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Free Communications

FC01-01

The prevalence of dementia and neuropsychiatric symptoms in patients at admission to Norwegian nursing homes

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Background: Dementia is hallmarked by a cognitive decline, but the neuropsychiatric symptoms (NPS) are prevalent and distressing for the patients and the next of kin. In Norway, approximately 70,000 people have dementia, and 50% of them are living in nursing homes.
Material and method: The study includes 309 patients included at admission to Norwegian nursing homes in the period January 2012 to February 2013. The patients or their next in kin gave a written consent, and the patients were assessed for cognitive function, dementia and NPS. Two experienced researchers/clinicians independently diagnosed dementia type according to established diagnostic criteria. The patients will be followed with biannually assessments for three years, and the aim of the study is to describe the course of NPS in nursing home patients. This abstract presents baseline data for the first 309 included patients.
Results: 309 patients were included in the study; 65.4% were woman, the mean age was 84.9 (SD 6.9) and the mean MMSE was 15.7 (SD 6.0). Of the patients, 9 patients (2.9%) had no dementia, 44 (14.2%) had Mild Cognitive Impairment and 256 (82.9%) had dementia. Alzheimer's disease was present in 60.5%, vascular dementia in 8.6%, mixed AD/VaD in 10.5%, frontotemporal dementia in 13.7%, Lewy Body dementia in 5.5% and 1.2% had other dementia. Among the patients with dementia, 164 (65.6%) had at least one clinically significant NPS. Depression (23.8%), agitation/aggression (21.9%) and apathy (21.1%) were the most prevalent clinically significant NPS.
Conclusion: At admission to nursing homes in Norway, the prevalence of dementia and NPS were high. Almost 83% of the patients had dementia, and 66% of the patients with dementia had clinically significant NPS.

FC01-02

Does personality affect risk for dementia? A systematic review and meta-analysis

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Objective: This study aimed to systematically review case-controlled and prospective studies on the association between personality and dementia risk. Personality may impact on dementia risk by influencing health habits, number and quality of social relationships, cognitive activity and reactions to stress over the lifespan.
Method: Studies were identified through Scopus, Medline, PubMed and PsycINFO. Searches combined terms for personality with those for dementia and MCI. Data were extracted and checked by a second reviewer, systematically reviewed, and meta-analyzed where appropriate.
Results: Twelve longitudinal and three case-controlled studies were included. Five of nine studies found that higher neuroticism was associated with greater dementia risk (pooled hazard ratio per unit increase on neuroticism score, HR = 1.13, 95%CI = 1.08 to1.18, z = 5.11, p.<0.001, N = 3,285), and two studies showed it increased risk of MCI. The evidence reviewed suggested that anxiety and vulnerability to stress, and not depression, were the facets of neuroticism which accounted for its association with dementia. Three of four studies showed that higher conscientiousness was protective against dementia (pooled HR = 0.88, 95%CI = 0.81 to 0.97, z = 3.34, p = 0.001, N = 1,687), and one of two studies suggested it reduced risk of MCI. Three of four studies found no association between openness and dementia; however, pooled data suggested openness was protective (HR = 0.88, 95%CI = 0.81 to 0.97, z = 2.34, p = 0.008, N = 1,687). Seven studies indicated that extraversion was not linked with dementia, and four found no association between agreeableness and dementia.
Conclusion: Neuroticism increased risk of dementia, and conscientiousness reduced risk. The protective effect of openness was tentative. Extraversion and agreeableness were not associated with dementia. Personality should be added to conceptual models of dementia risk. Clinicians and public health professionals should consider

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personality when planning dementia risk reduction strategies.

FC01-03

A pilot study exploring suicide in elderly people from culturally and linguistically diverse (CALD) background—The road to recovery

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Background: A significant proportion of Australian ageing population are from CALD backgrounds (1), Analysis of suicide rates in NSW, Australia has indicated that 27% of suicides were amongst the immigrant population with 57% of these being of CALD background (1). The suicide death rate among migrants is significantly higher in persons aged 65 years and older (2).
Objective: To explore symptoms of depression and adjustment problems before suicide in older people with CALD backgrounds and the cultural specific psychosocial interventions leading to the road of recovery.
Method: People aged 65 and over from CALD backgrounds referred to older people's mental health services after a suicide attempt were recruited in the study. Face-to-face semi-structured interviews were conducted. Data from Mental Health Outcome Assessment Tool (MHOAT) collected on admission and upon discharge were compared.
Findings: Four elderly men and five elderly women from diverse CALD backgrounds (i.e., Middle East, Europe and Asia) were recruited in the study. The mean age of subjects was 74.8. Sixty-seven percent reported unresolved trauma in their own countries before moving to Australia and 89% of them described feelings of hopelessness, shame, guilt and low mood before their suicide attempt. Unlike elderly from English speaking backgrounds, psychosocial interventions for CALD elderly mainly focused on tackling intergenerational conflict, reintegration into cultural kinship system and cultural groups as well as tackling the feelings of 'loss of face' (shame and guilt). Data from MHOAT demonstrated a significant improvement in Life Skills Profile (LSP) ($p < 0.05$) after such psychosocial interventions.
Conclusion: The CALD elderly community is at risk group of suicide. Cultural values of veneration of elders and filial piety appear to be integral aspects of the road of recovery following attempted suicide. Improved understanding of the cultural significance of suicide and culturally specific psychosocial interventions for suicide prevention are needed.

FC01-04

Dementia and neuropsychiatric symptoms among elderly people receiving

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Introduction: In Norway, 16.9% of people ≥66 years receive in-home care. Giving good care to this group requires close cooperation between professional caregivers and general practitioners. This particularly applies to people with cognitive impairment or dementia. Little is known about the prevalence of dementia and neuropsychiatric symptoms (NPS) among homedwelling elderly.
Aim: To investigate the prevalence of dementia and NPS among elderly receiving in-home care.
Material and method: The sample comprised 1000 homedwelling persons ≥70 year. Authorized health workers collected the data using standardized interviews with the participants and their closest family caregivers. The interview included the Informant Questionnaire on Cognitive Decline in the Elderly, the Clinical Dementia Rating Scale, the Clock Drawing Test and the Mini-Mental-State Examination, the Neuropsychiatric Inventory, Lawton's Physical Self-Maintenance Scale. Two doctors with experience in psychogeriatric clinical work and research diagnosed dementia based on all available data. In case of disagreement a third physician was consulted and consensus was reached.
Results: The mean age of the participants was 83.4 years (SD 5.7), 68.1% were women, 67.7% lived alone, and 60.4% were widowed. According to the Winblad criteria 38.1% has mild cognitive impairment. Dementia according to the ICD-10 criteria was present in 41.5% of the participants; and19.5% of these had received a dementia diagnosis. Among those with dementia at least one neuropsychiatric symptom (≥1) was present in 72.1% and clinically significant symptoms (CSS ≥ 4) were present in 21.1%. The most common CSS were depression (20.7%), apathy (18.8%) and anxiety (16.4%).
Conclusion: This study indicates that dementia is highly prevalent in elderly receiving in-home care. Only a minority of the patients with dementia had received a dementia diagnosis. A substantial part of those with dementia had neuropsychiatric symptoms. The study highlights the importance of

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giving in-home care staff knowledge about dementia and NPS.

FC01-05

Physical and mental health and social functioning in older alcohol-dependent inpatients: The role of age of onset

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Objective: Alcohol dependence is a severe and often chronic condition with a strong impact on physical and mental health and (social) functioning, in particular for older patients. Age of onset is an important criterion to distinguish subgroups of alcohol-dependent patients. The aim of this study is to determine whether older alcohol-dependent inpatients with early, late and very late onset of alcohol dependence differ in physical and mental health and social functioning.
Method: In a specialized inpatient detoxification ward for older patients in The Hague, The Netherlands, the Addiction Severity Index was administered to 157 alcohol-dependent patients age 50 and over (38% women, mean age 62.7 $\pm$ 6.5). Univariate and multivariate analyses were conducted to examine the association between early (age $<$ 25), late (25–44) or very late ($>$ 45) age of onset and indicators of physical and mental health and social functioning.
Results: Older alcohol-dependent patients had substantial physical, mental and social problems, which were largely independent of the age of onset of alcohol dependence. However, patients with early onset alcohol dependence had more chronic somatic complaints and more suicidal thoughts than patients with late onset alcohol dependence. The very late onset group did not significantly differ from the other two groups in any of the variables under study.
Conclusion: Despite previous studies showing more favourable outcomes for the (very) late compared to the early onset alcohol dependent group, their (comorbid) mental health and social problems should not be underestimated.

FC01-06

Psychotherapy groups for newly admitted long-term care residents: A clinical-research based intervention training manual

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Objectives: Upon a move into a long-term care, the older adult must not only confront the loss of one's personal home, but also the dual stigmas of ageism and of nursing homes being regarded as a place where one moves to die, not to live. The psychotherapeutic needs of these residents remain underserviced and poorly researched. There is little in the literature addressing the anticipation and relocation experience of these adults. When present, the literature has primarily focused on individual interviews of newly admitted residents. This clinical-research manual, a group therapy intervention, still focuses on what residents feel, think and say but also serves as a treatment model.
Model: A naturalistic pilot study is undertaken to follow the adjustment behaviours of six newly-admitted residents over the course of a three-month period in a LTC facility. The formation of the group, member selection, theoretical and clinical approaches, will be described. Quantitative and, in particular, qualitative research data illustrating individual stages of change, group themes and process are described.
Results: The benefits of a group psychotherapy intervention that aids residents in their adjustment to a major life transition, while facilitating adjustment to declining health and significant interpersonal losses are demonstrated. The manual also provides the first empirical insight into the suitability of the Transtheoretical Model of Stages of Adjustment to Long-Term Care.
Conclusion: An integrated group psychotherapy intervention incorporating developmental, cognitive-behavioural, interpersonal and psychodynamic approaches designed exclusively for more cognitively intact newly admitted LTC residents is a significant addition to addressing the psychosocial needs of this ever-increasing frail population. The use of such an effective and cost-efficient treatment model is especially relevant in an era where medication seems to be the first treatment consideration in geriatric psychiatry or mental health care, including long-term care.

FC02-01

Short-term and long-term effects of chemotherapy on cognitive function in an older cohort: The PATH Through Life Project

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Objective: Case-control studies have shown that breast cancer patients undergoing chemotherapy have poorer cognitive function than controls with the phenomenon being known as "Chemo brain". There is a lack of long-term follow-up to determine how permanent the cognitive effects are, and whether chemotherapy increases the risk of Mild Cognitive Impairment. We investigated whether greater decline in cognitive function was associated with history of chemotherapy and whether chemotherapy increased the risk of progression to Mild Cognitive Impairment.

Method: The data were drawn from the PATH Through Life Study, a population-based cohort study comprising 2,555 participants aged 60–64 at baseline. The sample has been followed-up twice at 4-yearly intervals. At wave 3 1973 participants (1020 male) completed a questionnaire on chemotherapy and cancer history forming the sample for this study. Cognitive function (memory, processing speed, reaction time and executive function), health, and demographics were assessed at each wave. APOE genotype was obtained at baseline.

Results: At wave 3, participants reporting history of chemotherapy (n = 91) had lower scores on memory, processing speed, executive function and slower reaction times after adjusting for demographics. After adjusting for depression and physical disability chemotherapy was associated with poorer delayed recall and verbal fluency. Women reporting chemotherapy for breast cancer (n = 83, the most prevalent type of chemotherapy) showed greater decline in delayed recall (β = −0.23 (−0.43, −0.03) p = . 026) than women reporting breast cancer without chemotherapy. Chemotherapy was not associated with risk of progression from normal cognitive ageing to MCI and did not interact with APOE.

Conclusions: We found short-term effects of chemotherapy on cognitive function, a weak long terms effect of chemotherapy on delayed recall, and no effect on conversion to MCI. The effects of chemotherapy on cognition may diminish over time but further prospective research is required to confirm these findings.

FC02-02

Psychotropic medication utilisation in Australian nursing home medication reviews

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Objective: High rates of psychotropic medication use have been reported in nursing homes for several decades. In Australia one strategy to address this problem was the introduction of residential medication management reviews (RMMRs) whereby pharmacists review medication regimes of residents on an annual basis. The objective of the study was to obtain an up-to-date assessment of psychotropic medication utilisation in a large sample of Australian RMMRs.

Method: A national sample of RMMRs conducted from July 2011 to June 2012 (n = 9503) was audited to evaluate psychotropic utilisation. Exclusion criteria included a 'diagnosis of bipolar disorder or schizophrenia' and incomplete data. Bivariate analysis was performed using χ^2 tests and logistic regression was used to determine predictive factors associated with antipsychotic medication use.

Results: Over 70% of the Australian nursing home residents reviewed were prescribed psychotropic medication (n = 6722). Specifically, 27% were taking antipsychotics, 43% antidepressants and 40% benzodiazepines. Of particular concern was the high level of multiple psychotropic use, with 20% of residents taking antidepressants and benzodiazepines and 14% taking antipsychotics and benzodiazepines concurrently. Multivariate logistic regression analysis revealed that residents with a diagnosis of dementia were 3.6 (95%CI: 3.22–4.12) times more likely to be prescribed an antipsychotic medication. Men were 1.3 (95%CI: 1.18–1.51) times more likely to be on an antipsychotic than women. Taking multiple psychotropic agents also had a significant effect: Residents taking a benzodiazepine were 1.8 (95%CI: 1.60–2.02) times more likely and those taking an antidepressant 1.4 (95%CI: 1.24–1.56) times more likely than someone not on these medications to be taking an antipsychotic agent.

Conclusion: Despite repeated warnings of limited effectiveness and significant risk associated with psychotropic medication use and other initiatives such as RMMRs, the residents of Australian nursing homes continue to be prescribed excessive amounts of psychotropic medication. Urgent action to address overreliance on psychotropic medication is warranted.

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FC02-03

A consensus guideline for antipsychotic drug use for dementia in long-term care; collecting expert opinion through Delphi-consensus and focus groups

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Objective: To gather expert opinions and reach consensus on recommendations for appropriate use of antipsychotic drugs for people with dementia in long-term care settings, using the Delphi methodology and focus groups.
Methods: The Delphi rounds and focus groups were carried out in the UK, Norway and the Netherlands in 5 phases: (1) identification of relevant themes by a group of 20 handpicked scientific experts in the UK and the Netherlands, (2) testing relevance of the themes identified through a questionnaire sent to 127 international scientific experts (worldwide), (3) First Delphi questionnaire of 164 items formulated on a 9-point Likert scale among 46 clinical and scientific experts in the three countries, (4) one focus group of 14 consumer experts (UK) and 3 focus groups of (in total 21) medical/scientific experts in the 3 countries, (5) second Delphi questionnaire of 71 items among 38 experts. The RAND/UCLA methodology was used to identify the level of agreement with the statements.
Results: The responses in phase 2,3,5 were 40 (32%), 34 (76%) and 33 (69%) respectively and consensus was reached on 150 statements (119/164 in phase 3 and 31/71 in phase 5) covering five topics: (1) General prescription stipulations, (2) assessments prior to prescription, (3) care and treatment plan, (4) discontinuation and (5) long-term treatment.
Conclusion: In a repeated cycle of Delphi rounds in combination with focus groups of scientific, medical and consumer experts, we were able to identify and reach consensus about practical issues related to appropriate antipsychotic drug use. This material will be published in a practice guideline, which we regard as valuable for physicians and other professionals working with residents with dementia. We expect that this guideline will contribute to a more rational, and safer antipsychotic drug prescription in long-term care.

FC02-04

Alterations of neuronal AMPK activity and cognitive aging

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AMP-activated protein kinase (AMPK) is a well-known fuel gauge to regulate energy homeostasis in cells and whole individuals. Aging is the most prominent risk factor for both metabolic and cognitive impairment. Reduction in AMPK activity is thought to be a crucial factor for age-associated metabolic impairment in skeletal muscle. Given the particular importance of energy metabolism in neurons, alteration in AMPK activity may be also related to neuronal metabolic impairment and thus to cognitive aging. However, there has been no study to date to directly examine the effect of aging on the relationship between neuronal AMPK activity and cognitive function.

We observed that intraperitoneal injection of AICAR, an AMPK activator as an analog of AMP, activated AMPK in young mice more than in old mice. We also found that 7 days AICAR-injected young mice relative to control mice showed higher cognitive function measured by the radial arm maze test. However, this cognitive enhancing effect of AICAR injection was not observed in old mice. Unexpectedly, scores of cognitive test were found to negatively correlate with hippocampal activity of AMPK in AICAR-injected mice regardless of their age, suggesting reciprocal inhibition of hippocampal activity in response to cortical activity during cognitive test or improvement of allostasis of baseline AMPK activity resulting from pharmacological effects of serial AICAR injection.

Our findings suggest that age-associated reduction in cortical AMPK activity might account for cognitive aging. Development of neuronal AMPK activators might be a promising strategy to pharmacologically alleviate cognitive decline by aging.

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FC02-05

Efficacy of cilostazol augmentation treatment in Alzheimer's disease with white matter lesion by FDG PET

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Objective: Cilostazol is a common phosphodiesterase 3 inhibitor which is recently being studied as a possible medication for Alzheimer's disease patients. This study aims to measure the AD modifying efficacy of cilostazol using FDG PET.
Method: In order to test the efficacy of cilostazol, we conducted 24-week, randomized, double-blind, placebo-controlled, parallel-group study FDG PET in AD patients with white matter lesion. 36 participants (18 in the cilostazol group and 18 in the placebo group) completed this study throughout two times of FDG PET imaging and three times of clinical neuropsychological tests.
Results: There were no decreases of glucose uptake observed in the cilostazol group; however, there were significant metabolic decreases at the both parietal and frontal lobes in the placebo group that are observed by paired T-tests. When we compared differences of the change from pre- to post-medicated conditions, the glucose uptake of the left inferior frontal gyrus was significantly improved in the cilostazol group ($p < 0.005$). There were no differences in the MMSE, ADAS-cog, ADCS-ADL, and the CDR sum changes from baseline between two groups.
Conclusion: According to our FDG PET results, cilostazol appears to delay cerebral metabolic decrease in AD patients while placebo group shows hypometabolism in many regions. Among those, left inferior frontal gyrus is more prominently affected in cilostazol treated patients. However, effects on clinical functions need to be tested in further studies with the larger sample size.

FC03-01

Cognitive assessment and fitness to plead in older adults

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Background: Though the concept of fitness to plead is fundamental to English law, it has never been defined by statute and is assessed against the Pritchard criteria that date back to 1836. The aim of this study was to explore a sample of fitness to plead assessments to determine whether there are any differences in how cognitive assessments are carried out in younger and older adults.
Methods: The case files of all fitness to plead assessments carried out by a clinician specialising in the assessment and treatment of older offenders over a 15-year period were examined.
Results: A total of 128 assessments were carried out on 120 individuals between 1998 and 2013. The age range of subjects was 18–89 with a mean of 49.5 years. Of the total sample, 49 (38.2%) were over the age of 60 at the time of assessment. Most of the assessments were of men, but there were 17 assessments of women in the total sample, of which 5 were over the age of 60. A standardised cognitive assessment was used in the majority (89.8%) of individuals over the age of 60.
Conclusions: The proportion of older adults who were found unfit to plead was much higher than in younger adults, with the commonest diagnoses being dementia and severe depression. Those found fit to plead performed better on tests of cognitive functioning though a small number with low scores on formal tests were suspected of malingering.

FC03-02

Playing Card—Cognitive assessment test

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People from all walks of life play card games. Playing cards are inexpensive, easily available and are more or less similar all over the world and so may be used to develop a test for cognitive assessment, which will be language and culture free.

PC—CAT (Playing Card—Cognitive Assessment Test) is a test which may be used to assess cognitive functions in seven different areas viz. identification, sorting, scanning and sequencing, counting, adding and subtracting, memory, organizing and guessing with the help of playing cards. For example, clients are asked to identify various cards or sort them color-wise or suit-wise and are scored for their correct answers.

As with the other tests of cognitive assessment, this test may also be used to assess the cognitive function of an individual at a given point in time as well as serially at an interval of 3 to 6 months to measure the progress.

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This test may be administered by any mental health professional or even a family member who is trained to administer this test.

Based on the cognitive difficulties found on this test, clients may be recommended certain cognitive exercises using playing cards to improve their cognitive skills.

This test is not yet standardized.

FC03-03

Rapid high amplitude critical cognitive decline (RapHiAmpCritCogD): A new model for delirium, transient global amnesia, isolated acute dysphasia and isolated acute visuospatial impairment

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Objective: Build a novel model to unify all forms of rapid high amplitude critical cognitive decline such as delirium, post-operative cognitive decline (POCD), transient global amnesia (TGA), and ischemic stroke causing isolated dysphasia or visuospatial dysfunction.

Method: Three patient sources: 1) CADIS (Central Coast Australia Delirium Intervention Study) prospective randomised controlled trial [Clinical Trials.Gov NCT01650896] first 70 subjects; 2) Prospective cohort of 1,000 acute care for elderly (ACE) admissions; 3) 490 Memory Clinic subjects assessed every six months.

Results: RapHiAmpCritCogD has onset in seconds (general anesthesia, minutes (acute ischemic stroke) to 48 hours (delirium). Amplitude of cognitive decline is usually over 25% per 1–24 hours. Critical refers to severe dysfunction (normal speech to total aphasia in minutes). TGA is 100% reversible amnesia/disorientation resolving over 4–14 hours. Rate of word list recovery much faster than that in delirium or POCD. POCD in contrast to delirium has no significant inattention. Delirium: rate of MMSE and 5-Digit Span Forward (5DSF) decline were 3,300 and 1,930 times faster than in dementia. Recovery of 5DSF mean 1.3 days much faster than recovery of 6 Digit Span Forward (6DSF) (mean 6.4 days) and Delirium Index (mean 5.5 days).

Conclusion: RapHiAmpCritCogD is the first contemporary model to unify and quantify disorders such as TGA and delirium. The term RapHiAmpCritCogD with inattention can replace the current clutter of more than five terms for delirium/acute confusion/encephalopathy

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FC03-04

The effect of different cognitive domains on dual-task cost of gait in cognitive impaired elderly

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Objective: For persons with dementia performance of a cognitive task during a motor task is associated with impaired gait stability and increased fall risk. While gait with and without dual tasking has often been the object studies, few studies have investigated the relationship between different cognitive domains and gait stability.

Methods: Seventeen elderly with impaired cognition, who underwent neuropsychological examination, participated (77.2±6.7 years). Four cognitive domains were assessed: 1) attention and psychomotor speed; 2) executive functioning; 3) memory; 4) visuospatial and constructive abilities (fourteen cognitive variables). To assess gait, participants walked for three minutes at self-selected pace, once under single (ST) and once under dual task (DT) condition (letter-fluency). While walking, trunk accelerations were registered from which parameters were calculated that quantify gait stability.

To examine differences in gait parameters between ST and DT conditions, t-tests were applied. Dual-task cost (DTC) was calculated for all gait parameters as:(DT-ST) /ST). Partial least squares regression analysis was applied to examine the effects of neuropsychological tests, representing the cognitive domains, on DTC. Significant components and contributions of cognitive variables were examined by means of their loads.

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Results: A significant effect of dual tasking was observed for all gait variables: walking speed, stride time variability and the accelerometer data that quantify trunk variability. PLS analyses revealed a combination of 4 components to account for the variance, of DTC with R-values ranging between 0.67–0.87. Analysis of the weight revealed not only an association with gait deficits and executive function, but also with memory and visual spatial and constructive abilities.
Conclusion: More insight in the relation between different cognitive functions with motor function might be of importance for the early diagnosis of dementia or mild cognitive impairments, since a decline in gait control and dual tasking even occurs in preclinical stages before cognitive decline occurs.

FC03-05

Quality of life of elderly with cognitive impairment

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Objective: The quality of life of elderly with dementia is apt to be neglected compared to the quality of life of patients with other diseases. We compared the factors related to quality of life of elderly with cognitive impairment and that of elderly without cognitive impairment.
Methods: As a part of Hallym Aging Study Cohort in Chuncheon-si, 545 elderly people were interviewed and applied EuroQoL and SF-12. The objects were community dwelling elderly living in rural and urban area of Chuncheon-si, Korea. We asked 29 items, which were extracted from previous studies, related to quality of life of elderly people in Korea. We divided the objects for two groups with Korean Mini Mental State Examination (K-MMSE). We analyzed the difference between two groups.
Results: For elderly with cognitive impairment, 16 items were highly correlated with the scores of EuroQoL and SF-12. These items were about pain, sleep, using medical facility, taking medication, physical health, positive emotion, cognitive functions other than memory, self esteem, past experience, ADL, IADL, occupation, family structure, meeting family, calling family, and leisure activities. And for elderly without cognitive impairment, 12 items were highly correlated with the scores of quality of life scales. The items were about pain, using medical facility, sight and hearing function, physical health, positive emotion, negative emotion, pat experience, ADL, IADL, occupation, leisure activities and transportation.
Conclusion: Relationship with family members and self esteem seemed to be important for quality of life of elderly with impaired cognition. However elderly without cognitive impairment thought sight and hearing function and transportation more importantly, because they could live independently. Further studies are warranted on the quality of life of hospital-based dementia patients and elderly with more severe dementia.

FC04-01

Best practice in assessing depression in nursing homes

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Objective: Depression is recognised as the most common psychiatric disorder in the elderly. The prevalence of depression in residential aged care (RAC) is high, but there is limited evidence that Cornell Scale for Depression in Dementia (CSDD) collected by RAC staff provides credible information to inform care practices. This paper reports on findings of two studies that investigated whether or not the RAC staff-rated CSDD data reflected the resident's current depression rated by trained research clinicians.
Methods: For a pilot, we compared the RAC staff-rated CSDD scores from the medical charts and the Research Nurse-rated CSDD scores (n = 52 from 5 facilities in Sydney). A larger-scale study was then conducted to examine validity of RAC staff completed CSDD assessments, compared with 30-item Geriatric Depression Scale (GDS) (self-completed and proxy), against clinical diagnosis

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of depression made by a specialist psychogeriatic clinician (n = 100 from 16 facilities in Brisbane and Sydney).
Results: For the pilot, Spearman rank order was utilised to assess the correlation between the RAC staff-rated CSDD scores and the Research Nurse-rated CSDD. No significant correlations were found between the two. Analysis for the larger study is currently underway. Receiver operating characteristic (ROC) curve analysis is being used to examine the validity of full CSDD and 1, 4, 10, 15 and 30 item GDS against a gold standard clinician diagnosis of depression. The area under the curve (AUC) will be calculated for each version of the tools. Sensitivity and specificity of the scales will be reported.
Conclusion: Possible explanations for the results are discussed in the context of the current funding arrangements and limited workforce capabilities and capacity to conduct appropriate assessment in the RAC sector. The paper concludes with recommendations for the best depression instrument and assessment process that RAC staff can reliably and easily use to inform their practice.

FC04-02

What influences place of care and death of people with dementia? A systematic review of qualitative evidence

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Objective: Planning for quality care in terms of access to services and preferred place of care and death needs to build on best available evidence. We systematically reviewed qualitative evidence on preferences and factors influencing place of care and death for people with dementia.
Methods: This is part of a large systematic review on place of death for patients with non-cancer conditions. Six electronic databases, reference lists, cited references were searched. Original studies relating to people with dementia, in all languages, study types and publication status were included. Study quality was assessed with a standard scale. A narrative synthesis was conducted.
Results: 12 qualitative studies relating to people with dementia were identified, and 3 other studies reported on mixed samples, including people with dementia. The studies investigated issues of: 1. Hospice care: access to hospice care was problematic. Hospices were poorly attuned to dementia care. 2. Home care: One study showed the necessary conditions that make home care possible for people with dementia. 3. Entry into care homes: diverse and difficult decisions for families precede placements. 4. Decision making: the strongest theme was the emotional burden of end of life decision making. Preferences were not necessarily consistent with carers' values, who received little support in their caring role.
Conclusions: Advance care planning is crucial in achieving preferred place of care and death for older patients and those with dementia. Preferences and factors influencing place of care/death were complex, influenced by families' needs, and frequently evolved over time.

FC04-03

A comparative analysis of sexual expression in aged care: Views of older people, families and care staff

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Objective: Ageism is perpetuated by the portrayal of older people as asexual with no interest, need or desire for sexually intimate relationships. Although the nature of sexual expression tends to change as people age, older people continue to engage in sexual acts, thoughts and fantasies and this helps to maintain quality of life, health and well being. This paper will present the comparative findings from research that examined the views of older people, families and care staff regarding sexual expression in aged care.
Method: Qualitative, semi-structured, individual interviews were conducted with 23 older people, 27 family members and 39 care staff in aged care. Participants' perceptions of sexual expression and experience of sexual needs and behaviours displayed by older people in aged care were sought and compared.
Results: The general consensus is that, regardless of age, sexual expression is a basic human need. Incongruences identified between groups were related to the care environment, cognitive capacity of the older person and receptivity of families.

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Staff reported uncertainty in responding to sexual expression by older people in care especially when families regarded it as an activity that should be discouraged and curtailed. Families often view intervention as necessary when their older relatives have dementia. Some older people have internalised the ageist and heterosexual values of society and resultantly found it difficult to express or discuss their sexuality because of perceiving it to be inappropriate and unacceptable.
Conclusion: A care environment involving trained and educated care staff as well as better informed families who support and nurture sexual expression is advocated to improve quality of life and care outcomes for older people, including for those with dementia. An education resource manual produced by the authors is presented as one means to improve staff knowledge and attitudes.

FC04-04

A one year randomized controlled trial of structured lifestyle activity intervention on cognitive function in Chinese older adults with very mild cognitive deficits

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Background: Large scale epidemiologic studies reported benefits of lifestyle activities in preventing cognitive decline at later life. It would be of interest to explore potential cognitive enhancing effects of a structured cognitive and physical activity schedule to older adults with very mild cognitive deficits.
Objectives: This study evaluated the efficacy of different activity schedules. The main objectives are 1) to evaluate if regular participation of lifestyle activities will help to maintain cognitive and everyday function, and 2) to identify the optimal profile of activities.
Design: This is a Single Blind Cluster Randomized Controlled Trial of 12 months duration.
Participants: 230 Chinese adults (aged 60 or above) with very mild cognitive deficits were recruited from social centres for elders in Hong Kong. Very mild cognitive deficits were defined as objective cognitive deficits in at least cognitive domains at 1 SD to 1.5 SD below education and age matched normal subjects, but not reaching criteria of Mild Cognitive Impairment for the local population.
Methods: There are four intervention groups, comprised of cognitive (C, n = 61), physical (P, n = 64), cognitive-physical (CP, n = 52) and social (S, n = 53) programs. Each subject participated with a structured activity program of at least three times per week. Cognitive and functional performance was assessed at the baseline, at 4th, 8th and 12th months after intervention.
Results: There were no baseline differences in age, educational attainment, and cognitive function among intervention groups. Twelve months after intervention, 189 subjects (82%) were reassessed. Significant improvements in ADAS-Cog, delayed recall, verbal fluency scores were found ($p < 0.0005$). No change in CDR sum of boxes scores was found with time. The combined Cognitive-Physical groups showed greater improvement

FC05-01

Does cognitive decline associate in patients with chronic obstructive pulmonary disease?

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Introduction: Chronic obstructive pulmonary disease (COPD) is a major cause of morbidity and mortality worldwide. Previous cross-sectional studies have reported that cognitive decline was associated in patients with COPD. However, very little data is available that examine the relationship between cognitive decline and COPD in the long-term follow-up.
Aims: We examined the relationship between cognitive decline and COPD in non-institutionalised older people from the English Longitudinal Study of Ageing (ELSA) in four-year follow-up.
Method: Data was collected from the ELSA from the two waves (2004 = 8,688; 2008 = 8,411) a biennial national representative survey, respectively. The study collected data on the personal, economic, and social circumstances of aging from a national sample of the non-institutionalised adults aged 50 years or more living in England. The history of COPD was based on self-report. Cognitive impairment was assessed using the global cognitive index (GLI) ranged from 0 to 60. We used a repeated measures multivariable mixed linear model to examine the independent effect of COPD on cognitive score adjusting for the effects of covariates.

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Results: 6858 adults were included in the study. Out of these, 243 reported a history of COPD. The age range was 50 to 90 years. Fifty-four per cent (n = 132) of the sample were women. The mean cognition score for men versus women (27.7 vs. 28.8, $p < 0.0001$). GLI was associated with younger age (beta = −0.23, $p < 0.001$), women (beta = 1.84, $p < 0.001$), living alone (beta = −0.14, $p < 0.001$), education at degree level (beta = 3.22, $p < 0.001$), COPD (beta −0.81, $p = 0.05$) and self-rated health (beta 1.02, $p < 0.001$).
Conclusion: Female gender, younger age, good self-health reported status, living alone, higher educational attainment were associated with better cognition status. Having COPD was associated with lower cognitive performance over time.

FC05-02

The effect of a hospital-based educational intervention to prevent delirium on staff knowledge and practice

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Objective: To evaluate the effect of a multifaceted educational intervention to prevent delirium on staff recognition of delirium, knowledge and clinical practice. Effects of the intervention on patient outcomes were also examined.
Methods: The educational intervention consisted of a one-hour lecture to all doctors and nurses. The lecture focused upon preventing delirium in older inpatients by systematically addressing modifiable risk factors. This session was followed by weekly interactive tutorials with delirium resource staff and changes to the ward environment. Data were obtained pre and post-intervention to determine change in staff self-ratings of objective knowledge, clinical practice and confidence in relation to delirium. Feedback was also sought from staff about the educational intervention. Data were gathered on inpatient outcomes, including rates of delirium pre and post-intervention.
Results: Seventy-seven staff formally participated in the project: 45 pre-intervention and 32 afterwards. Staff participants were 39 doctors, 35 nurses and three staff who did not identify their profession. Post-intervention there were improvements in staff objective knowledge of delirium ($p = 0.041$), confidence assessing and managing delirious patients ($p = 0.004$) and accessing help managing patients with delirium ($p = 0.04$). Staff addressed significantly more risk factors for delirium per patient post-intervention ($p < 0.001$). Some aspects of staff practice did not change, including medication review for delirious patients, the likelihood of assessment of cognition and discussing changes in cognition with families. Staff detection of delirium remained poor, for example staff correctly identified 7/24 (29.2%) of patients as delirious pre-intervention compared to 3/13 (23.1%) post-intervention. Following the intervention the incidence of delirium was significantly less (19% vs 10%, $p = 0.042$) and patients' functional scores at discharge were better (Barthel's index 67.5 vs 76.5, $p = 0.006$).
Conclusions: A multimodal educational intervention for medical and nursing staff was associated with changes in staff knowledge and practice and improved patient outcomes. Delirium recognition remains a challenge.

FC05-03

Prevalence study of depressive symptoms in Parkinson's disease in China

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Objective: A cross-sectional study with Parkinson's disease (PD) patients in China were conducted.
Methods: PD patients were recruited from 42 university-affiliated hospitals located from seven provincial capitals in China. PD patients were diagnosed with the UK Parkinson's Disease Society Brain Bank diagnostic clinical criteria for idiopathic PD. Hamilton Depression Scale (HAMD-17) assessed Depressive symptoms. The cut-off point was 17.
Results: Nine hundred and one PD patients were recruited. The PD patients were 65.4±10.7 years old, 562 males and 339 females. The average course was 64.3±53.8 months. The Unified Parkinson's Disease Rating Scale (UPDRS) parts III were 27.2±15.2, HRSD were 11.5±8.7, Alzheimer's disease Collaborative study-activity of daily life (ADCS-ADL) were 61.0±16.4, and Montreal cognitive assessment (MoCA) were 21.6±5.7. The comorbid rate of depressive symptoms was 12.2% (n = 110) among PD patients. Multiple Logistic

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regressive model suggested, comorbid with depressive symptoms were significant associated with sex (females/ males, OR=2.41, 95%CI 1.50~3.86, p < 0.001), educational level (OR=0.75, 95% CI 0.62~0.90, p = 0.002, illiterate = 1, primary school = 2, junior middle school = 3, senior middle school = 4, college or university = 5, above = 6), severity of PD (OR=1.028 with each UPDRS-III score increase, 95% CI 1.01~1.04, p = 0.001), activity of daily life (OR=0.96 with each ADCS-ADL score increase, 95% CI 0.95~0.97, p < 0.001).
Conclusions: PD patients often comorbid with depressive symptoms in China. Females, course longer than 5 years, more severe PD patients, were more likely to comorbid with depressive symptoms.

FC05-04

Psychiatric comorbidity and quality of life in patients with post-stroke emotional incontinence

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Objectives: We aimed to investigate the associations of post-stroke emotional incontinence (PSEI) with various psychiatric symptoms and quality of life independent of potential covariates in survivors of acute stroke.

Methods: A total of 423 stroke patients were assessed within 2 weeks of the index event. Psychiatric symptoms were assessed by the Symptom Checklist-90-Revised abbreviated form (SCL-90-R), which has nine domains comprising Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Quality of life was measured using the World Health Organization Quality of Life abbreviated form (WHOQOL-BREF), which has four domains related to physical factors, psychological factors, social relationships, and environmental context. Associations of PSEI with scores on the SCL-90-R and WHOQOL-BREF were investigated using pairwise logistic regression model adjustment for potential sociodemographic and clinical covariates.
Results: PSEI was present in 51 (12.1%) patients. PSEI was associated with the Obsessive-Compulsive, Interpersonal Sensitivity, and Hostility symptom dimensions of the SCL-90-R and with the psychological factors and social relationships domains of the WHOQOL-BREF independent of important covariates including previous stroke, stroke severity, and physical disability.
Conclusions: PSEI causes some aspects of psychiatric distress and negatively affects psychological and interpersonal quality of life. For patients with PSEI, special attention to psychiatric comorbidity and quality of life is needed, even in the acute stage of stroke.

FC05-05

What is the impact of taking multiple psychotropic medicines on the risk of falling?

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Objective: Prior studies have shown an association between the use of psychotropic medicines and falls. Given the elderly often take multiple psychotropic medicines, this study was conducted to identify the effect of the total number of psychotropic medicines on risk of hospitalisation for falls in elderly people.
Method: A retrospective cohort study utilising the Australian Government Department of Veterans' Affairs health claims database was conducted. Participants were Australian veterans aged 65 years or older and living in the community who were dispensed at least one psychotropic medicine associated with falls between July 2008 and June 2009. The effect of the number of medicines on the risk of falling was examined by stratifying the total number of psychotropic medicines taken on each day of the study and the risk of fall on the subsequent day. The main outcome measure was the rate of hospitalisation with a secondary diagnosis of fall from the same level.
Results: 102,082 veterans were included in the study. At the time of study entry, the average age of veterans was 83 years and 44% were male. Veterans used on average 5 medicines.

Adjusted results showed increased risk of falling with increasing numbers of psychotropic medicines. Compared to days where no psychotropic medicines were taken, the Relative Risk estimates were 1.43 (95% CI 1.31 - 1.55) for those on two psychotropic medicines, and 1.83 (95%CI 1.64–2.05) for those on three or four psychotropic medicines. The highest risk was found for veterans who had 5 or

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more medicines per day (Relative Risk = 2.18, 95% CI 1.61 - 2.95).
Conclusions: Risk of falls increases with increasing concurrent use of psychotropic medicines. Reducing the number of psychotropic medicines prescribed concurrently is likely to reduce risk of hospitalisation for fall.

FC06-01

CSF levels of C-reactive protein associated with reduced FDG-PET in prodromal Alzheimer's disease

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Neuroinflammation can be observed in a substantial portion of patients with Alzheimer's disease (AD). However, whether neuroinflammation is associated with neurodegeneration in the early phase of AD is not clear.

The aim of the current study was to assess the association between a neuroinflammatory biomarker, including C-reactive protein (CRP), with cerebral metabolism in subjects with prodromal AD.

To this end, we measured the cerebrospinal fluid (CSF) levels of CRP and temporo-parietal FDG-PET metabolism in a group of 66 prodromal AD subjects (i.e., mild cognitive subjects (MCI) with abnormal CSF-levels of Aß). Data were obtained from the multicenter Alzheimer's Disease Neuroimaging Initiative (ADNI, (http://adni.loni.ucla.edu)).

Results showed that higher CSF-CRP levels were associated with lower FDG-PET metabolism within the posterior cingulate ROI region, when controlled for age, gender, sex, and ApoE genotype ($B = -0.1$, $SE = 0.04$, $p = 0.02$).

Although CRP is majorly produced in the liver, CRP is also produced in the brain, rendering the possibility that CSF-CRP levels reflect increased brain inflammation processes. In conclusion, neuroinflammation may be associated with hypometabolism in the prodromal stage of AD.

FC06-02

Diagnostic accuracy of plasma amyloid β for Alzheimer's disease by the presence of apolipoprotein E ε4 allele

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Objective: Amyloid β (Aβ) is deposited in the brains of Alzheimer's disease (AD) patients and plasma levels of Aβ are also altered in AD. However previous studies investigating usefulness of plasma Aβ as a diagnostic marker for AD were inconsistent. The purpose of this study is to compare plasma Aβ levels in patients with AD and age- and sex-matched cognitively normal control subjects and evaluate diagnostic accuracy of plasma Aβ for AD. In addition, we compare the diagnostic accuracy of plasma Aβ for AD by the presence of apolipoprotein E (APOE) ε4 allele.
Methods: 24 AD patients and 24 age- and sex-matched control subjects were recruited from clinics and communities. Levels of Aβ 40, Aβ 42 were measured in plasma by means of an enzyme-linked immunosorbent assay.
Results: Plasma Aβ 42 and Aβ 42 / Aβ 40 ratio in the AD patients were lower than in the controls ($p < 0.01$). The area under the receiver operator curve (AUC) of plasma Aβ 42 for AD was 0.87 and AUC of Aβ 42 / Aβ 40 ratio was 0.90. AUC of plasma Aβ 42 was 0.96 in the group without APOE ε4 allele and 0.82 in the group with APOE ε4 allele. AUC of plasma Aβ 42 / Aβ 40 ratio was 0.88 in the group with APOE ε4 allele and 0.85 in the group without APOE ε4 allele.
Conclusion: In our study, plasma Aβ 42 and Aβ 42 / Aβ 40 ratio were decreased in AD patients. Diagnostic accuracy of Aβ 42 and Aβ 42 / Aβ 40 ratio for AD was good. Plasma Aβ 42 and Aβ 42 / Aβ 40 ratio may be useful diagnostic marker for AD, particularly plasma Aβ 42 in APOE ε4 allele negative group.

FC06-03

Grip on Challenging Behaviour: Effects of a structured multidisciplinary care program for management of challenging behaviour on dementia special care units

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Objective: Guidelines state that managing challenging behaviour in nursing homes should be done by using an individually tailored care plan based on thorough analysis of the behaviour. As of yet, this approach is not common practice and the majority of challenging behaviour is

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treated with psychoactive drugs. To facilitate the structured multidisciplinary management of challenging behaviour, we developed the care programme Grip on Challenging Behaviour. The objective of this study was to determine the effects the use of the care programme has on challenging behaviour.

Method: We implemented the care program according to a stepped wedge design. The 17 dementia special care units that took part in the study were randomly divided over five groups. Every four months, a trained interviewer conducted interviews using the CMAI and the NPI-NH questionnaires. Lineair mixed models were used to analyse differences of CMAI scores. Binomial mixed models were used to analyse effects on the number of clinically relevant NPI symptoms and on the prevalence of individual NPI symptoms.

Results: Significant effects were found in differences of CMAI score eight months after implementation (−2.386 SD 0.925). Also, a significant decrease in clinically relevant symptoms was found for residents with severe dementia (Odds Ratio 0.8). Delusions, depression, apathy, disinhibition and aberrant motor behaviour also significantly decreased.

Conclusion: The care program Grip on Challenging Behaviour has significant effects on different types of challenging behaviour. However, effects were smaller than expected, possibly due to implementation problems.

FC06-04

The diversity of younger onset dementia diagnoses and experience: Preliminary findings from the Inspired study

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Study Objectives: To establish the prevalence, diagnoses and care pathways in a broadly representative sample of people with younger onset dementia (YOD)

Methods: Repeat surveys of relevant health professionals (e.g., GPs, psychiatrists, neurologists, geriatricians, aged care nurses, psychologists, memory clinics, ACATs, residential facilities, drug & alcohol services) and NGOs (e.g., Alzheimer's Association, Huntington's Society, MS Society) were undertaken to identify potential participants (and their carers) with an onset of dementia before age 65. Invitations were mailed via the professional to the potential participants in the catchment area of southeast Sydney, the Illawarra and Shoalhaven districts. Information was obtained about the clinical features, diagnoses and service needs through semi-structured interviews, medical record reviews and focus groups.

Results: Of 509 people identified with YOD, the majority had degenerative dementias (57%), followed by secondary dementias (15%), vascular dementia (6%), and mixed Alzheimer's/vascular (3%). In 19% of cases, the cause was unspecified. Alzheimer's disease was the main diagnosis (25%). Over 20 types of dementia were identified with Huntington's disease, multiple sclerosis, alcohol and HIV-associated dementia being prominent. The diversity of diagnoses was reflected in the wide range of pathways to care that were described. For around 25% the initial presentation had been with mood and behavioural symptoms which appeared to contribute to diagnostic delay. A change of diagnosis occurred in around 50% as the illness evolved and this added to the care needs.

Conclusions: Early results from the Inspired study confirm that YOD is heterogeneous with resulting diverse care pathways.

FC06-05

Retirement and the age of onset of Alzheimer's disease: The ICTUS study

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Objectives: Using cross-sectional data from the United States and Europe, recent studies have shown that retirement is associated with cognitive functioning of elders. Specifically, older workers (i.e., adults aged over 60) delay their cognitive aging process by approximately 1.3 years in comparison to young retirees of the same age. Given these

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considerations, it seems relevant to consider this issue in the context of pathological aging, and more particularly in Alzheimer's disease (AD). Therefore, the aims of this study are: (1) to test whether deferred retirement is associated with delayed onset of symptoms and diagnosis of AD; (2) to determine whether retirement still predicts the age at onset of dementia beyond ten years after retirement.
Method: The study sample was gathered from the ICTUS/DSA cohort, a European study of 1,375 AD patients. Information regarding age at retirement, age at onset of symptoms and diagnosis, country, center, education and occupational status were collected at baseline. Multiple regression analyses, adjusted for gender, education, occupation, center and country, were conducted on 894 patients.
Results: Each additional year of employment delayed the onset of symptoms by 0.34 years ($ES = 0.04$, $p < 0.0001$) and the time of diagnosis by 0.36 years ($ES = 0.04$, $p < 0.0001$). These significant effects do not appear to be attributable to confounding factors. Above all, these associations remain despite the non-inclusion of patients who were diagnosed before or within ten years after retirement.
Conclusions: The present data substantiates that deferred retirement is related to later age at onset of AD, and thus appear to contribute to cognitive reserve. However, further investigations should specify this association based, for instance, on the type of retirement (e.g., voluntary versus involuntary departure).

FC07-01

Improvements in community-based services for Norwegian families with dementia

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Background: The prevalence of dementia is expected to increase in the entire world. Due to insufficient accessibility to suitable short- and long-term care in nursing homes, there is a need to optimise services for home dwelling patients and their family carers. The randomized controlled study "A psychosocial intervention programme for persons with dementia and their family carers" aimed to develop such programmes in the municipalities. It included training health care personnel to enable them to recruit participants and carry out the intervention, and to investigate its effect.
Aim: First, to investigate to what extent the intervention contributed to increased knowledge about families with dementia among the health care professionals; second, to explore possible changes to services for these families in the participating municipalities.
Method: Content analysis, a qualitative method, with interviews of 19 informants representing three focus groups and six individual interviews, during 2012. The informants, were aged between 34 and 61 years, all women except for one, and came from 13 urban and rural municipalities.
Findings: The informants' experiences are presented in three thematic categories relating to the main themes covered in the interviews with one or three subcategories presenting different aspects of the themes. The main themes were; (1) Challenges, with subcategories preparing for the intervention, recruiting participants and conducting the programme; (2) New knowledge, with subcategories about persons with dementia, about the situation of family carers, and about the health care workers themselves; (3) Service development, with the subcategory change of practices.
Conclusion: The study revealed a lack of knowledge concerning the capacity of the persons with dementia to express their needs and interest in knowledge about their condition. Furthermore, it seems beneficial to offer structured individual as well as group based interventions in the early stages of the disorder and throughout the course of the dementia.

FC07-02

The training effects of a tai chi with thera band program in older women

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Objective: Tai-Chi is an exercise with low-medium intensity and aerobic in nature. It has been suggested to have positive impacts on health for older adults. Thera band has been adopted as a tool to improve muscle strength and endurance due to its elasticity. However, little is known regarding

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the training effects of combining Tai-Chi with thera bands on older adults. This pilot study aimed to investigate the effects of a 16-week Tai-Chi with thera band program on physiological outcomes of older women residing at homes.
Method: Thirty participants were recruited by convenience sampling and a one-group pretest-posttest design was adopted in this study. Participants were asked to attend a 50-minute training program of Tai Chi with thera bands twice a week for 16 weeks instructed by a trained professional in a group setting at senior day care centers. Assessments of the six-item Senior Fitness Test and muscular strength of upper and lower extremities were measured at baseline, 9th and 17th week.
Results: The mean age of participants were 72.23±6.64 years. After the Tai-Chi with thera band training program, the participants demonstrated significant improvements in most of functional fitness ($p < 0.05$) except for 8-foot up-and-go test ($p = 0.19$). The muscle strength of upper and lower extremities was all significantly improved after the 16 weeks of exercise program ($p < 0.05$).
Conclusion: The findings of this study suggest that the Tai-Chi with thera bands program improved functional fitness and would be a suitable activity for older women applying to the community senior day care centers. Future studies with a larger sample size and rigorous design may be needed to evaluate its effects on physiological and psychological health of community-dwelling older adults.

FC07-03

A survey to explore understanding of Alzheimer's disease and BPSD among formal care-givers working in Hong Kong

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Objective: The purpose of the study is to identify the knowledge gap on understanding Alzheimer's disease and behavior and psychological symptom of dementia (BPSD) among two main group of formal care-givers, namely health care workers and personal care workers, working in in residential care homes for the elderly (RCHEs) in Hong Kong and to find out implication for caring to face the challenges of aging.
Method: A cross-sectional design was adopted, using a self-completion questionnaire survey with 6 pointed Likert scale. Pilot study and a review by a group of scholar and experienced mental nurses had been done. Invitation for participation was sent out and 7 out of 60 RCHEs replied. Total 152 sets of survey had been successfully collected from these participating subsided and self-financing homes. The response rate is 76%.
Result: Most of the formal care-givers are able to identify psychotic symptoms such as hallucination, delusion and elated mood as the symptoms needed treatment, but ignored apathy. Aggressive or potential aggressive behavior towards daily care such as refusal for bathing, wandering, presenting hitting gestures are considered difficult to manage. The composition of the manpower in the study: 33.3% is health care workers while 66% is personal care workers. The mean training hours of personal care workers who are mainly responsible for bed-side caring is 1.56 and health care workers who are required to receive some form of studying as the entrance requirement to profession is 3.94. The result also shows that there is a relationship between understanding of Alzheimer's disease and BPSD and caring perception.
Conclusion: There is an awareness of caring older adult with Alzheimer's disease among formal care-givers in RCHEs in Hong Kong. However, the training is insufficient. More knowledge and skill input to enhance the overall caring quality is required.

FC07-04

What do relatives find more troublesome—Forgetfulness or depression?

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Background: According to several studies it is well documented that close relatives of persons suffering from dementia are experiencing a high level of burden related to their caregiving tasks, while burden in relatives of patients suffering from other old-age psychiatric disorders like depression is less studied.
Aim: To compare the burden of care measured with the Relatives' Stress Scale (RSS) in relatives of patients admitted to old-age psychiatric wards in South-Eastern Norway suffering from dementia and depression.
Material and Method: RSS were filled in by close family members of 131 persons admitted to old-age psychiatric departments, 74 due to dementia and 57 due to depression. The patients and their relatives

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are included in the quality register (KVALAP) of Viken Old-Age Psychiatric Research Network (VAF).
Results: The relatives of patients suffering from dementia reported a significantly higher degree of burden according to the RSS compared with the relatives of depressed patients; mean RSS was 28.7 (SD 13.1) vs 22.1 (SD 13.9), $p = 0.006$.
Conclusion: Relatives of old-age psychiatric patients suffering from dementia are expressing a significantly higher degree of burden compared to relatives of patients suffering from depression. However, since a score above 23 on the RSS is associated with significant distress, even relatives of patients suffering from depression are at risk of developing health problems due to their caregiver role. Depression in the relatives of patients suffering from dementia increases the risk of early institutionalization and depression in the patients. Whether the prognoses by old-age psychiatric disorders like depression are influenced by the relatives' strain is not known and should be studied further.

FC07-05

Depression among family caregivers of community-dwelling older people who used services under the Long Term Care Insurance program: A large-scale population-based study in Japan

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Objectives: i) to elucidate the extent of depression observed among family caregivers of community-dwelling older people with disabilities under the Long Term Care Insurance (LTCI) program in Japan and then ii) to identify predictors of caregiver depression through a large-scale population-based survey.
Methods: All 5,938 older people with disabilities using domiciliary services under the LTCI in the city of Toyama and their family caregivers participated in this study. Caregiver depression was defined as scores of $\geq$16 on the Center for Epidemiological Studies Depression Scale (CES-D). Other caregiver measures included: age; sex; hours spent caregiving; relationship to the care recipient; income adequacy; living arrangement; self-rated health; and work status. Care recipient measures included: age; sex; and level of functional disability and severity of dementia. The data from 4,128 pairs of the care recipients and their family caregivers were eligible for further analyses. A multiple logistic regression analysis was used to examine the predictors associated with being at risk of clinical depression (CES-D of $\geq$16).
Results: Overall, 34.2% of caregivers scored $\geq$16 on the CES-D. The independent predictors for depression by logistic regression analysis were six caregiver characteristics (female; income inadequacy; longer hours spent caregiving; worse subjective health; and co-residence with the care recipient) and one care recipient characteristic (moderate dementia).
Conclusion: This is one of the first population-based examinations of caregivers of older people who are enrolled in a national service system that provides affordable access to services. The results highlighted the importance of monitoring caregivers who manifest the identified predictors to attenuate caregiver depression at the population level under the LTCI.

FC08-01

Gray matter volume increase following electroconvulsive therapy in late life depression

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Objective: To study the effect of electroconvulsive therapy (ECT) on gray matter volume in patients with severe late life depression.
Method: 26 elderly patients (mean age 71.3;SD = 7.6) (7 males) with treatment refractory depression were treated twice weekly with high dose right unilateral ECT until sustained remission on MADRS was reached. Cognition and psychomotor changes were monitored respectively with MMSE and CORE at baseline and 1 week after the last ECT. We used paired t-test to assess clinical response (SAS). At both time points structural magnetic resonance imaging (MPRAGE sequence on a 3 Tesla Philips scanner) was performed. We used voxel-based morphometry (VBM8 toolbox in SPM8) to study gray matter volume changes and conducted a whole brain analysis using a paired t-test to compare pre- and post ECT gray matter volume. Threshold was set at voxel-level FWE-corr $p < 0.05$ with an extent threshold of 50 voxels.

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Results: Patients received a mean of 11 ECT's (SD = 4.1). There was a significant decrease in depressive symptoms ($p < 0.0001$). Remission rate was 76.92 %. Cognition improved significantly ($p < 0.002$), as well as psychomotor agitation ($p < 0.0001$) and psychomotor retardation ($p < 0.0001$). We found significant right-hemispheric gray matter volume increase in caudate nucleus area, medial temporal lobe, anterior and posterior insula and posterior superior temporal area. We did not find correlations between volume increase and clinical measures but did observe a positive correlation between increased medial temporal lobe volume (including hippocampus) and the number of ECT sessions ($r = 0.41$; $p < 0.05$).
Conclusion: These preliminary findings show that ECT is associated with gray matter volume increase and that VBM is a sensitive technique to detect these structural changes. The highly significant effect ipsilateral to the stimulus side and the correlation with the number of ECT sessions suggests that gray matter volume increase is primarily related to neurophysiological rather than clinical changes.

FC08-02

HDL cholesterol and the risk of depression over 5 years among older men

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Objective: Abnormalities in lipid metabolism are frequently reported in association with prevalent depression. As most studies have used a cross-sectional design, reverse causality and confounding could plausibly explain these findings. This cohort study was designed to determine if plasma concentration of lipids, and more specifically of HDL cholesterol, were associated with increased risk of depression five years later, independent of other factors.
Methods: As part of the Health in Men Study, 1959 men aged 75 to 94 years completed a survey in 2001–4 and had plasma glucose, total homocyteine, high sensitivity C-reactive protein, triglycerides, LDL cholesterol and HDL cholesterol measured. This baseline survey included the 15-item Geriatric Depression Scale. In 2008–9, after a mean period of 5.3 years, the men completed a follow-up survey, which included the Patient Health Questionnaire (PHQ-9). A total score of 10 or more on the PHQ-9 indicated the presence of clinically significant depression.
Results: 123 men (6.3%) displayed clinically significant symptoms of depression at follow-up. The plasma concentrations of triglycerides and of low density lipoprotein (LDL) cholesterol were not associated with depression, but participants with HDL cholesterol $\leq$ 1 mmol/L had increased odds of depression compared with men with HDL cholesterol > 1 mmol/L (OR = 1.90, 95%CI = 1.17, 3.07), after adjusting for age, living arrangements, physical inactivity, smoking history, history of past depression, use of statins or antidepressants, and other biochemical measures. The halving of HDL cholesterol nearly trebled the adjusted odds of depression (OR = 2.85, 95%CI = 1.63, 4.98).
Conclusions: The probability of depression 5 years later increased with decreasing concentrations of baseline HDL cholesterol. Evidence from sufficiently powered randomized trials is required to determine if the prevalence and incidence of depression in later life can be decreased by raising the plasma concentration of HDL cholesterol through diet, exercise or other interventions.

FC08-03

Neutrophil gelatinase associated lipocalin: A novel inflammatory marker associated with late life depression

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Objective: Neutrophil Gelatinase-Associated Lipocalin (NGAL) is a recently identified inflammatory protein, which is selectively triggered by TNFα receptor 1 signaling within the central nervous system. The objectives were to investigate determinants of plasma NGAL levels in human beings and its association late-life depression.
Method: Baseline data were obtained from a well-characterized prospective cohort study of 350 depressed and 129 non-depressed older persons ($\geq$ 60 years). Past 6 month diagnosis of major depressive disorder (MDD) according to DSM-IV-TR criteria was assessed with the Composite International Diagnostic Interview (CIDI 2.0). Potential determinants of plasma NGAL included sociodemographic characteristics, lifestyle and psychiatric and physical comorbidity.
Results: Plasma NGAL concentrations were significantly associated with age, male gender, smoking and waist circumference. Adjusted for these determinants, depressed patients had significantly higher NGAL plasma levels compared to non-depressed controls. Further analyses within the depressed group, showed patients who did not meet full criteria for MDD in the month before sampling (recently remitted) had lower plasma NGAL levels compared with those who did. Subjects with a recurrent depression had higher plasma NGAL levels compared to those with a first episode. NGAL levels were neither related with specific symptom profiles of depression nor with antidepressant drug use.
Conclusion: Adjusted for confounders, NGAL plasma levels are increased in depressed older persons, without any effect of antidepressant medication and age of onset.

FC08-04

Abnormal functional connectivity of amygdala in late-onset depression was associated with cognitive deficits

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Background: Major depressive disorder (MDD) is associated with decreased function of cortico-limibic circuit, which plays important roles in the pathogenesis of MDD. Abnormal functional connectivity (FC) of amygdala is a part of cortico-limibic circuit. However, little is known about the connectivity alterations in late-onset depression (LOD), and whether such disrupted connectivity mode is correlated with cognitive impairment is unclear.

Methods and Results: A total of twenty-two LOD patients and twenty-two matched healthy controls (HC) underwent neuropsychological tests and resting-state functional magnetic resonance imaging (rs-fMRI). Regional homogeneity (ReHo) and FC of bilateral amygdala seed were used to analyze blood oxygen level-dependent fMRI data between groups. Compared with HC, LOD patients showed lower ReHo in right middle frontal gyrus and left superior frontal gyrus. In aspects of FC, left amygdala had decreased FC with right middle frontal gyrus and left superior frontal gyrus in amygdala positive network, whilst had increased FC with right post-central gyrus in the negative amygdala network. Significantly reduced FC of right amygdala was mainly in right middle occipital gyrus in the negative amygdala network. Further correlative analysis found that the decreased FC between amygdala and right middle occipital gyrus was negatively correlated with Verbal fluency test-animal score (VFT-animal, $r = -0.424$, $P = 0.049$), Verbal fluency test-verb score (VFT-verb, $r = -0.562$, $P = 0.006$), Digit span test-forward (DST-forward, $r = -0.451$, $P = 0.035$) and Digit span test-backward (DST-backward, $r = -0.429$, $P = 0.046$).
Conclusions: Our finding of reduced activity of prefrontal gyrus as well as abnormal FC of bilateral amygdala may be key factors of cognitive dysfunction in LOD patients.

FC08-05

Retrospective review of ECT given to elderly patients suffering from depression at three different health services

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ECT is still the treatment of choice for many older patients suffering from severe depressive illness, which can be life-threatening. Over the years there has been a lot of effort focusing on minimising the cognitive side effects from ECT. Different modalities of electrode placements and different pulse widths have been tried. However there continues to be arguments about the effectiveness of the different modalities and pulse widths. There is a dearth of data or evidence about the effectiveness of the different modalities in the elderly.

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We propose to present data evaluating the outcomes for older adults receiving an acute course of ECT for a major depressive episode in three different psychogeriatric centres in Australia. Most patients at Wyong Hospital, New South Wales have started ECT with Right Unilateral - Ultra Brief since 2009, compared with Right Unilateral-Brief Pulse at the Goulburn Valley Hospital in Victoria while at the Peter James Centre in Victoria the default modality continues to be bilateral ECT (both bitemporal and bi-frontal). Data has been gathered by retrospective case note review of patients over 65 years starting an acute course of ECT with a diagnosis of major depressive episode after August 2009.

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