aims to test the effectiveness (i.e., cessation success rate) of a psychosocial intervention called “PASSE-65$^+$” designed to facilitate the BZD withdrawal among older users. We hypothesize that the cessation success rate will be higher in the psychosocial intervention group in comparison to other groups.
Methods: 35 BZD older users were randomly allocated to one of the following three groups in a single-blind randomized controlled trial: minimal intervention (Gr.1: only GDR grid); a GP intervention (Gr.2: GDR grid + 10 minutes meeting with a GP once a week), and psychosocial intervention (Gr.3: GDR grid + 10 minutes meeting with a GP once a week + psychosocial intervention / PASSE-65$^+$). The psychosocial intervention lasted 12 sessions (75 minutes each). All groups underwent an additional assessment (2 to 14 days) following end of interventions.
Results: We observed that 10 out of 12 (85%) participants who followed the psychosocial intervention stopped completely their BZD consumption compared to 5 out of 11 (45%) participants with GP supervision and 4 out of 12 participants (33%) with a minimal intervention. Moreover, 42% (n=5) of participants with minimal intervention compared to 18% (n=4) in Gr.2 and 8% (n=1) in Gr.3 did not complete their withdrawal.
Conclusion: These preliminary results support our hypothesis by showing the importance of developing a specifically designed cognitive-behavioral approach, the psychological intervention (PASSE-65$^+$), in increasing the success rate of BZD discontinuation. In order to consolidate these promising results, further analyses will be carried out on more participants (n=75).

P95: Integrated On-Site Mental Health Services: Better Access and Care for Seniors in Need

Amy Bunn; Irena Ginsburg; Jay Luxenberg

On Lok Lifeways (On Lok), the original Program of All-inclusive Care for the Elderly (PACE), provides comprehensive health care for community-dwelling frail seniors in the San Francisco Bay Area. The program is based on a collaborative interdisciplinary team model, whereby participants access a multitude of medical and preventative services under one roof, while also receiving in-home support to "age in place." This has proven to be a successful service model and results in higher levels of satisfaction with care than isolated "silo" models.

One central innovation at On Lok has been to develop a robust in-house Mental and Behavioral Health (MBH) services program. Where seniors were once referred out for these services, to off-site psychiatrists and psychologists, they can now be seen quickly and easily, by a clinician who is an active and integral part of the interdisciplinary team (IDT). This has resulted in improved access to care for a vulnerable population. The MBH program also accounts for a dramatic reduction of inpatient psychiatric hospital utilization.

On Lok's MBH Team consists of a neuropsychologist, two part-time psychiatrists, and five psychotherapists. The team provides both direct and indirect services to participants, family members and staff. Along with routine assessments, testing, individual psychotherapy and support groups, the team also provides extensive trainings to the IDT on topics related to mental health. This educational component has increased the team's confidence in dealing with difficult mental health cases in an outpatient setting. Staff report high satisfaction with these trainings, which have resulted in more effective, coordinated treatment for seniors with mental and behavioral health issues.

Having skilled mental health clinicians fully integrated into the team provides a distinct advantage over outside consultants or trainers. Whether training or treatment planning, mental health clinicians share knowledge about the diagnoses and symptoms of the specific participants shared by the team. IDT members work closely together and know their participants, therefore mental health insights inform all aspects of the treatment planning and care. This close collaboration improves relationships between team members and improves care for seniors with mental health issues.

P96: User satisfaction with vacuum pump treatment for erectile dysfunction amongst middle- and older-aged primary care patients

Victoria Liou-Johnson; Katie Van Moorleghem; Johanna Rengifo; Viktoriya Samarina; Brent Mills; Sherry Beaudreau

Objective: The vacuum erection device (VED) is a safe, non-pharmacological option for erectile dysfunction (ED), particularly when pharmacological treatment is contraindicated due to medical conditions (Kostis, 2005; Lin, Wang, & Wang, 2014). In this study, we aimed to understand characteristics of patients reporting satisfaction with this medical device and the types of problems encountered, if any, in middle-aged (40 -65) and older (>65) male patients from an interdisciplinary primary care clinic devoted to the treatment of ED.

Methods: Patients completed semi-structured interviews that were administered by clinic psychologists. All patients received in-person instruction and demonstration of device use with a trained professional in addition to video instructions to review at home. Fifty-seven patients completed semi-structured interviews about their satisfaction with the device at least one month after receiving it. Descriptive analysis of patient responses to a series of questions including relationship status, ease of use, physical and psychological comfort, treatment satisfaction, and readiness to recommend vacuum devices to other men was conducted. Age differences in responses were also examined.

Results: Overwhelmingly, regardless of age, patients reported satisfaction with the VED. Patients in relationships generally reported that it had improved their relationships with their partners. Nearly all patients reported they would recommend the VED to other men (98%; n=56). For many, it also significantly increased mood and quality of life. However, sixteen patients (28%) reported physical discomfort from using the VED, generally due to improper placement of the device sheath or rings. There were no discernable age differences on these variables.

Conclusion: Older and middle-aged primary care patients with ED report high satisfaction with the VED for treating ED. While some problems were reported, the findings suggest that in-house demonstrations and video instructions are generally sufficient for teaching this device. Follow-ups to detect problems, particularly placement issues, should be made given that nearly a third of patients reported these issues.

P97: Comparison of self-harm between elderly and younger adult inpatients at a general hospital, a two-year data analysis

Cheng-Chen Chang; Si-Sheng Huang

Background: Self-harm is a high-risk behavior and often escalate to suicide. Among people who deliberately harm themselves, older people are more likely than younger people to die by suicide. Given that older adults are a particular high risk group for suicide and self-harm is a powerful predictor of suicide in later life, understanding self-harm in older adults is of potential value in generating strategies for prevention of self-harm and suicide. In this study, methods of self-harm in the elderly were compared with those of younger adult inpatients at a general hospital.

Methods: We retrospectively reviewed records from Jan. 2009 to Dec. 2010 through the register system at Changhua suicide prevention center. 580 inpatients were reviewed, including basic data, suicide method, related causes, and medical outcome after self-harm behavior. 28 patients had repeated self-harm and their 1st attempt was viewed as index data. Differences in socio-demographic characteristics and suicide methods between elderly and younger adults were analyzed using chi-square tests and Student's t-tests.

Results: Elderly adults were defined as more than 65 years of age. Younger adults were aged less than 65 years. 580 subjects (elderly=96, 39 males and 57 females; younger adults=484, 158 males and 326 females) were collected. In the older adult group, the mean age was 70.4 years (SD=9.5). In the younger adult group, mean age was 35.2 years (SD=8.9). In regards to method of suicide, hanging, charcoal burning, hypnotic overdose and wrist cutting were statistically more frequently used in the younger adults than the elderly. Ingesting herbicide or pesticide was preferred by the elderly than younger adults ($p<0.001$). In causes of suicide, the elderly performed more self-harm behaviors owing to medical illness.

Conclusion: The elderly and younger adult inpatients may choose their method of self-harm in terms of accessibility and familiarity of drugs. Pattern of variables related to suicidal intent varied with age. Recognition and prevention of self-harm behaviors among younger and elderly adults may be different.

P98: Reminiscence therapy for geriatric depression- a systematic review of randomized controlled trials with meta-analysis

Hsuan-Jui Chang; Yung-Jen Yang; I-Ching Lin

Objective: Depression in the elderly, also termed as late-life depression, is a debilitating mental illness in older people. Reminiscence therapies emphasize self-integration and adjustment in the elderly and practically more applicable compared with other psychotherapies. Previous systematic reviews had found that reminiscence therapy was an effective treatment for depressive symptoms among elderly people. However, most systematic reviews were performed with methodological flaws, limiting the robustness in evidence-based perspectives. The drawbacks include heterogeneity of targeted population, poor quality assessment, and inappropriate use of assessing tools. In present report, we perform an updated systematic review with stricter clinical and methodological considerations to explore the effectiveness of reminiscence therapy in the elderly depression.

Methods: We searched MEDLINE, EMBASE and Cochrane CENTRAL databases, aiming specifically at randomized controlled trials, people aged 55 years and older with the diagnosis of depressive disorder or through an explicit screening process, and adequate period of treatment (over 6 sessions or 4 weeks). The primary outcomes were death or suicide and remission, and the secondary outcomes included response to treatment and change in depression severity scores. The review process and software followed the standards of Cochrane Collaborations, and was performed by at least two individual reviewers.

Results: 317 reports were initially assessed and only 3 studies were enrolled into final analysis. Studies excluded were mainly due to inappropriate use of assessing tools and lack of diagnoses for the participants. No death or suicide was reported, but other pre-specified primary outcomes were missing because of incomplete reporting. Reminiscence therapy was significantly more effective in decreasing the severity scores (standard mean difference -1.35; 95% confidence interval -2.12, -0.57) than control groups. Subgroup analysis on different scales found greater effect using Hamilton rating scale for depression (HRSD) than Beck depression index (BDI) (SMD: -1.88; 95% CI -3.64, -0.12 and SMD: -0.86; 95% CI -1.32, -0.41).

Conclusion: We concluded that reminiscence therapy is an effective intervention in ameliorating depressive symptoms in geriatric depression. We also urge that future primary studies should be performed with better methodological quality.

P99: Association between benzodiazepine use and post-traumatic stress syndrome among older adults

Catherine Lamoureux-Lamarche; Helen-Maria Vasiliadis

Objectives: The aims of this study are to assess the association between benzodiazepine (BZD) use and post-traumatic stress syndrome (PTSS) in a large sample of older adults and if gender, depression, anxiety and multi-morbidity haven impact on this association.

Methods: Data used came from the ESA-Services study which was conducted between 2011-2013 and included a large sample of older adults (n=1,453) aged 65 years and over who were seeking services in general medical settings in the province of Quebec and were covered under Quebec's public drug insurance plan. Data from the ESA-Services survey were linked to the individual information from the Régie de l'Assurance Maladie du Québec (RAMQ) medical and pharmaceutical services data. The Impact of Event Scale – Revised was used to assess post-traumatic stress syndrome. Depression and anxiety disorders were measured with DSM-5 criteria. Benzodiazepine and antidepressant use were captured from the RAMQ drug registry. Self-reported multi-morbidity was measured using a list of 20chronic health problems according to the International Classification of Diseases (ICD-10).The interaction between post-traumatic stress syndrome and the following terms were measured: PTSS*depression, PTSS*anxiety, PTSS*gender.

Results: Results showed that the prevalence of post-traumatic stress syndrome was 4.5%. Benzodiazepines were used in 31.2% of participants. The presence of post-traumatic stress syndrome was associated with benzodiazepine use (OR= 1.9, CI: 1.1-3.2), the presence of an anxiety disorder (OR: 3.5, CI = 1.8–6.5) and multi-morbidity (OR: 2.1, CI = 1.0–4.3). Participants with co-morbid post-traumatic stress syndrome and depression were less likely to use benzodiazepine (p = 0.04).

Conclusion: Benzodiazepine use is still prevalent among older adults with post-traumatic stress syndrome. In agreement with clinical guidelines, the odds of benzodiazepine use were reduced in participants with co-morbid post-traumatic stress disorder and depression. Future studies should focus on differences in benzodiazepine prescribing patterns for other co-morbid psychiatric disorders.

P100: Bone Truths? Exploring the Impact of Antidepressants on Bone Health

Clodagh Power; Richard Duffy; James Mahon; Nessa Fallon; Georgina Steen; Elaine Green; Brian Lawlor; Joseph Browne; M.C. Casey; J.B. Walsh; Kevin McCarroll

Objectives: Depression and antidepressant medications (ADTs) impact negatively on bone health (Verdel et al. 2010). However, little is known of the relative impact of individual agents. We aimed to investigate the effect of ADTs on bone health and to identify the impact of individual ADTs in patients attending a tertiary referral Bone Health clinic in Ireland.

Method: We retrospectively identified all patients prescribed the following ADTs: SSRIs, SNRIs, TCAs, mirtazapine. We compared these with a randomly-selected control group who were not prescribed ADTs. We examined bone mineral density (BMD), fracture history and biochemical markers of bone turnover for both groups.

Results: 1578 individuals: 522 on ADT; 1056 control. Mean age 66.93 years (SD 14.56). 79.2% female. Patients on ADTs had significantly lower BMD than controls: BMD of the hip was 0.033g/cm^3 lower in patients on ADTs (SE 0.010, 95%CI 0.013–0.053, p<0.001). The effect is smaller but still significant after controlling for age, gender and BMI: 0.025g/cm^3 (95% CI 0.048-0.011, p=0.002). BMD of the spine did not differ significantly between the two groups (p=0.850). Those on ADTs were significantly more likely to have had a hip fracture: OR 2.18 (95% CI 1.68-2.83, p<0.001). And BMD hip was significantly lower in patients on ADTs who had never had a hip fracture: BMD mean difference 0.121g/cm3 (SE 0.017, 95%CI 0.087–0.154, p<0.001). Significant variation in prevalence of hip osteoporosis was seen between different ADTs, p<0.001. Highest rates were observed with mirtazapine: 50% (n=)20 and citalopram: 45.9% (n=109) and lowest rates with fluoxetine: 6.7% (n=30). The OR for hip osteoporosis comparing citalopram to fluoxetine is 11.86 (95% CI 2.69-52.29, p<0.001). Fluoxetine had the lowest levels of CTX, a biochemical marker of bone turnover.

Conclusion: Our study adds to prior data that implicates ADTs as adversely impacting on bone health. While no single drug was identified as clearly causing a greater reduction in BMD or increased risk of fracture, our data tentatively proposes that fluoxetine, through a modest effect of lesser bone resorption, may be a safer choice for a cohort already predisposed to poorer bone health.

P101: A Complete Service Network (CSN) for the Mental Health Care of Older Adults

Ralf Ihl; Katrin Krah; Nadine Cujai

Background: Mental health care of older adults in Germany is covered by two insurances the health and the care insurance. With governmental support of the European Union and the German Ministry of Health and further institutions this structure allowed for the development of a complete service network (CSN). Exemplary, a CSN was developed and evaluated in the city of Krefeld (250.000 inhabitants). To describe and to evaluate the elements, processes, organizational as well as financial aspects of a CSN will be the aim.

Methods: A network of all persons and institutions involved in caring in the region was built. Receiving the first signs of a need of mental health care GPs, hospitals and other institutions were seen as the gatekeepers of the system. For instance, GPs of the area were integrated via contracts containing a connection to a social worker (an independent continuous case manager, ICC). GPs and ICC support each individual as a so-called medico-social team (MST). The support covers the whole course of the disease. An individual mixture of help structures was compiled and adapted whenever necessary.

Results: An organizational structure with several levels was built. The system starts with the patients. Their needs steer the CSN. No additional funding was necessary. To improve mental health care in older adults, an evaluation study showed the success of the CSN (Ihl et al., 2016).

Conclusions: The CSN covers all needs and functions of patients with dementia. The evaluation demonstrated that individuals in most cases live longer at home. User satisfaction is high. The system was investigated on a European level in the Innovate Dementia project of the EU. Actually, in cooperation with politics the roll-out process of the CSN is performed.

Pre-Congress Programs

PC01: Imaging and Biomarkers Workshop

Workshop Overview

Imaging is increasingly being used by clinicians to enhance accuracy of diagnosis and to give important information regarding co-morbid pathologies which have an impact on management and prognosis. In response to the increased prominence of neuroimaging within routine psychogeriatric and neurological clinical practice, this workshop is designed to enable learners to be able to apply and interpret imaging information to create opportunities for improved diagnosis and care. It will also highlight new research findings.

Introduction, Objectives, Overview of Imaging and other Biomarkers in Psychogeriatrics

Gary Small

FDG-PET Imaging in Dementia

Dan Silverman

This presentation will cover the current state of brain FDG-PET and its role in evaluation of progressive cognitive dysfunction -- including of decline secondary to Alzheimer's disease (AD) and other neurodegenerative disorders. The utility of brain PET in measuring patterns of regional metabolism that identify AD and related diseases in their prodromal stages, and assist with the differential diagnosis of dementing processes, will be reviewed. The ability of FDG-PET data to predict rate of progression from minor to major neurocognitive disorder, and to guide implementation of presently available therapies, will also be discussed. Finally, the impact that other PET imaging agents -- those that have more recently become commercially available, and those presently being actively investigated -- may be expected to have (and to not have) on the future use of FDG-PET will be addressed.

Structural Imaging for Clinical and Research Settings

Cyrus Raji

Imaging and Response to ECT

Katherine Narr

A third of patients with major depression will not respond to two or more antidepressant medications even after weeks to months of treatment. Biomarkers that predict an individual's therapeutic response could thus play a critical role in guiding more successful personalized treatment approaches to lessen the personal, societal and economic burden of major depression. Electroconvulsive therapy (ECT) is a highly effective, well-tolerated and rapidly acting intervention for severe depression. As such, ECT provides a powerful model for determining biological factors associated with and predictive of therapeutic response over shorter time frames. To identify biomarkers of ECT response, we used a multimodal neuroimaging approach, including structural, functional (resting state) and diffusion MRI and proton magnetic resonance spectroscopy (^{1}HMRS). Results from this work show that ECT leads to significant structural and functional neuroplasticity in hippocampal, amygdalar and striatal/pallidal centers, as well as in dorsal (dACC) and subgenual (sgACC) anterior cingulate cortex and connected prefrontal regions. Changes in a subset of multimodal MRI measures also relate to and/or predict therapeutic response. These data support that ECT represents a unique and sensitive method for defining biological indicators of clinical response not confounded by the systemic effects associated with pharmacological interventions. Multimodal imaging probes, together with other biomarkers such as treatment-sensitive measures of genomic activity, may play an important role in unraveling the mechanisms and predictors of clinical response to ECT and other rapidly acting treatments for major depression.

Alzheimer's Disease Neuroimaging Initiative (ADNI) Update

Michael Weiner

Molecular Imaging in Neurodegeneration

William Jagust

Functional MRI and Cognition

Mark D'Esposito

Biomarkers for Diagnosis

Douglas Galasko

PC02: 3rd International Conference on Capacity: Risky Business and Other Rights

Workshop Overview

As clinicians, we are faced with issues revolving around capacity every day. Capacity is task specific, so for each task, either consciously or unconsciously we are stating that we believe the decision-maker to understand the nature of the proposed task, the alternatives, the risks and the benefits. The complexity of the task may range from choosing breakfast (usually a low risk and low complexity task) to making complicated medical decisions, to giving consent for research.
There will talks on some of the most challenging capacity issues in long term care. There will be a symposium on capacity to consent for sex – that delicate balance between allowing autonomy but protecting dementia patients from predation. Another challenging determination is the capacity to marry, and we will have a talk on the capacity to marry and the "gold digger". There will be a session on allowing patients to remain in potentially dangerous environments, another very common dilemma for those of us caring for frail elderly people. There will be a talk on vulnerability to undue influence. There will be a talk to offer perspectives by a lawyer, and an entertaining mock trial addressing capacity to execute financial documents. Lastly, there will be an international panel on determining capacity of aging doctors! Talk about close to home.

Opening and Welcome

Carmelle Peisah

Sex Panel: capacity, consent, assent and advance sex directives

Jay Luxenberg; Carmelle Peisah; Marc Hankin; Oluwatoyin Sorinmade

The Capacity to Marry and the Gold-Digger

Jane Casey

Determination of capacity of frail elders to make a decision to remain in a potentially dangerous environment

Irena Ginsburg; Caren Gould

Assessing decisional capacity and vulnerability to undue influence

James Spar

Mock Trial

Sanford Finkel; Elliott Stein; Jay Luxenberg; Alex Obolsky

Moderated By: Renee Binder

TBC Risky business from a lawyer's perpective

Marc Hankin

Capacity and ageing doctors

Carmelle Peisah

Commentary from the US Perspective

Betsy Williams

PC03: How to Conduct Clinical Trials in Geriatric Psychiatry: Everything you wanted to know about Geriatric clinical trials and were afraid to ask

Workshop Overview

Mary Sano; Olga Brawman-Mintzer; Joan Mackell; Lon Schneider

This course will provide practical overview and guide to conducting clinical trials in geriatric psychiatry. Presenters will discuss specific operational elements of setting up clinical trials practice(s), resources needed to conduct clinical trials in this population, interaction and decision-making process dealing with sponsors including contract and financial considerations, oversight, staff selection, training and regulatory and good clinical practice requirements. Finally, a panel of thought leaders will discuss the applicable specific areas of research and challenges associated with conducting trials in each area.

The course will be divided into two sessions with a total of seven presentations that will take place on the same day. The morning session will include three presentations, which will provide information on the types and current resources and structure of operations that are needed at a potential study site to be able to participate in any of the prospective clinical trials. This includes staffing, training, physical resources, policies and procedures, and other resources that need to be in place for a clinical trial to be successfully conducted at a given site. The specific needs that will should be in place for a given site to be able to participate in upcoming trials, and how the sites can transition from a clinical site to a research site and from a research site of today to a research site of tomorrow will be discussed. Finally, presentations on how to evaluate potential protocol to determine whether the protocol is appropriate for your practice, will be discussed.

During the afternoon session, four presentations will provide practical information on the operational aspects of conducting a clinical geriatric trial from regulatory requirements, recruitment strategies and financial aspects of running a profitable and successful practice. Last presentation will include a panel of experts who will review and discuss current clinical trials being conducted in the field of geriatric mental health and the challenges associated with conducting trials in each research area.

Clinical Trials Practice Models: Advantages and Risks to Consider

Conducting clinical trials can be a fulfilling and profitable aspect of medical service delivery. Whether creating your own practice or participating in an existing one, understanding the business and service models in which clinical trials are conducted is important variable for success. This session will explore the strategic and business aspects of several of these models in academic, private and commercial practices. The interplay between clinical and research activities, the support, services, responsibilities, assets and liabilities within each model will be discussed. The goal will be to identify features for success in clinical trials focused on geriatric psychiatry within these models.

Building the team to do research within a clinical practice

Mary Sano

Clinical trials are a “team sport” and there are several expected positions and roles common to any clinical trial enterprise. Additionally, trials there are unique needs, in geriatric psychiatry trials, which can increase the number of particular individuals, with specific knowledge and experience who are required in order to conduct a given trial. These may include individuals with experience in cognitive or behavioral ratings, knowledge of how to recruit for aging populations, and those with competence and expertise in specialized procedures. Finding, training and retaining this work force can be challenging. Creating ties with teaching and training programs as well as with professional societies can support your workforce and help to build a cohesive team. This session will discuss how to identify and keep the right type of staff for these studies.

“Is this protocol right for me”

Olga Brawman-Mintzer

During the third presentation we will offer guidelines for reading a protocol or synopsis to determine whether a particular trial is a good fit for your practice. Evaluating entry criteria to determine if they match with your practice or community, determining the work load and resource in terms of number and types of personnel required, space to conduct the study, as well as the length of the visits and the trial are key factors to selecting the best studies for your practice. Special attention will be paid to common features in trials for dementia, geriatric depression, and agitation and in trials with non-pharmacological elements. We will present sample “site-interest surveys” and considerations for completing them.

Regulatory Knowledge

Joan Mackell

The fourth presentation will decipher regulatory guidelines and requirements. We will first focus on the regulatory information pertinent to the performance and obligations of the Principal Investigator. This will include the understanding of the Code of Federal Regulations (CFR) Title 21; how to comply with Good Clinical Practice (GCP); working with Institutional Review Boards (IRB), including forms to know, Informed consent form (ICF) and consenting process. We will also discuss delegation of roles in these activities.

The second part of the regulatory session will focus on the pertinent information for sites' regulatory staff from initial stages of site selection questionnaires, site selection visit to IRB submissions, protocol amendments, sponsor monitoring, and annual reviews throughout the study.

How to recruit subjects

Mary Sano

The major barrier to efficient completion of all clinical trials is recruitment and geriatric psychiatry is no different. While investigators often use clinical practice experience to determine the number of individuals they have available for enrollment, these impressions are seldom sufficient to accurately determine recruitment capacity. We will discuss how to assess the true number needed to meet recruitment goals for studies in geriatric conditions. Successful recruitment requires multiple sources of potential participants. We will provide practical ways to identifying sources and ways to build lasting bonds that are critical to engaging the aging community. Providing information important to your target audience can create awareness of your practice, your mission and your team. These are critical elements to successful recruitment.

Financial aspects: How will I pay the bills?

Olga Brawman-Mintzer

A critical issue facing investigators is how to approach and successfully manage the financial aspects of conducting clinical trials. Navigating contract and budget negotiations, and evaluating the financial risks involved can be complicated. In this session, we will attempt to demystify the financial aspects of clinical trials, and discuss how to analyze clinical trial agreements and budgets. This includes contract interpretation from indemnification, payment schedule, and screen failure reimbursement to contract termination. As a part of budgetary assessment, we will discuss and provide practical approaches to determine the true cost of procedures, assessing hidden costs and hidden savings in study procedures, recruitment and compliance (including creating budget/procedure templates), and how to negotiate with sponsors and vendors. Billing and billing oversight as well as payment tracking will be discussed. Understanding the financial component s of a clinical trial allows for a successful interaction with sponsors, vendors and importantly, maintaining a sound fiscal enterprise.

Panel Discussion: Topics in Geriatric Trials

Mary Sano; Olga Brawman-Mintzer; Joan Mackell

During this final session, an esteemed panel of experts will discuss their insights and experience in dementia trials, geriatric depression, agitation and other behavioral disturbances. Each expert will provide an introductory brief overview on additional, relevant aspects of conducting these types of trials. The session is planned as a question and answer format allowing the audience to get feedback on the topics we discussed during the day.