

Papers

First-episode psychosis and direction of wave propagation at 1 Hz in the EEG

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Background: EEG measures of power and phase synchrony are related to symptom factors in subjects with first-episode psychosis (FEP). This study uses a new dynamical measure that detects event-related episodes of long-wavelength activity in the EEG.

Methods: Data were acquired from 56 subjects with FEP and 112 matched controls. Positive and Negative Syndrome Scale was used to calculate three-factor scores for reality distortion (RD), psychomotor poverty (PP) and disorganization (Dis). EEG was measured during an auditory oddball task at 26 electrodes. The spatial patterns of phase gradients across the scalp were assessed using three orthonormal basis functions: anterior-posterior, peripheral-central and right-left. Correlations of the relative phases with each of the basis functions are denoted rAP, rPC and rRL, respectively.

Results: The FEP group had greater values of rAP at ~1 Hz than the controls, and rAP at ~1 Hz correlated with PP, $r = -0.57$. The FEP group had greater values of rRL at ~1 Hz than the controls, and rRL at ~1 Hz correlated with RD, $r = 0.55$ and Dis, $r = 0.53$.

Conclusions: In the approximately 1-Hz range, the FEP group showed directional differences in wave propagation, compared with controls. The greater tendency of the subjects with FEP to engage in right to left wave propagation was indicative of higher scores for RD and Dis. The lesser tendency of the subjects with FEP to engage in posterior to anterior wave propagation was, however, related to lower scores for PP. Differences for FEP in the global coordination of cortical inactivation are directly related to symptom clusters.

Psychotic-like experiences in a community sample of adolescents: associations with distress, depression and functioning

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Background: Previous studies have shown that young help-seeking people with psychotic-like experiences (PLEs) are at ultrahigh risk of developing a psychotic disorder. However, not all people with PLE go onto developing a psychotic disorder. It is important to identify whether some PLEs are more likely to progress to frank psychotic disorder than others and whether there are any associated features that make progression more likely.

Methods: We carried out a community survey of year 10 students. Sixty secondary schools were approached to participate in the study, 34 consented. All year 10 students attending these schools were invited to participate. Students were administered the Community Assessment of Psychotic Experiences (CAPE), the Centre for Epidemiologic Studies Depression Scale (CES-D) and the General Health Questionnaire-12 (GHQ-12). These self-report questionnaires measure psychotic symptoms, depressive symptoms and level of functioning. A sample of 883 students completed the survey.

Results: PLEs were highly prevalent in the sample. Nearly all participants (99.1%) reported that they had experienced one or more PLEs at least 'sometimes'. Nearly one third of the sample endorsed at least half of the items. PLE data were factor analyzed, and the associations of psychotic subtypes and distress, depression and functioning level were examined. These data will be presented.

Conclusions: This is one of the first studies that found that PLE is commonly experienced in a community sample of adolescents. Further research is needed to explore the significance of this finding.

Stability of psychotic-like experiences over 6 months in a clinical sample of non-psychotic young people

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Background: Psychotic-like experiences (PLEs) increase the risk of schizophrenia and other psychotic disorders, yet are common in the community. Not everybody who experiences PLEs develops a psychotic disorder. It is important to understand the way in which the presence of PLEs is a risk factor for the development of a psychotic disorder. The aims of this study

were 1) to determine the prevalence of PLEs in a clinical sample of non-psychotic young people; 2) to investigate the stability of these PLEs over a 6-month period and 3) to examine the associations between PLEs, psychiatric morbidity and psychosocial functioning.

Methods: Consecutive referrals to a youth psychiatric service ($n = 140$) were assessed to measure PLEs, psychiatric morbidity and psychosocial functioning. These assessments were undertaken at the time of referral, 3 and 6 months. The PLE data were factor analyzed to determine whether there were different subtypes of these experiences. The associations between PLEs, psychiatric morbidity and psychosocial functioning were also examined.

Results: Almost all of the sample (98.6%) reported experiencing at least one of the PLEs at least 'sometimes' in their lifetime. PLEs were also highly prevalent at 3 and 6 months. Three subtypes of PLEs were identified: bizarre experiences, persecutory ideas and magical thinking. Bizarre experiences and persecutory ideas were associated with poor functioning.

Conclusions: Bizarre experiences and persecutory ideas may be more malignant forms of psychotic symptoms as they are associated with current disability and may confer increased risk of development of full-blown psychotic disorder.

Investigating the 'trill of suspirality': thought disorder as an emergent property of conversational interaction

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Background: Formal thought disorder is an important although not pathognomonic clinical feature of schizophrenia. The clinical and neurocognitive literature on thought disorder, although vast, is limited to the extent that it draws on a model of thought that can be traced to the English Enlightenment and Locke's theory of ideas and their associations, itself based on his clinical experience and the influence of Newton's physics of atoms and forces. We propose an alternative model that draws on recent work in linguistics. By giving greater emphasis to the interactional aspects of language, it enables a sharper focus on thought disorder as an emergent property of conversation.

Methods: Conversational interaction between patients with identified thought disorder and psychiatrist is analyzed. The analysis focuses on agency as it manifests in the management of turn taking (drawing on conversational analytic techniques) and in transitivity structures within clauses (drawing on systemic functional grammar).

Results: Patients are accomplished agents in the management of their part of turn taking. However, in representing themselves as agents in language, they transfer their agency onto other phenomena in their lived world, including inanimate objects and objects that are coined through neologisms.

Conclusions: This novel method of investigating thought disorder as fraught conversational interaction provides for the possibility of sharpening the definition of thought disorder as a construct, with attendant benefits both for clinical detection and for neurobiological research.

Association of cytokines and cognitive functioning in the elderly general population

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Background: The relationship between cytokines as markers of systemic inflammation and cognitive decline in the elderly has been established, whereas little knowledge has been gained as to whether domains of cognitive functioning are affected by cytokines. This study is to investigate the associations between circulating cytokines and specific neuropsychological domains of cognitive functioning (memory, processing speed and motor function) and general cognitive function (MMSE) in healthy elderly individuals.

Methods: In a cross-sectional study of 369 community-dwelling elderly subjects, we examined the relationship between serum interleukin (IL)-1beta, sIL-4R, IL-6, IL-8, IL-10, IL-12 and tumor necrosis factor-alpha concentrations and cognitive performance using an extensive cognitive test battery.

Results: Multivariate analysis showed that increased serum concentrations of IL-8 were associated with poor performance in the memory and speed domain and in motor function. Serum concentrations of IL-1beta, IL-6 and IL-10 were associated with impairments in specific domains of cognitive functioning, but these effects disappeared after Bonferroni's correction for multiple testing. Global cognitive functioning, as measured with MMSE, was not affected by cytokine levels.

Conclusions: This study suggests an association between circulating IL-8 concentrations and cognitive dysfunction in the elderly. An interaction between this cytokine and glial cells may help explain the pathophysiological mechanisms leading to cognitive impairment in our study group.

The COMT val158met genetic variant predicts antidepressant treatment response in major depression

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Background: In this study, it was hypothesized that higher COMT activity as conferred by the COMT 158val allele leading to decreased norepinephrine and dopamine availability has a negative effect on antidepressant drug response in depression.

Methods: A sample of 322 unrelated Caucasian patients with affective disorders (DSM-IV: major depression, $n = 256$, bipolar disorder, $n = 66$) was characterized and genotyped for the COMT val158met variant. Weekly Hamilton Depression Rating Scale (HAM-D) scores during antidepressant treatment (SSRIs, NSRIs, NaSSA) were assessed. Statistical analysis was performed using stratified and adjusted multivariate ANOVA (Bonferroni post hoc test).

Results: The COMT 158val/val genotype as compared with the 158val/met genotype conferred a significant risk of worse response after 4–6 weeks of antidepressant treatment in patients with affective disorders (week 4: $P = 0.030$; week 5: $P = 0.002$; week 6: $P = 0.003$). Even more significant results were obtained for the subsample restricted to major depression (week 4: $P = 0.014$; week 5: $P = 0.000$; week 6: $P = 0.000$). Statistical comparison of COMT 158val/val vs. COMT 158met/met genotype with respect to therapy response showed a less pronounced negative effect of the COMT 158val/val genotype (week 5: $P = 0.037$; week 6: $P = 0.096$) in the sample of patients with major depression. In the subsample of patients with bipolar disorder, major depressive episode, no influence of the COMT val158met variant on HAM-D overall change scores could be detected. Further stratified results are presented.

Conclusions: In patients homozygous for the higher activity COMT 158val allele, the consecutive decreased availability of the monoamines norepinephrine and dopamine might impair the efficacy of antidepressants during pharmacological treatment in major depression.

Childhood trauma and psychosis: a critical review

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Background: A significant proportion of people with psychotic disorders report traumatic experiences in childhood, such as sexual and physical abuse. Similarly, a proportion of childhood trauma (CT) survivors report psychotic symptoms such as hallucinations and delusions. Are these psychotic symptoms in trauma survivors part of the sequelae of CT or do they co-occur by chance? Much of the research into the relationship between CT and psychosis has suffered from a lack of methodological rigor and thus has failed to answer this question. Past reviews have paid little attention to these methodological problems (Read 1997, 2005; Morrison 2003). The aim of this review was to synthesize and critically evaluate the evidence.

Method: Medline and Psychinfo databases were systematically searched and papers identified were assessed according to eligibility criteria. The reference sections of identified papers were also searched.

Results: Forty-nine papers were identified. The rates of CT reported in groups with psychosis ranged between 19% and 83%. Child sexual abuse prevalence rates ranged between 17% and 79%. Reports of child physical abuse ranged from 10% to 61%. When compared with nonclinical controls, those with psychosis reported more trauma. Epidemiological studies investigating the relationship of CT to psychotic diagnosis and symptoms have found mixed results. However, all studies have methodological problems.

Conclusions: These studies tentatively suggest a relationship between CT and psychosis. Further good quality research is needed to clarify any association.

The impact of age at onset of bipolar 1 disorder on functioning and clinical presentation

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Background: Recent studies have proposed the existence of three distinct subgroups of bipolar 1 based on age at onset (AAO) (Bellivier et al. 2003: Am J Psychiatry: 160: 999–1001; Patel et al. 2006: Bipolar Disorders: 8: 91–94). The present study aims to investigate potential clinical and functional differences between these subgroups.

Method: Participants ($n = 240$) were enrolled in the Bipolar Comprehensive Outcomes Study, a 2-year longitudinal observational study. Measures assessed included the Young Mania Rating Scale, Hamilton

Depression Rating Scale (HAM-D21), Clinical Global Impressions Scale (CGI-BP), SF-36, SLICE/Life Scale and the EuroQol. Participants were also asked about age at first major affective episode.

Results: Our data support the existence of three subgroups; early (AAO <20, mean = 15.47 ± 2.7) 46.5% of participants, intermediate (AAO 20–35, mean = 25.52 ± 4.4) 43.8% of participants and late (AAO >35, mean = 46.2 ± 10.1) 9.7% of participants. The groups differed significantly in the type of first episode experienced ($\chi^2 = 14.88$, $df = 1$, $P = 0.005$) such that the early subgroup were more likely to experience a depressive first episode, while the intermediate subgroup were more likely to experience a manic first episode. At enrollment, the early subgroup reported more severe depressive symptoms [HAM-D F(1, 153) = 10.20, $P = 0.007$]. When the early subgroup was compared with the typical subgroup (intermediate and late combined), the early subgroup tended to experience more clinically significant distress as a result of depression (CGI-BP; $\chi^2 = 3.73$, $df = 1$, $P = 0.053$), were less satisfied with their overall health (SF-36; $\chi^2 = 9.42$, $df = 4$, $P = 0.051$) and were less able to enjoy recreational activities (SLICE; $\chi^2 = 10.47$, $df = 4$, $P = 0.033$).

Conclusions: Several clinical and functional differences were found between the subgroups based on preliminary data. These differences are important as they can help guide clinical management of this debilitating disorder.

Neuropsychological function in social phobia

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Background: Studies of neuropsychological function in social phobia have focused on attentional processes, memory function, judgment and interpretation biases, but findings have been conflicting. Differences in clinical characteristics or variation in testing paradigms and tasks may account for the inconsistencies. This study aimed to assess several cognitive functions, including verbal declarative memory, working memory, verbal fluency and recognition memory for visuospatial information.

Methods: Thirty adults who met DSM-IV criteria for social phobia and 27 age- and gender-matched healthy controls aged between 18 and 65 years completed neuropsychological testing. Participants were recruited by means of newspaper advertisements. Severity of social phobia was rated using the Liebowitz Social Anxiety Scale. Participants completed a battery of neuropsychological tests including the Rey Auditory

Verbal Learning Test, spatial span, spatial recognition memory, spatial working memory, digit span, and verbal fluency and a verbal memory task comprising nonsense words. The National Adult Reading Test was used to estimate premorbid verbal IQ.

Results: There were no significant group differences on any domain of function, including verbal learning and memory, attention, working memory, verbal fluency, visuospatial functioning or psychomotor speed.

Conclusions: Social phobia was not associated with neuropsychological impairment, but clinical characteristics of the sample may account for this. Patients were high-functioning individuals with mild to moderate social phobia who had not specifically sought help for social phobia.

The multiscale hypothesis of bipolar disorder

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The brain is characterized by the presence of architectural structures – neurons, minicolumns, cortical columns – across a hierarchy of spatial scales. In addition, the activity of the brain is expressed – through action potentials, EEG oscillations, diurnal rhythms – across a multitude of temporal scales. We propose that bipolar disorder arises as a biological disturbance at a very fine spatial and temporal scale, within transmembrane dynamics, which then cascades across scales to be expressed at the slower scales of symptoms, episodes and ultimately the illness across the life span. This proposal is embedded within a hierarchical model of neocortical activity. Innovative data analysis methods, allowing the investigation of EEG and functional magnetic resonance imaging data from such a multiscale perspective, are presented. We hence propose a set of functional neuroscience experiments that would allow this ‘multiscale hypothesis’ of bipolar disorder to be tested.

Referential delusions of communication and self-monitoring deficits in psychosis

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Background: Although delusions of reference are one of the most frequently occurring symptoms of

psychosis, they have been the focus of little research. Only one theory has been advanced to explain them and this theory has not received consistent empirical support. Recent research has suggested there are two different kinds of delusion of reference: delusions of communication and delusions of observation, and only the latter is associated with hallucinations and persecutory ideation. Delusions of communication may derive from difficulties with self-monitoring, whereby what seems to be communicated concerns the self and originates from the self, although the origin is not recognized but attributed externally.

Methods: This theory was tested with people suffering an acute psychotic episode ($n = 63$) using a visual signal detection task. Participants were required to distinguish between video clips of gestures and nongestures under conditions of uncertainty (visual noise).

Results: The previous finding of two kinds of delusions of reference was replicated. A signal detection analysis showed that people with delusions of communication were no less sensitive to gestures than people with psychosis without these delusions but showed a significantly greater bias toward perceiving them. Whether people had auditory hallucinations or not made no difference to their sensitivity or bias.

Conclusions: It is suggested that bias to perceive gestures occurs because people misattribute self-generated events to an external source. However, this bias is not part of a general tendency to externalize one's own thoughts but may be specific to delusions of communication.

Reduced psychoacoustic sensitivity to auditory temporal stimulation in schizophrenia reflects cytoarchitecturally specific changes in auditory cortex

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Aims/Background: The aim of this study was to apply established psychoacoustic and functional magnetic resonance imaging (fMRI) techniques to examine the neuroanatomical basis of auditory temporal processing deficits in schizophrenia. Previously, we showed reduced sensitivity to auditory temporal stimulation using fMRI and psychoacoustic responses to variations in sinusoidally amplitude-modulated noise (SAM). The present study extends these previous findings by examining the extent to which reduced sensitivity to SAM stimulation reflects anatomically specific changes in auditory cortical activity.

Methods: Eighteen individuals meeting diagnostic criteria for schizophrenia and 18 controls participated in separate psychoacoustic and fMRI sessions. Region-of-interest analyses were conducted using cytoarchitecturally defined anatomical probability maps of primary and secondary auditory cortex. Parametric modulation of auditory BOLD responses was performed using each individual's psychoacoustic SAM detection thresholds for bandpass noise stimuli (0–6 kHz) for 7 SAM rates (4, 8, 16, 32, 64, 128 and 256 Hz).

Results: ROI-based analyses showed that BOLD responses to SAM stimulation were primarily confined to increased activity in transverse temporal gyrus and planum temporal. Analysis of individual sensitivity to SAM rate showed that BOLD responses in anterior-lateral auditory regions showed a significant quadratic function of SAM thresholds. Further, reduced BOLD activity in schizophrenia was evidenced as reduced auditory responses in the same anterior-lateral regions.

Conclusions: The results suggest that reductions in sensitivity to auditory temporal stimulation in schizophrenia may reflect changes in cytoarchitecturally distinct regions of primary auditory cortex (te1.2). These findings are discussed in terms of the possible neural mechanisms underlying auditory temporal processing deficits in schizophrenia.

Mental health problems within couples and marital disruption

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Background: There is growing attention to the social consequences of psychiatric disorders, including the extent to which psychiatric disorders are associated with subsequent divorce and relationship dissolution. The previous research has largely studied individuals and given only limited consideration to the broader context of marriage and the potential interplay between spouses' mental health. The current paper studies couples and examines the association between both spouses' mental health problems and subsequent marital dissolution.

Methods: Prospective analysis of secondary data from a longitudinal national household survey. About 3230 couples were followed over 36 months, with logistic and multilevel regression models used to determine whether mental health problems of spouses at wave 1 (assessed by the mental health scale of SF-36) predicted subsequent marital dissolution.

Results: Couples in which either men or women reported mental health problems had higher rates of marital disruption than couples in which neither spouse

experienced mental health problems. For couples in which both spouses reported mental health problems, rates of marital disruption reflected the additive combination of each spouse's separate risk. These couples did not have disproportionately higher rates of divorce or separation.

Conclusions: Spouse similarity for mental disorders does not seem to increase couples' risk of marital dissolution.

A comparison of the neuropsychological and neurological correlates of childhood, adolescent and adult bipolar disorders

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Background: There is a growing interest in the area of child and adolescent bipolar disorder. Researchers and clinicians are not agreed on whether the phenomenology of the disorder in younger populations is the same as in the adult version of the disorder. To better describe the presentation of the disorder in young people, more specific neuropsychological testing and more sensitive imaging parameters are required. We are seeking to clarify what specific neuropsychological and neuroanatomical aspects of the disorder are the same as in adult onset bipolar and which are different.

Methods: Adults with bipolar disorder were investigated using imaging paradigms sensitive to affective regulation and completed neuropsychological testing. An adolescent sample will also be recruited and complete the same paradigms and neuropsychological battery.

Results: Preliminary neuroimaging results from adult samples indicate that subcortical structures may be recruited as compensation for a co-occurring lack of signal in the prefrontal cortex. The neuropsychological deficits include difficulties with selective attention, sustained attention and executive functioning.

Conclusions: These findings are discussed in light of difficulties with diagnostic specificity, comorbidity, heritability and cut offs for age and disorder. Preliminary findings in studies of young people with bipolar disorder suggest they experience similar neuropsychological symptoms to those found in adults; however, the findings from neuroimaging of young people with bipolar disorder are inconsistent. Suggestions for future research directions will be discussed.

Screening and treatment for depression during pregnancy: a cautionary note

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Background: The aim of this study was to evaluate the recruitment of depressed pregnant women.

Methods: Consecutive pregnant women presenting for routine ultrasound scan were asked to complete the Edinburgh Postnatal Depression Scale (EPDS). Women who scored greater than 12 on the EPDS and who agreed to contact were invited to attend an initial assessment to determine eligibility for the trial. Consenting, eligible women were randomized to either cognitive behaviour therapy (CBT) or routine clinical care (RCC). Follow-up assessments were conducted at mid (6 weeks following initial assessment), end (approximately 36 weeks gestation) and postpartum (approximately 4 months postdelivery) for all participants.

Results: Four hundred women were offered the EPDS, and 93% completed the questionnaire. Thirteen per cent of these women scored greater than 12, although only a minority of these women agreed to be contacted. Of those who agreed to be contacted, less than half attended initial interview. Upon interview, all women, except for one, were eligible and consenting. Three women were randomized to CBT and three to RCC. Only one woman randomized to CBT chose to commence treatment, and only one woman randomized to RCC was offered treatment for her low mood by her lead maternity provider.

Conclusions: Although the vast majority of pregnant women were willing to complete a depression screening questionnaire, most did not agree to additional contact or assessment, and either were not offered treatment or did not accept treatment. This was not an effective recruitment strategy for a randomized controlled psychotherapy trial.

Patient predictors of response to interpersonal psychotherapy and cognitive behaviour therapy

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Aim: The aim of this study was to identify patient factors associated with response to cognitive behaviour

therapy (CBT) and interpersonal psychotherapy (IPT) in adults with major depression.

Background: Very little is known about the patient characteristics associated with response to CBT and IPT. Certain patient characteristics may be general prognostic indicators of response, irrespective of therapy type; however, there may also be other specific patient characteristics that are indicators of response to a specific treatment type (CBT vs. IPT).

Methods: After providing informed written consent, 177 adults with major depression (DSM-IV) were randomized to receive 16 weekly sessions of either CBT or IPT. Patient characteristics were assessed prior to randomization. Outcome at the end of the weekly sessions was defined as percentage improvement on the clinician-rated Montgomery Asberg Depression Rating Scale (MADRS), which takes account of initial depression severity.

Results: Factors associated with greater percentage improvement on the MADRS over the course of therapy included receiving CBT, having a single episode of depression and a perception that the therapy (irrespective of treatment type) was logical. Individuals who had comorbid personality disorder symptomatology had higher per cent improvement over the course of treatment if they received CBT (60%) rather than IPT (30%).

Conclusions: Despite examination of a number of potential predictors of differential response to CBT and IPT, few were significant. However, this study suggests that CBT is a better treatment option for depressed patients with comorbid personality disorder than IPT.

White matter hyperintensities: lateralization effects

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Background: The presence of white matter hyperintensities (WMHs) on magnetic resonance imaging (MRI) scans is associated with age. However, their functional significance is controversial with some studies reporting significant associations of WMHs volume with cognitive decline, while others have not found such an association. Because the human brain is anatomically and functionally lateralized, one potential confound in this area of research is an effect of WMHs lateralization in the left and right cerebral hemispheres and their varying intra- and interhemispheric transfer consequences. The present study investigated the relationship between WMHs lateralization and corpus callosum (CC) measures and fine motor and cognitive performance.

Methods: A subsample of 478 individuals aged 60–64 years from a larger community sample were assessed for fine motor control (Purdue Pegboard), global cognitive function, episodic memory and working memory. Subjects also underwent brain MRI scans. WMHs on T2-weighted FLAIR MRI scans were assessed using an automated procedure. CC areas were hand traced.

Results: WMHs were significantly more lateralized to the left in the frontal, temporal and parietal lobes, and lateralized to the right in the occipital lobe. Periventricular and whole hemisphere WMHs were not lateralized. WMHs lateralization was significantly associated with CC areas, hippocampal lateralization and fine motor control. These associations were modulated by the location of WMHs in each hemisphere and by sex.

Conclusion: The lateralization of WMHs is an important factor to consider in the interpretation of their association with callosal structure and behavioural measures of motor control and cognition.

Models of health care delivery for depression

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Background: A range of models exist for the delivery of depression services in primary care and the community. The efficacy of the following approaches was assessed: passive education campaigns, telephone and Internet interventions, schools programs, general practice (education, care management, enhanced care, self-help in practice) and community programs linked to general practice.

Method: Systematic review.

Results: There is evidence for the effectiveness of schools programs, Internet and telephone interventions, care management, enhanced care and some community programs. Evidence is weaker or inconclusive for passive education, education directed at GPs, pharmacist interventions and bulletin boards.

The Illness Management and Recovery Program: an international effectiveness study

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Background: Much research has been conducted to establish best practice in psychosocial interventions for mental illness. The challenge of ensuring that best practice is delivered to consumers has historically been left to program managers. This research contributes to the science of technology transfer: assessing the transferability, uptake and effectiveness of a comprehensive psychological intervention within routine mental health services.

The Illness Management and Recovery Program (IMR) was developed as one of six evidence-based practices in the (US) National Evidence-based Practices Project. The paper reports on the implementation of the IMR in Newcastle, Australia, and outcomes from both Australian and US sites.

Methods: This study comprised a multicenter, international effectiveness study of a comprehensive, evidence-based psychosocial intervention for serious mental illness. The study centers included public mental health facilities in Newcastle and North Carolina. Rigorous fidelity and outcome measures were conducted at baseline, postintervention (9 months) and at follow-up (12 months).

Results: Retention in this comprehensive program was satisfactory (76%). Statistically significant improvements were noted on a range of measures including the BSI, GAF, Coping Skills subscales, Knowledge of Illness, and the Recovery Assessment Scale.

Conclusions: The pilot data support the feasibility of implementing the IMR program in routine mental health settings. The findings suggest that participation in the program is associated with benefits in illness management, progress toward recovery and improved functioning. Individuals completing the IMR program reported significant improvements in hope, coping self-efficacy and distress-related to symptoms.

Constructing longitudinal measures of maternal morbidity using a population health database: is use of the index birth record sufficient to identify obstetric risk factors for schizophrenia?

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Background: Western Australia (WA) has extensive record-linked population health data collections. Midwives' records of WA births during 1980–1992 inclusive were linked and validated by the author to form sibships, which enable longitudinal family studies. Binary indicators of maternal morbidity were created using this database of prospectively collected birth

data. A validated system, using case note reviews, for scoring obstetric complications as risk factors for psychiatric morbidity has been adapted for coding population data. This will be extended to 2001 births and include the mother's clinical history.

Methods: Women who have had only one birth during this period, who had multiple births or who had missing births in their sibship were excluded from analysis. Codes created reflect morbidity in the current pregnancy only, the one immediately prior, any prior pregnancy or, the current or any prior pregnancy.

Results: The database includes records of 472 733 births to 249 119 women with paternal data available for the majority of children. Of these, approximately 90 000 (36%) women were eligible for inclusion. Of the 67 242 eligible women, who delivered during 1980–1992, severe underestimation of maternal conditions, affecting pregnancy, such as thyroid dysfunction, essential hypertension or epilepsy occurred when only index birth records were used.

Conclusions: Using data from the index birth only could underestimate the effects of maternal morbidity, as risk factors for outcomes such as schizophrenia, when compared with analysis of models that use longitudinal binary indicators of current and prior maternal illness.

Altered tripartite synapse function: is this the problem in schizophrenia and bipolar disorder?

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Schizophrenia and bipolar I disorder are serious psychiatric illnesses that affect approximately 4% of the Australian population. Both illnesses are thought to occur in individuals with a genetic predisposition after they encounter as yet unknown detrimental environmental factors. Postmortem central nervous system (CNS) studies have been undertaken to identify the combined impact of these two factors on both cellular and molecular cytoarchitecture. In particular, studies from our laboratories have shown changed levels of the glial-derived proteins apolipoprotein E and D in the cortex of subjects with schizophrenia and bipolar I disorder. In addition, we have shown changes in levels of S100 β , in the dorsolateral prefrontal cortex from subjects with bipolar II disorder. Significantly, it is known that levels of S100 β are known to be potentially regulated by serotonin through the serotonin1A receptor and receptors for apolipoprotein E are localized on neurons. Our data would therefore support the hypothesis that at least part of the pathology of schizophrenia and

bipolar disorder are because of a breakdown in communication between neurons and glia, which occurs most potently at the tripartite synapse. Our published data and recent data from our microarray study have now shown that there is a decrease in the expression of specific apolipoprotein E receptors in the CNS of subjects with schizophrenia, further supporting our hypotheses of altered neuronal glia communication in psychiatric disease and will be summarized in this presentation.

Time course of illness prior to a diagnosis of bipolar disorder or schizoaffective disorder

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Background: Evidence suggests that diagnostic delay from first episode of illness may be many years. Treating illness early in its time course is associated with a better prognosis.

Methods: Participants ($n = 240$) were enrolled in the Bipolar Comprehensive Outcomes Study (BCOS). A questionnaire was devised to collect information about participants from their first onset of symptoms of mental illness to when they received a diagnosis of bipolar disorder or schizoaffective disorder. The questionnaire was administered at interview by BCOS researchers when the participant was euthymic.

Results: Symptoms of mental illness were first experienced at 20.17 ± 10.26 years (mean $\pm$ SD; $n = 207$) and mood swings at 21.19 ± 11.76 years (mean $\pm$ SD; $n = 191$). Symptoms of depression were first experienced at 21.11 ± 9.98 years (mean $\pm$ SD; $n = 195$), a full episode of depression at 23.64 ± 9.76 years (mean $\pm$ SD; $n = 191$), symptoms of mania at 24.24 ± 11.48 years (mean $\pm$ SD; $n = 202$) and a full episode of mania at 26.43 ± 10.41 years (mean $\pm$ SD; $n = 196$). Medical treatment was first sought at 26.26 ± 10.18 years (mean $\pm$ SD; $n = 207$). Participants first received a diagnosis of bipolar disorder or schizoaffective disorder at 31.43 ± 11.34 years (mean $\pm$ SD; $n = 206$). Having had a previous diagnosis other than bipolar disorder or schizoaffective disorder was reported by 116 of 206 participants who answered this question.

Conclusions: Prior to being diagnosed and treated for bipolar disorder or schizoaffective disorder, partici-

pants typically experience a long time course of symptoms, episode and treatments.

A central dilemma in the mental health sector: structural imbalance

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Background: The provision of mental health services is subject to persistent criticism, often with the implication that allocated resources are inadequate. However, the mental health sector is also subject to another dilemma, which we define as a 'structural imbalance' problem.

Methods: The study shows the dimensions of structural imbalance in Australia's mental health sector by recourse to two data sets: the Mental Health and Well-being: Profile of Adults, Australia 1997, published by the ABS; and the National Minimum Data Set – Institutional Mental Health Services published by the AIHW. This study also examines the concept by reference to the Australian Government's COAG mental health initiatives announced in April and state government responses in July 2006.

Results: The two dimensions of the structural imbalance are 1) that some people, with no clinical manifestations of mental illness, consume mental health services and 2) another group of people have clinical manifestations of mental illness but (for various reasons) do not consume mental health services. We show how the situation coexists with various patterns of resource distribution in the public and private health sectors, acute vs. chronic conditions, institutional vs. noninstitutional service provision and private vs. public medical practice.

Conclusions: 'Throwing more money' at the preexisting structures will do nothing to address the structural imbalance problem. Remedies are discussed by reference to the content and processes of reform undertaken in the British National Health Service in recent years.

Anxiety, depression and the HPA axis in human pregnancy: links to postpartum mood

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Background: Most studies investigating maternal mood across the transition from pregnancy to the postnatal period have focused on depression. In contrast,

little is known about patterns of anxiety across this period. This study aimed to 1) assess patterns of anxiety and depression across pregnancy and the postpartum, 2) investigate associations between antenatal mood and HPA axis hormones and 3) determine the extent to which antenatal anxiety, depression and HPA axis activity predict postnatal mood disorders.

Methods: Participants were recruited antenatally as part of a prospective study undertaken at the Royal Hospital for Women, Sydney. Ninety-four women completed self-report measures of anxiety and depression at 30–32 and 36–38 weeks gestation, and at 6 months postpartum. They were also administered a structured diagnostic interview (MINI-Plus) at 36–38 weeks gestation and at 6 months postpartum to determine the presence of DSM-IV anxiety and depression. Blood samples were collected at 30–32 weeks gestation for bioassays of HPA axis hormones (CRH, ACTH and cortisol).

Results: The data indicate significant stability in maternal mood across pregnancy and the postpartum and associations between anxiety and depression were moderate-high at each assessment. Despite the stability of depression, an anxiety disorder in pregnancy appears to be a greater risk factor for a postnatal anxiety [odds ratio (OR) = 10.20, $P < 0.005$] or depressive disorder (OR = 7.90, $P < 0.005$) than antenatal depression. Antenatal neuroendocrine parameters were unrelated to either antenatal or postnatal anxiety or depression.

Conclusion: These results clearly highlight the importance of anxiety in both the pre- and postnatal periods.

Phenotypic correlates of the serotonin transporter gene

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Background: A genetic variation within the promoter region of the serotonin transporter (5-HTT) gene has been found to moderate the effect of stressful life events on onset of major depression (Caspi et al. 2003; Wilhelm et al. 2006). This paper examines for observable characteristics underlying the genetic liability to depression following stressful events associated with differing 5-HTT genotypes within two study samples.

Method: Study 1 – ‘diabetes study’. Commencing in July 2006, patients presenting to a hospital-based diabetes clinic were recruited. Participants provided

data on psychiatric diagnosis, personality traits (NEO) and coping styles (COPE), as well as provided saliva samples for genetic analysis. Study 2 – ‘teachers cohort study’. Between 1978 and 1998, episodes of major depression, life events, coping behaviours and trait anxiety measures (EPQ, TCI) were recorded at 5 yearly intervals. In 2003, blood or saliva samples were collected for genetic analysis.

Results: Associations between the 5-HTT gene and candidate phenotypes (trait anxiety and coping styles) were examined using preliminary data from the diabetes sample (anticipated $n > 100$). For the teachers cohort study, no associations between the 5-HTT genotype and trait anxiety were found for those who provided genetic material ($n = 128$). There were, however, significant differences on the coping behaviours used by differing genotype groups when under stress.

Conclusions: These findings raise the possibility of a genetic disposition to emotional reactivity to stressors that may predispose individuals to use different coping strategies. Replication of these findings will be examined within the diabetes sample.

Clozapine and cardiotoxicity: echocardiography findings from Barwon Health

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Background: Clozapine continues to have a unique efficacy profile that to date has not been matched or enhanced by other second-generation antipsychotics. Although agranulocytosis is a well-documented vulnerability for these patients, other serious risks, such as myocarditis and cardiomyopathy, are less well recognized and there remains a dearth of examination in this area. The current study aims to investigate changes in cardiac functioning in a group of patients treated for the first time with clozapine.

Methods: Transthoracic echocardiograms were conducted on 77 clozapine-naïve patients, prior to commencing clozapine treatment (time 1) and were repeated after 6–12 months (time 2). Patient psychiatric and medication history were documented, as were full white blood count, troponin 1 and creatinine kinase results. The rate of clozapine titration was also recorded.

Results: Preliminary analyses of the data set indicate a decrease in left ventricular shortening, a measure of ventricular contractility, from time 1 (pre clozapine) to time 2. Further analyses will be presented.

Conclusions: Although there appears to be a trend toward a worsening of cardiac function with clozapine treatment, further investigations need to be carried out taking into account confounding factors that are known to be implicated in cardiac dysfunction. Establishing a clearer understanding of the link between the two will help patients and clinicians balance the risk of cardiac problems and improved psychopathology and help to institute cardiac monitoring guidelines for patients treated with clozapine.

Gamma synchrony in first-episode psychosis

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Background: This project will compare gamma synchrony in 55 subjects with recent onset psychosis and 110 age-, sex- and education-matched controls. An auditory oddball and a visual working memory paradigms were used, to explore the hypothesis that disturbed 'binding' in psychosis is not limited to auditory processing.

Methods: The EEG data were analyzed using a measure of phase synchrony, described in detail elsewhere (Haig et al. 2000). There were two important differences in the present work. First, multiple frequencies were assessed, rather than simply 40 Hz. Second, a 512-ms fast Fourier transform window was used to estimate the phases at a given frequency, rather than 256 ms. This provided an improved frequency resolution (~2 Hz), at the expense of temporal resolution. The phase synchrony was estimated for six frequency bands between 35 and 45 Hz at 10-ms intervals.

Results: Multiple analyses of covariance (controlling for age) showed significant excesses of gamma synchrony in the psychosis group for both paradigms with different topographical distribution in each. In general, there were more marked differences in the auditory paradigm, a dominant frontal and left-sided abnormality in both, with elevated synchrony posteriorly in the visual paradigm.

Conclusion: Elevated synchrony in both paradigms supports the potential role of abnormal assembly formation as a generalized mechanism responsible for the production of psychotic symptoms.

Duration of untreated psychosis: the relative contribution of individual vs. community factors

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Background: Although some debate exists in the literature, there is a general consensus that patients with a longer duration of untreated psychosis (DUP) have poorer health outcomes than those treated early. Two recent meta-analyses have established this relationship as being of moderate effect size. Recent research has focused on reducing DUP through either a community approach or a 'at-risk' individuals approach. However, it is not currently established in the literature the relative contributions of individual vs. community factors predicting DUP.

Methods: The present study examined an existing research cohort of 456 Early Psychosis (EP) patients, from 19 mental health teams. The DUP of 326 of these patients had been assessed by the clinician. Multilevel modeling was used to establish the relative contribution of service level variables, and patient level variables.

Results: The initial null model showed that the service level accounted for 0.54% of potentially explainable variance in the total model; this was not significant ($P = 0.36$). The remaining 99.46% of variance was accounted for by the patient level. An exploratory analysis of individual factors showed that item 7 of the HoNOS (Depressed Mood) had a significant positive relationship to DUP ($P = 0.01$), while item 10 (problems with ADLs) had a negative relationship approaching significance ($P = 0.06$).

Conclusions: While other individual predictive relationships need to be tested, this study identifies depression as a candidate risk factor for prolonged DUP. Importantly, this research also highlights the central importance of individual factors over community factors in producing treatment delays.

Multimodal imaging of the mismatch negativity deficit in schizophrenia

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Background: Mismatch negativity (MMN) is an electrophysiological response to novel auditory stimuli. This project examines the developmental time course

of the MMN deficit in schizophrenia and its neurological basis.

Method: EEG and functional magnetic resonance imaging (fMRI) data were obtained from first-episode and chronic patients with schizophrenia, and matched controls. A duration-deviant MMN paradigm was used in which participants heard an unattended random series of tones consisting of standards (92%, 50 ms) and deviants (8%, 100 ms). High-resolution MMNs were obtained as the difference between deviant and standard ERPs. Cortically constrained LORETA current source density analysis was performed using realistic head models.

Results: A reduction in MMN amplitude was seen in younger patients (40 years). This is consistent with our previous findings. Current source density analysis of the early phase of the MMN suggests that the major cortical generator of the MMN lies in the superior temporal gyrus (STG) as expected. The latter phase of the MMN engages more anterior cortical regions including premotor cortex. Patients show reduced activity in STG but increased activity in right premotor cortex. fMRI analysis showed that patients have greater activation in the insula and premotor cortex, whereas controls show greater activation in middle frontal gyrus.

Conclusions: The results are consistent with a deficit that onsets early in the disorder, that is associated with substantially reduced processing within auditory cortex and that leads to different patterns of activation in frontal cortical regions in patients compared with controls.

Investigation of circadian disruption in bipolar disorder

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Background: There is a growing body of evidence implicating circadian disruption as a possible mechanism underlying the pathogenesis of bipolar disorder. The circadian clock is entrained by changes in our external environment and regulates many of our bodies functions, including our sleep-wake cycle, metabolism, thermoregulation and blood pressure. While the measurement of circadian rhythmicity in mice is relatively straight forward through automated recording of home cage activity, the measurement of circadian function/disruption in humans is more difficult and costly, requiring each patient to undergo actigraphy in a sleep laboratory over a period of several days.

Methods: To collect data on a scale sufficient for genetic studies, a more efficient method of monitoring

circadian function in humans is required to determine whether circadian disruption is involved in the primary pathogenesis of bipolar disorder or whether symptomatic sleep disruption is a secondary defect. We are investigating the role of circadian disruption in bipolar disorder, by genetic association, and rhythmic gene expression using immortalized B lymphocytes from a cohort of Australian bipolar families.

Results: Circadian timing in immortalized B lymphocytes is synchronized by serum shock, and circadian gene expression ensues for at least 56 h post synchronization.

Conclusions: Peripheral tissues, including immortalized blood cells, can be used as a cheap and higher throughput method to measure circadian output in humans and will be a useful adjunct to elucidating the molecular mechanisms underlying bipolar disorder.

Silence is golden? Improving cognitive performance in schizophrenia

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Cognitive impairment is a common and disabling symptom of schizophrenia and has adverse effects on functional outcome. Improvement in cognitive function has now been identified as a major target in the treatment of schizophrenia. Cognitive remediation strategies where people with schizophrenia are required to speak aloud while performing learning tasks have shown some success. The present study compared performance on tasks requiring parallel vocalization with task performance when the person did not speak aloud. Results showed selective benefits of verbal strategy on a neuropsychological task requiring multiple executive functions but not on tasks requiring simpler single-component cognitive functions.

Can consent be uninformed? Suggested reform of sexual offences against persons with mental impairment

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In *R v Morgan* (1970), the Supreme Court of Victoria stated that for incapacity to consent to be proved, it must be shown that a person 'has not sufficient knowledge or understanding to comprehend (a) that what is

proposed to be done is the physical fact of penetration of her body by the male organ or, if that is not proved, (b) that the act of penetration proposed is one of sexual connexion as distinct from one of totally different character.' It is my contention that this standard of knowledge is insufficient to allow a person to protect him/herself against the commonly recognized consequences of sexual acts, namely pregnancy and sexually transmitted diseases. Although the literature suggests that increasing the required standard of knowledge to encompass these facts would mean that many persons with mental impairment would be deemed incapable of consent, I argue that consent that is not based on a standard of knowledge sufficient to allow an individual to safeguard their own interests cannot be considered true consent. Law reform is required so that consent to sexual acts more closely resembles the informed consent required for medical treatment.

Cognition and volition: a melancholic condition

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Background: Melancholia, a subtype of depression described as a specifier in DSM-IV, also forms a component of bipolar disorder (BD) and is distinguished from nonmelancholic depression on the basis of additional psychomotor disturbance (PMD). The latter comprises both retardation and agitation; concomitant cognitive disturbances are clinically observable and identified by patients as 'a difficulty in thinking', with lapses in concentration and decision-making impairments.

Methods: A literature review of experimental studies of cognition in melancholia was undertaken alongside a review of literature on bradyphrenia (slowed cognition) within various neuropsychiatric conditions. Particular emphasis was assigned to studies that attempted to distinguish PMD from processing speed on cognitive tasks, in terms of both functional neuroanatomy and relationships with impaired volition. The implications for future studies of cognition in melancholia are carefully critiqued.

Results: There has been relatively little empirical investigation of cognition and volition in melancholia. Studies thus far report partitioning of the neuropsychological profile of depression across melancholic and nonmelancholic subtypes implicating distinct neural

dysfunction within dorsal and ventral prefrontal networks. In comparison, research examining psychomotor retardation and impaired volition has gravitated toward abnormal functioning within basal ganglia and related networks, with the archetypal example of this being Parkinson's disease.

Conclusions: Further empirical examination of cognition in depressive subtypes is required to evaluate the potential contribution of impaired volition to psychomotor retardation and distinct neuropsychological deficits in melancholia. Evidence for a cognitive marker of melancholia may prove useful for refining diagnostic criteria and elucidating functional brain networks that subserve endogeneity.

Childhood risk for obsessive compulsive disorder

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Background: Identifying childhood risk factors for obsessive compulsive disorder (OCD) is essential for improved understanding of its etiology and pathogenesis. Previous research has been largely reliant on retrospective self-report measurement of risk factors. The purpose of the current study was to link early appearing temperamental traits, behaviour, psychiatric symptoms and environmental stressors to the later emergence of OCD.

Methods: Longitudinal data were collected from participants of the Dunedin Multidisciplinary Health and Developmental Study. Study members were assessed from birth to adulthood on various measures of health and behaviour. Childhood temperament, behaviour, psychiatric symptoms and psychosocial stressors were linked with adult diagnostic outcomes.

Results: Preliminary findings suggest that certain types of childhood temperament and behaviour styles were associated with increased risk of developing OCD in adulthood. Childhood symptoms of OCD and childhood abuse were also risk factors for adult OCD diagnosis. Associations between childhood factors and OCD were largely independent of gender or socioeconomic status.

Conclusions: Results of the current study suggests that within-child characteristics and adverse life events play a role in the development of OCD. Findings also underline the need for targeted interventions for children with high-risk temperament or behavioural styles or childhood OCD symptoms.

A closer look at melancholia: saccadic eye movements in melancholic and nonmelancholic depression

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Background: Major depressive disorder may be a heterogeneous disorder; yet, melancholic depression is the most consistently described subtype, regarded as qualitatively different to nonmelancholic depression in terms of cognitive and motor impairments. Eye movement studies in depression are infrequent and findings are inconclusive.

Methods: This study used a battery of saccadic (very fast) eye movements to explore reflexive saccades, as well as higher order cognitive aspects of saccades including inhibitory control and spatial working memory. Nineteen patients with major depressive disorder (9 melancholic, 10 nonmelancholic) and 15 healthy controls participated.

Results: Differences were showed between melancholic and nonmelancholic patients. Melancholia was associated with longer latencies, difficulty increasing peak velocities as target amplitudes increased and hypometric primary saccades during the predictable protocol. In contrast, the nonmelancholic depression group performed similarly to controls on most tasks, but saccadic peak velocity was increased for reflexive saccades at larger amplitudes.

Conclusions: The latency increases, reduced peak velocity and primary saccade hypometria with more severe melancholia may be explained by functional changes in the fronto-striatal-collicular networks, related to dopamine dysfunction. In contrast, the serotonergic system plays a greater role in nonmelancholic symptoms and this may underpin the observed increases in saccadic peak velocity. These findings provide neurophysiological support for functional differences between depression subgroups that are consistent with previous motor and cognitive findings.

Background: This study assessed the effectiveness of computer-assisted cognitive remediation in the treatment of cognitive deficits in people with both recent onset schizophrenia and chronic schizophrenia.

Methods: A randomized wait-list control study was conducted over eight sites using Medalia's Neuropsychological Approach to Remediation (NEAR). All subjects were diagnosed with schizophrenia or schizoaffective disorder and were recruited from a range of community and in-patient facilities. Subjects were randomized between an immediate treatment and a waitlist group, the later being treated after 15 weeks. Subjects were assessed at baseline, after at least 20 sessions of NEAR and 15 weeks after the completion of treatment on measures of symptomatology, function and neurocognition.

Results: Minimal differences were observed between waitlist and immediate treatment groups at baseline. However subjects with chronic schizophrenia were rated significantly higher for positive and total symptoms on the Positive and Negative Syndrome Scale. After treatment, significant improvements were observed for attention, processing speed and a limited range of executive functions. Improvements were accompanied by an improvement in social and occupational functioning particularly for subjects with recent onset disease. There were few changes in levels of symptomatology, self-esteem or quality of life.

Conclusions: This study supports the effectiveness of computer-assisted cognitive remediation in both recent onset and chronic schizophrenia in treating the cognitive deficits of schizophrenia. This appeared to have a social and occupational impact for young people with recent onset disease.

Atypical antipsychotic use in Australian patients: cross-sectional study of uptake and perceived benefit

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Background: Atypical antipsychotics are not as widely used in Australian public mental health as expected from evidence of their efficacy and treatment guidelines recommendations. We assessed the reasons for this from the perspectives of patients, their carers and clinicians.

Methods: A random sample of people with a diagnosis of schizophrenia attending four public mental

Cognitive remediation in first-episode and chronic schizophrenia

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health clinics in Melbourne ($n = 83$), their carers ($n = 60$) and their clinicians ($n = 66$) completed a questionnaire on the effectiveness, acceptability and side-effects of current, previous and early antipsychotic medicine. Medicine use was determined from clinical records.

Results: Patients were predominantly single middle-aged women. A significant shift over time toward atypical medicine use had occurred: 66% were currently taking atypicals; compared with early medicines, current medicines were three times more likely to be atypical (odds ratio: 2.95, 95% confidence interval: 1.48–5.88). Major discrepancies were noted in reports of medicines used between patients, carers, clinicians and clinical notes. Doctors made 61% of all recommendations for changes in previous medicines. There were few significant differences in perceived effectiveness, satisfaction and side-effects when comparing types of medicine. Health-related quality of life was associated with reported side-effects, but not with current medicine type.

Conclusions: There is a mutual lack of information and understanding about antipsychotic medicines between patients, their carers and clinicians. Greater reinforcement of provisions and incentives for collaborative treatment planning may be beneficial. Further studies of the uptake of atypical antipsychotics and their benefits should be conducted in real-world settings.

A comparison of the implementation of assertive community treatment in Melbourne and London

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Background: Differences in implementation of assertive community treatment (ACT) could explain variability in reported effectiveness.

Methods: The Pan London Assertive Outreach (PLAO) studies examined ACT implementation and effectiveness amongst 24 London teams (Wright et al. 2003; Billings et al. 2003; Priebe et al. 2003). The current study gathered data on team organization, staff and client characteristics from four Melbourne ACT teams using identical participant sampling and data collection methods to the PLAO studies (except client characteristics were collected from Melbourne team staff rather than case notes).

Results: Melbourne teams were significantly different from London cluster C teams so comparisons were with cluster A and B teams only. All Melbourne teams worked extended hours; they took greater responsibility for dealing with crises than the London teams. Three of the four Melbourne teams achieved a majority (>70%) of client contacts *in vivo* compared with only one third of the London teams. There were no significant differences between Melbourne and London teams regarding staff satisfaction and burnout. Client sociodemographic characteristics were very similar. Three quarters of all clients in both countries were admitted in the preceding 2 years but half the bed days were used in Melbourne.

Conclusions: An important difference in the implementation of ACT between Melbourne and London could be home visiting, a postulated 'active component' of models of home-based treatment. Melbourne teams may be more proactive in admitting patients at an earlier stage of relapse.

The impact of the introduction of an acute sedation practice guideline

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Method: A retrospective audit of patients admitted to the Alfred Psychiatry in-patient facility from 1 October 2004 to 31 January 2006. Patient demographics, in-patient length of stay and medication usage data were extracted from the patient's medical record. High-dependency unit (HDU) length of stay was also calculated. Information regarding Code Blues, Medical Emergency Team calls, Code Greys, staff and patient incidents, and patient seclusion were also collected.

Results: There were a total of 1563 admissions to Alfred Psychiatry in-patient units during the total study period. Of these admissions, 614 included treatment in the HDU, and 313 of these HDU admissions were available for collection. Staff injuries decreased significantly from 18 in the preimplementation period to 6 in the postimplementation period ($P = 0.02$), while patient falls also decreased significantly from 17 to 1 ($P = 0.0003$), and patient-on-patient assaults decreased significantly from nine to zero ($P = 0.007$). The number and length of seclusions trended up but not significantly ($P = 0.07$). The use of midazolam trended down, which was clinically, but not statistically, significant. There was also a significant increase in the mean total dose of oral olanzapine used as a when-required medication from 7.2 to 22.2 mg ($P = 0.003$).

Conclusions: The introduction of acute sedation practice guidelines in the Alfred in-patient psychiatry service improved staff safety by decreasing the number of staff injuries and improved patient outcomes by decreasing the number of patient falls and patient-on-patient assaults.

Wagging the black dog: predicting depression severity using neuropsychological measures

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Background: Depression poses an enormous burden on both the individual and the community. However, relatively little is known about the mechanisms that underpin the disorder. Core neuropsychological domains include memory, executive, sensorimotor, attention and verbal functions. However, the conceptualization of depression usually involves the implementation of discrete variables. We decided to integrate these core neuropsychological domains to predict depression severity.

Methods: Fifty patients clinically diagnosed with major depressive disorder and 200 age- and sex-matched controls undertook a neuropsychological test battery. A regression analysis was carried out to predict depression severity, as indexed by scores on the Hamilton Rating Scale for Depression-17 and Depression, Anxiety and Stress Scales.

Results: Preliminary regression analyses show that an integration of neuropsychological indexes from the core domains predicted depression severity. Statistically significant interactions between these variables also predicted depression severity.

Conclusions: We showed that integrating theoretically relevant neuropsychological variables such as sensorimotor and verbal functions provided valuable insight into the understanding and prediction of depression severity. These findings offer insight into the endophenotypic nature of major depressive disorder. Future studies could implement similar methodology for the prediction of treatment response in depression.

The mental health and well-being of rural people: a pilot study measuring community factors

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Background: This study was a pilot for an NHMRC-funded project examining mental health and well-being among 4000 rural households in New South Wales.

Aim: To investigate relationships between novel indexes detailing perceived features of the rural community and psychological distress.

Methods: A survey was mailed to 2000 adults (aged 18 years or older) randomly selected through the electoral roll from four local government areas of varying remoteness. Perceived community support (infrastructure and support networks) and community attachment were measured using items from a 'Community Participation Survey' and 'Feelings about Living in the Community' (Higginbotham et al. 2005). Postulated rural stressors included drought impact and access to health care. Psychological distress was measured using the Kessler-10.

Results: The sample ($n = 449$; response rate 24%) was slightly overrepresented by women (58%) and older age groups (mean 51 years ± 15) and 29% were farmers/farmworkers. Moderate to very high psychological distress ($K10 > 15$) was reported in 23% of the sample. 'Worry/stress' from the drought was reported by 57% of respondents. Psychological distress also correlated with 'worry/stress' from rural stressors. In a hierarchical regression analysis, neuroticism, perceived health, number of stressful life events and perceived community support and attachment explained 52% of the variance in psychological distress.

Conclusions: This pilot study has highlighted an association between perceived features of the rural community and mental health, which will be explored in greater detail in our ongoing research investigating determinants of mental health and well-being within rural communities.

Adolescent alcohol use and mobile phone experience sampling in a clinical setting: an innovative, youth friendly approach to research

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Background: Adolescent alcohol use is a continuing problem probably influenced by many motivational factors. Capturing the daily experiences of young people may increase understanding of these factors and momentary sampling provides a possible means to do so. The aim of this study was to develop a mobile phone momentary sampling program to monitor the daily experiences of young people who drink alcohol at high-risk levels and track their moods, stresses and activities across each day. A concurrent aim was to pilot the program in a clinical setting.

Methods: An electronic diary (ED) run on mobile phones was trailed with eight young people recruited from a youth health clinic that regularly drank alcohol. The ED assessed alcohol use, mood, stresses and activities. Participants were asked to complete the ED four times each day for 1 week and provide feedback about the diary's effectiveness and ease of use.

Results: Drinking alcohol was associated with cooking/eating and study/homework. While drinking, participants were mostly alone (33.3%) or with their partner (33.3%) and drank to relax (33.3%) or feel good (16.7%). Participants generally had low negative mood while drinking and drank from 0 to 5 times a week.

Conclusions: After some setbacks, the ED was successfully implemented in a clinical setting. Responses to the diary provided a rich variety of information including information on mood, stresses, activities, alcohol and marijuana use. Participants' feedback on how they found the diary was also useful and provided good suggestions on how to improve the diary for further studies.

The SHADE Project: self-help for alcohol/other drug use and depression

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Background: The co-occurrence of depression and alcohol/other drug misuse is more common than expected by chance alone. Despite this, an effective program of treatment is yet to be established for people experiencing this comorbidity. This is a concern, given rates of depression and alcohol misuse are on the increase.

Aim: This paper will report on the posttreatment alcohol/other drug- and depression-related outcomes of the SHADE project, a large-scale, multisite study of computerized psychological treatment.

Methods: SHADE participants were those with current levels of depression and current problematic use of alcohol, cannabis or amphetamines. Following an initial assessment, participants received one face-to-face case formulation session with a therapist and were subsequently randomized to receive nine sessions of SHADE therapy through a therapist, nine sessions of SHADE therapy through a computer or nine sessions of person-centered (supportive) counseling. Follow-up occurred at posttreatment, 6- and 12-month follow-up.

Results: Posttreatment results will be reported for the 250 participants recruited to the study in rural/remote and urban NSW.

Conclusions: Computerized treatment is not meant as a stand-alone therapy. The results from this study suggest that computer-based interventions can produce important gains for people with depression and alcohol/other drug use comorbidity. Further implications will be discussed.

Mental health first aid standards for self-harm

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Background: Mental disorders are highly prevalent, but many people do not seek help for them. We aim to develop mental health first aid standards for a number of mental disorders and related crises. Deliberate, non-suicidal self-injury is becoming more common, particularly among young people. Little is known about how to prevent repetition or support someone who is deliberately harming him/herself.

Methods: The methodology of this study is the 'Delphi method', a technique for determining consensus. Initially, we searched for claims and suggestions about how to help someone who engages in deliberate self-harm. Searching the medical literature, carer's manuals, memoirs, pamphlets and Web sites, very little was found. Round 1 of this study instead asked people to write in their own words what might be the right thing to do. Questions have been generated from these written answers. Respondents are clinicians or researchers, carers and consumers from Australia, New Zealand, Canada, the UK and the United States.

Results: The majority of the participants felt that 'stopping someone' from injuring him/herself is counterproductive. The two emphases are on dealing medically with any serious injuries and allowing the person space to talk about his/her distressing feelings.

Conclusions: These standards will be used in Mental Health First Aid training and will be widely available to members of the public who are concerned about a family member or friend who is engaging in self-injury.

Vocational rehabilitation in first-episode psychosis: results of the first Australian randomized controlled trial of individual placement and support

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Background: Surveys consistently show that the top priority of people with mental illness is participation in the open labor market. Despite this finding, the employment outcome for people with psychotic illnesses is not good. At the onset of illness, unemployment rates of 40%–50% are commonly found. For those who develop schizophrenia, unemployment rises to 70%–95%. These figures are troubling to consumers, clinicians and politicians. Individual Placement and Support (IPS) is a vocational intervention, which has been developed and trailed successfully in populations with chronic serious mental illness in America. To date, there has been no published randomized trial of IPS in early mental illness. This study aimed to examine the efficacy of IPS in a randomized controlled trial with people with first-episode psychosis.

Methods: Clients of EPPIC at ORYGEN in Melbourne who wished to find work were randomized to treatment as usual (TAU) ($n = 20$) or TAU + IPS ($n = 20$). The IPS condition involved working with an employment consultant who was integrated with the mental health team.

Results: Results to be presented will show that clients in the IPS group achieved greater employment outcomes than those in the TAU-only group. Other results will be presented examining symptomatic and functioning factors.

Conclusions: There is an increasing recognition that the rehabilitation of people with mental illness needs to take into account functional as well as symptomatic domains. Although there are structural obstacles making this more difficult, the current project shows what is possible with minimal extra resources.

Diagnosing mild cognitive impairment – a data-driven approach

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Background: There has been increasing research interest in the concept of mild cognitive impairment (MCI) as a prodrome to Alzheimer's disease and other dementias. Several diagnostic schemas have been proposed with a central feature being the presence of cognitive impairment in one or more domains. But how should cognitive impairment be determined? Which tests, how many and what cut-offs should be used? The current study uses a data-driven approach to determine patterns of healthy cognitive functioning and impairment in a community sample of older adults.

Methods: Four hundred adults aged 70–90 years completed a comprehensive neuropsychological assessment as part of the Memory and Ageing Study, Sydney.

Results: Prevalence of cognitive impairment across the domains of memory, language, psychomotor speed, visuospatial and frontal-executive functions varied considerably when different sources of normative data, demographic corrections, cut-scores and clusters of tests were applied.

Conclusions: MCI is a very difficult construct to define at an individual and group level. This study provides much needed normative neuropsychological data in an Australian older adult sample. Longitudinal data will inform us about the most sensitive and specific neuropsychological profile that will predict those who progress to dementia.

The effects of adjunctive estradiol on cognitive performance in women with schizophrenia

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Background: Development of pharmacological strategies for improving cognitive impairment has recently become a key issue in the treatment of schizophrenia. The steroid hormone estrogen is hypothesized to be protective for women with schizophrenia and has been found to exert positive effects on specific cognitive domains in healthy postmenopausal women. We have previously reported a significant improvement in psychopathology ratings associated with adjunctive estrogen treatment. We additionally investigated the effects of adjunctive estrogen treatment on cognitive function in women with schizophrenia.

Methods: Fifty women of childbearing age with schizophrenia or schizoaffective disorder received 100 µg/day transdermal estradiol or placebo for 4 weeks, under double-blind conditions. The cognitive battery, assessing attention, verbal fluency, memory and executive function, was administered at baseline and at 4 weeks. Hormone assays were collected, and psychopathology was measured weekly.

Results: Results indicated no significant changes in cognition following 4 weeks of adjunctive estrogen treatment. While baseline endogenous estrogen levels were also not significantly related to cognitive function, there was a correlation found between LH and a measure of information processing.

Conclusions: Short-term estrogen treatment as an adjunct to antipsychotics does not significantly alter cognitive functioning, despite significant improvements in psychopathology ratings. It may be that estrogen treatment has selective effects on psychopathology;

however, further exploration of this area is needed before definitive conclusions can be drawn.

Tamoxifen – a potential treatment for women in the manic phase of bipolar affective disorder?

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Background: Bipolar affective disorder (BPAD) is an illness with high morbidity and mortality. Lithium and other anticonvulsant drugs are the main treatments for BPAD, despite little being known about their mechanisms of action. Recent attempts to elucidate the biochemical actions of these drugs have focused on the protein kinase C (PKC) pathways. Another PKC inhibitor hypothesized to be effective in the treatment of mania is tamoxifen, a synthetic nonsteroidal antiestrogen. The aim of the current study was to test and compare the effectiveness of two adjunctive antiestrogen agents (tamoxifen or progesterone) in the treatment of acute mania.

Methods: A 28-day, three-arm (40 mg/day oral tamoxifen or 20 mg/day oral progesterone or oral placebo), double-blind, placebo-controlled, adjunctive study of 34 women with mania was conducted. All patients also received a mood stabilizer as the baseline treatment. Manic symptoms and psychopathology were measured weekly using the CARS-M and Positive and Negative Syndrome Scale rating scales together with estrogen, progesterone and gonadotropin levels. Cognitive functioning (RBANS) was assessed in a subsample of five participants at baseline and repeated on day 28.

Results: Results indicated a decline in the symptoms of mania and psychopathology in the tamoxifen group, and to a lesser extent in the progesterone and control groups. The tamoxifen group also had significant changes in estrogen levels, as well as correlations between estrogen and mania ratings.

Conclusion: The results suggest that tamoxifen may be a useful adjunct in the treatment of acute manic symptoms in women with BPAD.

The use of selective estrogen receptor modulators in the treatment of menopausal women with schizophrenia

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Background: Estrogen modulates rat brain dopamine and serotonin systems in a way that mimics atypical antipsychotics. Our work indicates that adjunctive estrogen is a useful treatment in women of childbearing age with schizophrenia. We studied the use of a selective estrogen receptor modulator (SERM) in menopausal women with schizophrenia.

Aim: To test and compare the effects of adjunctive use of an SERM (raloxifene) and standard hormone therapy (HT) on psychotic symptoms in menopausal women with schizophrenia. To examine the effect of an SERM and HT on cognition in menopausal women with schizophrenia.

Method: A double-blind, 3-month, placebo-controlled, adjunctive study of raloxifene (60 mg/day) vs. HT (2 mg estradiol plus 10 mg dihydroprogesterone) vs. placebo was conducted. Participants received standardized doses of risperidone (or equivalent doses of similar antipsychotic medication). Psychopathology was measured fortnightly using the Positive and Negative Syndrome Scale rating scale. Cognitive testing and sex hormone assays were conducted monthly.

Results: Data collected from 23 participants indicated that while SERM or HT adjuncts did not result in an improvement in psychotic symptoms when compared with risperidone alone, the use of adjunctive SERM resulted in improved cognitive performance on working and verbal memory tasks when compared with the HT or risperidone alone.

Conclusions: The use of adjunctive SERM at 60 mg/day may induce a mild increase in cognitive performance in menopausal women with schizophrenia. Yaffe et al. (2005) show that 120 mg/day raloxifene was more effective in improving cognition in healthy postmenopausal women. We are undertaking a new study with this increased dose of raloxifene.

The estrogen 100

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Aim: To compare the efficacy of adjunctive transdermal estradiol with adjunctive placebo in the treatment of acute psychotic symptoms in 100 women with schizophrenia.

Background: Estrogen has been shown in animal studies to have dopamine downregulation effects and has also been shown to impact the serotonergic system. Additionally, there are clinical case reports of women whose schizophrenic symptomatology is exacerbated at low estrogen phases of the menstrual cycle. Similarly, there are clinical case reports of women with

chronic schizophrenia improving during pregnancy when estrogen levels are extremely high.

Methods: A double-blind, 28-day, placebo-controlled, adjunctive study was conducted comprising two groups of women of childbearing age. While one group of women received 100 mcg transdermal estradiol, the other group received transdermal placebo. The differences in psychopathology between the two groups were subsequently compared. Hormone, psychopathology and cognitive assessments were performed routinely throughout the 4-week trial period.

Results: Using the Positive and Negative Syndrome Scale (PANSS) rating scale, it was noted that women receiving 100 mcg estradiol improved significantly more in terms of their psychotic symptoms compared with women receiving placebo. Importantly, women who received estradiol improved with regard to positive, negative and general symptoms on the PANSS, in contrast to women on the placebo arm.

Conclusions: Estradiol appears to be a useful treatment for women with schizophrenia. We are furthering this exciting area of research by conducting a multisite 'proof-of-concept' study to determine whether estradiol can be used as an adjunctive treatment of psychotic symptoms in women with schizophrenia.

Using theories of delusion formation to explain abnormal thinking in patients with body dysmorphic disorder

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Background: Body dysmorphic disorder (BDD) is characterized by an overvalued or delusional belief of 'imagined ugliness'. According to the literature, delusional beliefs have been explained by four alternative theories, which include faulty perceptions, theory of mind deficits, reasoning abnormalities and corruption of semantic memory. The current study examined whether these potential explanations are relevant to delusion formation in BDD.

Method: Preliminary data from 10 BDD patients and 10 matched healthy controls were analyzed. The clinical assessment involved questionnaires measuring self-esteem, self-ambivalence, delusional thinking and creative experiences. The cognitive test battery included visual affect perception, semantic memory for somatic concepts, cognitive inhibition associated with somatic and nonsomatic words, and language fluency.

Results: The results confirmed previous findings that patients with BDD are more delusional but additionally showed that delusional beliefs are exceedingly

distressing and preoccupying for these patients. Similarly, on a semantic memory task, patients with BDD showed greater acceptance of unusual ideas especially with regard to somatic compared with neutral information. On the fluency task, patients with BDD showed impaired semantic fluency but intact phonological fluency. Furthermore, patients with BDD were impaired in recognizing angry facial expressions, with no deficits on identifying other emotions.

Conclusions: These results have indicated the influence of delusional thinking on cognitive processing in BDD. They have suggested that delusional beliefs may be explained in terms of impaired semantic memory and faulty perception of angry information; these deficits in turn may explain the specificity of preoccupations in BDD.

One-year estimate of depot antipsychotic adherence and readmission in Victorian community mental health settings

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Background: This study aimed to 1) to establish the actual or 'found' depot adherence rate in typical community psychiatric settings, 2) to describe the sociodemographic associations with depot adherence and 3) to investigate the relationship between the degree of depot adherence and admission rate to hospital.

Methods: Patients treated with depot antipsychotics were sampled from CCT settings in two AMHSs in urban Melbourne. Depot adherence was defined as patients receiving their injection ± 7 days from the due injection date. Sociodemographic data were acquired from relevant administrative databases.

Results: The study finds that there is a high mean adherence rate (93%) and the rate of complete adherence is 54%. Patients' adherence was not related to gender, being subject to a CTO, being of NESB, long durations of illness or time on depot treatment. Twenty-eight per cent were admitted in the study year and admission was significantly inversely proportional to depot adherence. The risks of readmission increase significantly when patients are less than 85% adherent, having a relative risk of readmission of 2.63, and for those with less than 75% adherence, a relative risk of 4.32 ($P < 0.01$).

Conclusions: To our knowledge, this is the first study to report on the FDAR in community-treated patients.

The finding that below 85% adherence, readmission is significantly more likely suggests that there may be a role for carefully and progressively monitoring depot adherence in community services. Reduction in relapses from enhanced adherence will have clinical, social and economic benefits.

The metabolic syndrome in patients with a prolonged psychotic illness within a community setting: age and gender issues

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Background: To measure the prevalence of the metabolic syndrome among patients with a prolonged psychotic illness being treated within a community setting and to examine gender- and age-stratified trends.

Methods: The study sample consisted of patients receiving treatment in the midwest or northwest mental health regions of Melbourne, Australia, between February 2003 and February 2004. Of the 206 patients aged 18 years and over who were approached, 106 consented to participate, yielding a response rate of 52.7%. Participants were assessed for the presence of metabolic syndrome using the Adult Treatment Panel Guidelines-III).

Results: Prevalence of the metabolic syndrome among patients within this population was 39.4% (an alternate method of determining the denominator, indicates a rate of ~50%). Patients with the metabolic syndrome had a higher body mass index (31.73 vs. 28.82, $P < 0.01$) and increased triglyceride levels (3.49 vs. 1.70, $P < 0.01$) compared with patients without this syndrome. Men with the metabolic syndrome had lower mean high-density lipoprotein cholesterol levels (0.95 vs. 1.24, $P < 0.01$) compared with men without this syndrome. In general, there were distinct gender patterns of abnormality in the metabolic components, and age stratification shows increased relative risks in the young as contrasted with the older patients.

Conclusions: The prevalence of the metabolic syndrome is high among people with a prolonged psychotic illness. Health professionals treating people within this population need to be monitoring their patients' physical health as well as looking after their mental well-being.

Stability of antipsychotic prescribing: description and relationship to readmission

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Background: As showed by the CATIE study, antipsychotic prescribing/switching stability appears to be less than robust. Little is known of longitudinal stability in other treatment cultures. This paper presents Australian data to outline trends in routine clinical practice of CCT-treated patients.

Methods: A cohort abstracted from our large database is described. Prescribing stability and readmission were examined in patients with schizophrenia treated with antipsychotic monotherapy at T1 and T2 (18 months panel data). Of the 817 patients, 302 were on monotherapy at both times.

Results: A matrix of prescribing/switching stability indicating the rate of persistence on one medicine and, if switched, to what antipsychotic will be presented. Eighteen-month monotherapy persistence rates were as follows: clozapine 81.3%, olanzapine 71.0%, FGA depots 65.3%, risperidone 51.4% and FGA orals 34.0%. Numerically, the largest switching traffic occurred from depot to olanzapine and vice versa. Readmission, only 13.4% were readmitted. Being on a depot at T1 was 2.33 times more likely than being on an oral to result in admission in the study period ($P = 0.004$). If clozapine is excluded, there is no difference between depots and SGAs (RR 1.62, $P > 0.05$). Overall readmission was 2.15 times more likely to occur in those in whom antipsychotic switching occurs (direction of causality undetermined).

Conclusions: Stability is somewhat higher in Australia than reported for the United States. However, the general comparative trends in terms of the various antipsychotics are supported. Clozapine and olanzapine appear to have particularly stable use.

Psychostimulant withdrawal: natural history and options for intervention

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Background: Psychostimulant withdrawal is still not well understood. Much of the limited literature has been in the cocaine area and very little with methamphetamine. In particular, the natural history of withdrawal from psychostimulants is not well documented

and an understanding of withdrawal and its natural history is rarely considered from the user's perspective.

Aims/Methods: This presentation will outline the results of a study of 150 dependent psychostimulants users and their experiences of withdrawal treatment and of withdrawal. A detailed retrospective natural history was documented using a structured and semistructured interview format.

Identification of a bipolar disorder susceptibility locus on chromosome 15Q

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Background: Bipolar affective disorder (BP) is a relatively common, severe mood disorder characterized by periods of mania and depression, with estimates of lifetime prevalence up to 4%.

Method: We conducted a 10-cM genome scan on 35 multigenerational pedigrees with 288 genotyped individuals (130 affected according to a broad disease definition). Subsequent fine mapping was conducted on the region with significant linkage results and was assessed using parametric, nonparametric and multipoint linkage analysis methods, as well as haplotype analysis based on pedigree-specific, identical-by-descent allele sharing.

Results: The genome scan identified significant linkage on chromosome 15q25-26 and suggestive evidence on chromosomes 4q, 6q and 13q. Analysis of the 15q25-26 region, including additionally typed chromosome 15q markers, gave significant results with a maximum two-point LOD score of 3.38 and a multipoint LOD score of 4.58 for marker D15S130. A maximum NPL score of 3.38 ($P = 0.0008$) was obtained at 107.16 cM near D15S130. The 95% confidence interval estimation suggested a support interval spanning 17 cM between the markers D15S979 and D15S816. Haplotype analysis supported the 95% confidence interval estimates.

Conclusions: The significant and supporting results from a number of analysis methods performed on chromosome 15q25-26 provide evidence for a BP susceptibility locus in this region. It is further supported by linkage findings from studies on recurrent early-onset major depressive disorder, BP with psychotic features, and a study of schizophrenic and BP subjects, suggesting that the locus might contain a gene conferring susceptibility to both mood and psychotic disorders.

A blinded, placebo-controlled randomized trial of low-dose risperidone, intensive psychological treatment and befriending in young people at risk of psychotic disorder: baseline characteristics of the sample

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Background: Intervention during the prodromal phase of psychotic disorder has become an important focus of early intervention research.

Method: The PACE Clinic, ORYGEN Youth Health, has been conducting a blinded randomized controlled trial (RCT) comparing the effectiveness of low-dose risperidone (0.5–2.0 mg/day) and intensive CBT-based psychological treatment vs. placebo and intensive CBT-based psychological treatment vs. placebo and a control psychological treatment (befriending). The trial consists of a 12-month treatment phase, followed by a 12-month follow-up phase. The primary outcome of interest is the proportion of patients meeting onset of psychosis criteria during the treatment and follow-up phases.

Results: The current presentation will describe baseline characteristics of the sample. About 119 participants (mean age = 18.36 years, men = 41.2%) meeting ultrahigh-risk criteria for psychotic disorder were randomized to the three treatment groups. Baseline characteristics will be compared between 1) the three treatment groups and 2) the treatment groups and a monitoring group ($n = 83$, mean age = 18.45 years, men = 41%), who received 'treatment as usual'.

Conclusion: Pending.

The defensive function of persecutory delusions: an investigation using the Implicit Association Test

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Background: Delusions are first-rank symptoms of schizophrenia. Of all delusional themes, delusions of persecution are the most commonly observed clinically and the most vigorously researched empirically. Bentall et al. claim that persecutory delusions are constructed defensively, for the maintenance of self-esteem. A central prediction of their model is that

paranoid individuals will show normal or high self-esteem on overt measures, whereas covert measures will show hidden feelings of low self-esteem.

Methods: The present study used a new methodology that has been widely used in investigations of implicit attitudes, the Implicit Association Test (IAT), to assess covert self-esteem and to test the above prediction. Overt self-esteem was assessed using the Rosenberg Self-Esteem Scale and an adjective self-relevance ratings measure. These measures were administered to 10 patients with acute persecutory delusions, 10 patients with persecutory delusions in remission and 19 matched healthy control participants.

Results: Patients with acute persecutory delusions were found to have lower covert self-esteem (as assessed using the IAT) than healthy controls and patients with remitted persecutory delusions. On the two measures of overt self-esteem, however, the persecutory deluded group did not differ significantly from the other groups once the effects of comorbid depression had been taken into account.

Conclusions: The results of the present study are consistent with a model of persecutory delusions as serving a defensive function. As such, they are consistent with a psychotherapeutic approach to what are perhaps the most frequently observed symptoms of schizophrenia.

Impaired psychosocial functioning in bipolar disorder: the relative contributions of inter-episodic symptoms and illness episodes

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Background: This study examines the relationship between the presence of inter-episodic symptomatology, the frequency of depressed and (hypo)manic episodes, and impairment across eight different domains of functioning.

Method: Patients ($n = 217$) attending a tertiary referral center for the assessment of bipolar disorder, who met DSM-IV criteria for BP I or BP II disorder, were included in the analysis. Data were collected on 10 common inter-episodic symptoms reflecting both mood and anxiety, and the frequency of depressive and (hypo)manic episodes. Impairment in the following functional domains was also determined: occupation, financial affairs, self-care, housekeeping, intimate and nonintimate relationships, and parenting. Logistic regression analyses were conducted to examine the

number of inter-episodic symptoms reported and the frequency of frank bipolar disorder episodes as predictors of impairment in eight domains of psychosocial functioning.

Results: Psychosocial functional impairment and inter-episodic symptoms were highly prevalent in the sample. The number of inter-episodic symptoms was significantly associated with relationship impairment and employment status, while the frequency of (hypo)manic episodes was associated with impairment in housekeeping and parenting roles. There was no apparent relationship between frequency of depressive episodes and functional capacity.

Conclusions: Both the 'dosage' of inter-episodic (sub-syndromal) symptoms and the frequency of (hypo)manic episodes appear to be significant and independent determinants of psychosocial functioning. It is possible that certain aspects of bipolar disorder have a greater impact on some functional domains. Possible methodological reasons for the failure to show a relationship with the frequency of depressive episodes are discussed.

A factor analytic study in bipolar depression, and response to lamotrigine

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Background: This study aimed to identify and compare factors of a 31-item version of the HDRS (HDRS-31) in large samples of patients with bipolar and unipolar depression, then examine for any responsiveness of such factors to the anticonvulsant agent lamotrigine in the bipolar depressed sample.

Methods: This multivariate analytical study was performed on two large depressed samples (one bipolar and the other unipolar) that had been recruited for separate double-blind placebo-controlled trials of lamotrigine. Both studies had very similar designs and assessment tools, the major measures being the MADRS and HDRS-31. To identify the constructs underlying the scale, exploratory factor analyses were applied to the HDRS-31. Treatment responsiveness in the bipolar depressed sample – as indicated by improvement in the total MADRS and HDRS-31, as well as any HDRS factors – was examined using both a mixed-effects analysis and individual time-point t -tests.

Results: Seven factors of the HDRS-31 were identified: I – 'depressive cognitions', II – 'psychomotor retardation', III – 'insomnia', IV – 'hypersomnia',

V – ‘appetite and weight change’, VI – ‘anxiety’ and VII – ‘anergia’. A significant therapeutic effect of lamotrigine in bipolar depression was found using the ‘depressive cognitions’ factor (from week 3) and ‘psychomotor retardation’ (from week 4).

Conclusions: This study has identified seven factors of the HDRS in a large sample of patients with bipolar depression. It suggests that the major effect of lamotrigine in bipolar depression is primarily upon central depressive cognitions and psychomotor disturbance.

Evaluation of MoodGYM with an adolescent population

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Background: MoodGYM is an interactive web-based program designed to prevent and decrease symptoms of anxiety and depression. Based on cognitive behaviour therapy, the MoodGYM program aims to change dysfunctional thoughts and improve problem solving, relaxation and interpersonal skills. Although much research has been conducted on the effectiveness of MoodGYM with an adult population, with very positive results, little research has been conducted on the adolescent and young adult population for which the program was designed. The current study therefore aims to evaluate the effectiveness of the MoodGYM program in reducing adolescents’ symptoms of anxiety and depression.

Methods: Twenty-nine schools from across Australia were involved in the current study, with 1450 students aged 13–17 years consenting to participate. Each school was randomly assigned to the experimental or control group based on their location (city or rural) and funding (government or private). All participating students completed the first self-report questionnaire the week before students in the experimental condition began the MoodGYM program. The MoodGYM program was delivered to students over a 5-week period. All participating students completed a second and third self-report questionnaire 1 and 6 months after the completion of the MoodGYM program.

Results: The current paper will present preliminary results from the first two questionnaires. Pre- and post-test comparisons will be made for the measures of anxiety and depression.

Conclusion: Findings from the current study will help to inform schools about the usefulness of a self-guided approach to learning about mental health using the Internet.

Visual field semantic priming and relationship with thought disorder

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Background: The semantic priming technique can be used to explore language deficits in individuals with thought disorder. Research suggests that thought disorder may reflect a difficulty in inhibition or an increase in spreading activation in one or both of the hemispheres in response to language-based information. Currently, little research has been done in this area and the research that is available is methodologically flawed.

Methods: A lateralized version of a semantic priming task was used to examine the role of each hemisphere in processing language and to examine how the two hemispheres synchronize information. As in standard semantic priming task, reaction times to related and unrelated word pairs were contrasted. Novelly, to this experiment, word pairs were presented solely to the left (LL) or right (RR) visual field, or across visual fields; left-right (LR) or right-left (RL). Participants included 21 healthy controls and 42 participants with a diagnosis of schizophrenia (21 with thought disorder, 21 without). Repeated-measure ANOVAs were used to compare stimulus type (related vs. unrelated), visual field (LL, RR, LR, RL) and group.

Results: Preliminary analyses suggest that there are significant differences in priming across visual fields between healthy controls and participants with schizophrenia. There were no significant differences between the two psychiatric groups.

Conclusions: These data suggest that participants with schizophrenia have difficulty when performing a task where the two hemispheres must synchronize information. However, this pattern this does not seem to be causal for thought disorder.

When things are not as they seem: detecting first-episode psychosis upon referral to ultrahigh-risk (‘prodromal’) clinics

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Background: There are two main targets for intervention during the prodromal phase: 1) current symptoms, behaviour or disability and 2) prevention of onset of frank psychotic disorder. The current presentation examines a ‘third’ function of ‘ultrahigh-risk’ (UHR)

clinics: to detect first-episode psychosis (FEP) mistakenly identified as a prodrome.

Methods: A clinical audit was conducted of referrals to a UHR service, the Personal Assessment and Crisis Evaluation (PACE) clinic, over a 12-month period (April 2005 to March 2006) to establish the proportion who were psychotic on referral.

Results: The PACE clinic received 149 referrals over the period examined. About 11.4% of the total number of referrals and 12.6% of those who attended a first appointment were psychotic on referral.

Conclusions: These figures indicate that a substantial proportion of individuals thought to be prodromal are in fact suffering FEP. It is suggested that by detecting these individuals and commencing treatment, UHR clinics minimize duration of untreated psychosis for patients with FEP mistaken as prodromal.

Obsessive compulsive disorder: time to decide on a new model?

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Background: Obsessive compulsive disorder (OCD) is a chronic and debilitating disorder characterized by chronic doubt and indecision; yet, decision making as a cognitive construct has received little attention in either the neuropsychological or the neuroimaging studies of OCD. Indeed, the neuropsychological profile of OCD remains poorly defined and further investigations are needed. To date, most studies have been exploratory in nature and not based on theoretical frameworks.

Methods: A selective review of memory and executive functioning in OCD was conducted using the MEDLINE database, with particular focus on decision making. In addition, the neurobiology of both OCD and decision making was reviewed.

Results: OCD, although once believed to be a disorder of memory, is now viewed primarily as a disorder of executive functioning, a view which is strongly supported by findings in neuroimaging. Decision making, although little studied, is emerging as a potential area of dysfunction that warrants further investigation.

Conclusions: Given the incapacity that results from chronic doubt and indecision in the clinical population, it is surprising that decision making has not received greater consideration in conceptualizing this disorder. We posit a tentative model of OCD that provides a unique perspective of OCD within a decision-making framework. To examine the utility of this model, we propose a multimodal study incorporating functional

neuroimaging and neuropsychological assessment in an attempt to dissect the individual stages of decision making in OCD. Understanding the neuroanatomical substrates will lead to the development of new physical and psychological treatments.

They never forget: recall of traumatic memories of Vietnam

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Background: The establishment of a diagnosis of post-traumatic stress disorder (PTSD) requires first that the person has actually experienced a traumatic event. The second wave of the Australian Vietnam Veterans Health Study allowed us to observe the consistency of reports of war trauma 30 or more years after the trauma and 15 years after their initial recounting.

Methods: Interviews were conducted in 2005–2006 with a cohort of randomly selected Australian Army Vietnam veterans who were first assessed using standardized PTSD diagnostic assessments during 1991–1993. A standardized scale was used on both occasions to measure war trauma exposure and to act as a cue to eliciting recalled and reported events that would qualify under the DSM 'A' criterion. One or more distressing events were elicited and transcribed for a qualitative analysis of the war stories offered in 2005–2006 and 1991–1993.

Results: Time 1 to time 2 correlations between each of the 21 items in the combat scale were highly positive, as was the total. The factor structures of the two administrations were very similar, as were item-total correlations and Cronbach's α . Qualitative analysis of stories showed that almost identical stories were told on the two occasions when nominating the 'worst' events of Vietnam. However, some of the details emerged over several hours of interviewing, which indicates that veterans may not be as open to disclosing their war histories in short encounters.

Conclusion: Soldiers' memory for war-related trauma is very stable, even 40 years after war's end.

The prevalence of PTSD in Australian Vietnam Veterans 35 years after war's end: preliminary results of a cohort study

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Background: The long-term psychiatric sequelae of war service have not been assessed for Australian veterans in a cohort study.

Methods: An epidemiologic cohort study was conducted with a randomly selected sample of 1000 Australian Army Vietnam veterans who were first assessed in 1991–1993 and again in 2005–2006 using standardized psychiatric assessment instruments (SCID and Mississippi in 1991–1993 and CAPS and Composite International Diagnostic Interview in 2005–2006). Personal interviews were conducted across Australia.

Results: The lifetime prevalence of post-traumatic stress disorder (PTSD) had moved from approximately 20% in 1991–1993 to more than 50% in 2005–2006, with smaller prevalence of current (1 month) PTSD. This was often accompanied by long-term use of psychoactive medications, while use of clinical PTSD programmes was also helpful. The course of PTSD was found to be variable: for some, symptoms were evident soon after return, for others, later life events acted as triggers for more recent coping breakdown. Alcohol overuse remains veterans' biggest problem.

Conclusion: PTSD is a chronic condition that is clearly evident in former soldiers and whose life course is variable.

Identifying affective markers of ADHD and comorbid Conduct Disorder

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Objective: Conduct disorder (CD) encompasses children and adolescents who show extreme antisocial behaviour and is commonly allied with attention deficit hyperactivity disorder (ADHD). This study focuses on the markers of facial emotion recognition, which discriminate ADHD from combined ADHD and CD, as well as healthy controls.

Method: Children and adolescents with ADHD, with and without comorbid CD, were tested on the standardized Brain Resource International Database protocols and were compared with a group of matched healthy controls. Testing included a forced-choice facial emotion recognition task, from which response accuracy and reaction time were recorded.

Results: ADHD (with and without comorbid CD) was distinguished from healthy controls by poorer recognition of negative facial expressions and a quicker reaction time to correctly identify angry facial expressions. However, ADHD alone was distinguished from both the healthy control and the combined ADHD and CD groups by poorer recognition of positive facial expressions and

a longer response reaction time those that were correctly identified. Notably, the combined ADHD and CD group was not differentiated from healthy controls by either accuracy or reaction time to positive facial expressions.

Conclusions: ADHD with combined CD comprises a diagnostic group with emotion-related cognitive deficits that are distinct from those showed in ADHD alone and indicate a difference in the causal mechanisms underlying social cognition and emotion recognition deficits between these groups. This difference underscores the relevance of taking comorbidity into account in addressing both emotional awareness and social and peer relationship difficulties in ADHD.

Do religious beliefs help us cope with traumatic experiences?

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Background: It is widely assumed that holding spiritual beliefs offers individuals comfort and support in times of difficulty. It might be expected then that individuals who feel that religion is important to them and offers them strength and comfort would report being less affected after having been exposed to a potentially life-threatening trauma.

Methods: From 1999 to 2002, 7485 residents in Canberra and surrounds were interviewed for the PATH Through Life Project, a longitudinal survey being conducted by the Centre for Mental Health Research. Participants, drawn from three age groups, were reinterviewed from 2003 to 2006. Questions asked in both interviews covered sociodemographic, physical and mental health measures, and personality attributes. In both interviews, participants were also asked about their attendance at religious services, their position concerning religion and the extent to which religion was a source of strength and comfort to them.

In January 2003 before commencement of wave 2 interviews, a major bushfire hit the Canberra region. When reinterviewed, participants were asked about their level of exposure to the fire and the extent to which they experienced symptoms of post-traumatic stress. About 89.6% of wave 1 participants took part in wave 2, and of these, 6596 (88.1%) answered questions concerning bushfire exposure.

Results: The analyses examined whether individuals with strong religious beliefs experienced lower levels of post-traumatic stress after the fires, compared with their less religious counterparts. Associations between these factors were found to vary across the life span and were strongest for participants in midlife.

Modelling pre-trauma resilience and vulnerability factors for PTSD

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Background: Research identifying vulnerability and resilience factors that may affect an individual's likelihood of developing post-traumatic stress disorder (PTSD) is hampered by the dearth of information on those who are resilient and, although exposed to the trauma, remain unaffected by it.

Methods: Such a study eventuated in Canberra where the Centre for Mental Health Research is conducting a longitudinal study of over 7000 participants from three age groups. Reinterviewed participants were asked about their level of exposure and reaction to this trauma and their fire-related PTSD symptoms. Information on a range of sociodemographic, health and personality measures was collected both before and after the trauma.

Results: Almost 80% of Wave 2 respondents were exposed to the fire, while around 2000 reported having experienced fire-related PTSD symptoms in the week prior to their interview. Structural equation modeling of pre-trauma risk and resilience factors associated with PTSD symptoms was undertaken. When level of exposure and immediate reaction to the fire were taken into account, pre-trauma resilience measures had the greatest impact on PTSD symptoms. Those with higher levels of resilience were significantly less likely to report PTSD symptoms.

Conclusion: These findings indicate that reducing risk of PTSD by increasing individuals' levels of resilience in the face of specific traumas has the potential to be an effective strategy to limit the negative psychological impact of trauma exposure.

Clozapine invokes the EGF system to activate ERK: a novel target in treatment resistant schizophrenia?

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Background: The atypical antipsychotic drug clozapine is superior to all other drugs in treatment of refractory schizophrenia. This is likely to involve clozapine-inducing long-term neuronal adaptations contingent on drug-receptor activation of intracellular signaling to affect gene transcription. One candidate intracellular signaling pathway is the mitogen-activated protein kinase-extracellular signal-regulated kinase (ERK)

cascade. This pathway regulates synaptic proliferation and plasticity, processes impaired in schizophrenia. We have previously reported that although clozapine and haloperidol acutely inhibited ERK activation in cortical neurons, only clozapine stimulated ERK with continued treatment. However, this stimulation was not through the canonical dopamine D2-Gi/o-PKA or the serotonin 5HT2A-Gq-phospholipase C-linked signaling pathways. Thus, we examined alternative signaling pathways that clozapine could mobilize to activate ERK including growth factor receptor systems.

Methods: Clozapine-induced phosphorylation of ERK1/2 in the absence or presence of growth factor receptor-specific inhibitors was measured in primary murine cortical cultures by Western immunoblotting. Results were normalized against vehicle and total ERK1 and 2 levels.

Results: The epidermal growth factor (EGF) receptor inhibitor, AG1478, caused significant dose-dependent inhibition of pERK1 (IC₅₀ 0.083 μ M) and pERK2 (IC₅₀ 0.106 μ M) in the presence of clozapine, whereas the platelet-derived growth factor receptor inhibitor, tyrphostin, A9 did not.

Conclusions: This is the first evidence that the effects of clozapine may involve a neuronal signaling system previously not linked to antipsychotic drug action. This presents a novel series of targets for exploration in the development of new therapeutics and insights into the pathology of schizophrenia.

The prevalence of depression in the North West Adelaide Health Study

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Background: The North West Adelaide Health Study is a population-based biomedical cohort study investigating the prevalence of chronic conditions and health-related risk factors. This study is based on a randomly selected group of individuals over the age of 18, who agreed to be involved in a longitudinal health study.

Methods: Over the past 18 months, 3488 participants were assessed. General demographic and socioeconomic data were collected. Participants were assessed for the presence of a number of chronic conditions including major depression. The presence of depression was assessed using the Center for Epidemiological Studies Depression Scale-D. A score of 16 or higher indicated mild depression. A score of 27 or higher was rated as moderate to severe depression.

Results: Of the 3488 participants, 12.5% (436/3488) met criteria for depression. Of the population, 8.9% had a mild depression and 3.9% met criteria for a moderate to severe depression. Depression was statistically significantly higher among women, adults living alone, those separated or divorced, and those unemployed, working part, casually employed or a student. Individuals with a degree or higher level of education, and those earning above \$40 000 were significantly less likely to have depression.

Conclusions: The demographics for those with depression are consistent with previously published studies of depression in the community. However, the rates of depression were higher than that seen in other South Australian, Australian and international studies. The possible reasons for this will be discussed.

Use of the web in the self-management of bipolar disorder

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Background: Poor treatment adherence in people with bipolar disorder is common, and 40% relapse within a year. Education and support assist sufferers to self-manage their condition and reduce hospitalizations, but the challenge lies in providing them in a convenient, private and nonstigmatizing manner.

Computer-based programs are acceptable to patients and efficacious, but debate exists about whether additional support is needed to maximize effects. This paper reports a study evaluating a web-based education program for people with bipolar disorder.

Methods: Developed at the Black Dog Institute by health professionals, community representatives and consumers, the Bipolar Education Program aims to help individuals and their families better understand the condition, recognize early warning signs, reduce triggers, develop self-management skills and enhance treatment compliance. Modules involve audiovisual presentations, questions and answers, advice from well-known people with bipolar disorder and printouts.

A randomized controlled trial (RCT) is being conducted, comparing three versions of the program (on its own, with email support from an informed person, with informed support plus assistance to implement a 'stay-well' plan) to minimal online education. Measures are being taken at pre-, post-, 3 and 6 months follow-up of clinical and psychosocial outcomes, and costs.

Results: Since its May 2006 launch, the Web site has recorded approximately 2000 visits per month. About 75% of first-time visitors have been women, 55%

aged 31–50, 44% with bipolar disorder (predominantly ≤ 12 months since diagnosis), 28% carers/family/friends and 18% health professionals. The RCT is about to commence, data from which will be presented at the conference.

Keeping Care Complete: results from the first international schizophrenia and bipolar disorder family caregivers survey

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Background: The international shift toward community care and the deinstitutionalization of people with mental illness has seen much of the responsibility for day-to-day care transferred to family members. This responsibility can be associated with profound psychosocial, physical and financial impact. Keeping Care Complete is the first large, international survey of carers of people with schizophrenia or bipolar disorder.

Method: About 100 Australian carers were enrolled in an eight-country survey of 982 carers of people with schizophrenia or bipolar disorder. Participants were asked a series of questions regarding treatment, treatment discontinuation, relapse, satisfaction with treatment and carer burden. This was done by means of a 30-min telephone interview.

Results: Australian carers are much involved in their family member's treatment: 80% of those surveyed reported being the primary carer, 42% spent more than 20 h/week caring for their relative and 19% were responsible for administering medications. For 97% of carers, family support was the key factor, as well as medication, for keeping their family member well and 70% of the participants were frustrated by the low expectations for long-term improvement set by health care professionals.

Conclusion: This survey provides significant insights into the experiences of carers of people with mental illness and helps quantify the impact of this responsibility on carers in terms of their physical, mental and financial well-being.

A randomized controlled trial to assess the efficacy of omega-3 fatty acids as a treatment for depression during the perinatal period

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Background: Epidemiological studies assessing rates of postnatal depression in relation to levels of fish consumption and reduced levels of omega-3 in the perinatal period indicate a possible link between lowered long-chain omega-3 fatty acids and perinatal depression.

Aim: To assess whether omega-3 fatty acid treatment is superior to placebo in the treatment of perinatal depression.

Methods: In a double-blind, randomized, placebo-controlled treatment trial, we recruited women from third trimester to 6 months postpartum with a diagnosis of major depression. Treatment was for 6 weeks with either 6 g of fish oil or placebo. Weekly follow-up was carried out by a psychiatrist and depression rating scales recorded. Fatty acid analysis was conducted on blood samples collected at baseline and posttreatment trial.

Results: There was significant improvement in depression scores for the treatment group during the trial. However, a repeated-measures ANOVA showed no statistically significant difference between treatment and placebo groups using intention-to-treat analysis. Trend for efficacy differentiation were noted when nonresponders and rapid remitters were excluded.

Conclusions: These results are likely to be affected by a strong placebo response, which is a common problem in clinical trials for the treatment of depression. Further study is needed in this area because treatment options are limited for perinatal depression.

Understanding how young people cope with distress: the development of a mobile phone momentary sampling program (Mobile_TYPE)

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Background: Young people report that they typically respond to distress by talking to their friends, thinking and distracting themselves. By using retrospective questionnaires, research has examined what young people say but not what they actually do when distressed and what the impact of these responses are prospectively. The aim of this study was to design a mobile phone momentary sampling program that prospectively tracks the everyday mood, stresses and coping strategies of young people as they happen.

Design: A momentary sampling program was designed and translated into java-based language for mobile phones. The program ran for 7 days, administering four random samples per day. Participants were

prompted to report current activity, companions, mood, response to low mood, recent stressful experiences, and alcohol and cannabis use. The program was reviewed by 11 high school students in focus groups, and 18 students completed 7 days of mobile monitoring.

Results: Engagement with the Mobile_TYPE program was high with a majority of students (82%) completing at least 75% of the entries. The most common responses to feeling distressed were do nothing (14.6%), eating (11.4%), sleeping (10.8%) and studying (7.5%). About 88% of active responses to distress lead to a later report of feeling good or better. The responses associated with a later report of not feeling better were worrying, doing nothing, crying, relaxing, eating, studying, pretending to be okay and shopping.

Conclusion: The Mobile_TYPE program captured a range of detailed and interesting qualitative, quantitative and prospective data about young people's everyday mood, stresses, responses and general functioning.

Using ketamine to model thought disorder in schizophrenia

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Background: Ketamine is used acutely as a model of schizophrenia. It has been suggested that chronic ketamine use may also mimic aspects of this disorder, in particular cognitive function. Semantic processing deficits are considered to be central to cognitive impairments in schizophrenia and are related to thought disorder. This study aimed to characterize semantic impairments following both acute and chronic ketamine.

Methods: We examined the acute effects of ketamine using a double-blind, placebo-controlled, independent groups design with 48 volunteers examining the effects of two doses of ketamine (100 ng/ml and 200 ng/ml). The chronic effects of ketamine were explored with 32 volunteers, 16 regular ketamine users and 16 matched polydrug controls. Semantic processing was examined using a lexical-decision semantic priming task with a frequency (high and low) and stimulus onset asynchrony (SOA; short – 200 ms, long – 750 ms) manipulation. Schizophrenic and dissociative symptoms were also examined.

Results: Acute ketamine produced a dose-dependent reduction in priming (hypopriming) and increased schizophrenic thought disorder. Ketamine users showed impaired priming for low-frequency words at the long SOA compared with polydrug controls, and there was some evidence of increased priming for high-frequency words. Ketamine users did not differ

from controls in schizophrenic-like or dissociative symptoms.

Discussion: The dose-dependent hypopriming effect at the long SOA induced by acute ketamine was indicative of controlled processing impairments. In ketamine users, there was also an indication of controlled processing impairments and a suggestion that long-term ketamine abuse results in damage to the semantic store.

Behavioural and fMRI evidence of semantic category deficits in schizophrenia

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Background: Abnormalities in semantic processing are commonly proposed to be central to cognitive abnormalities and thought disturbances in schizophrenia. Deficits have been reported on a range of tasks including a categorization task. The current study investigated the underlying neural substrates involved during categorization.

Method: A revised version of Chen et al.'s (1994) categorization task was used. The task consisted of 18 categories with five different exemplar words (ie high frequency, low frequency, borderline, related but outside category and unrelated) selected for each category. Subjects were asked to say whether exemplars were or were not part of the category. Data for each exemplar type were examined; this included behavioural accuracy and an event-related analysis of the functional magnetic resonance imaging data using SPM2.

Results: Behaviourally, patients with schizophrenia had difficulty categorizing related words, while the controls had most difficulty with borderline examples. Performance in the controls was related to activity in the left inferior frontal, left inferior occipital/posterior temporal, bilateral precuneus and the cerebellum; areas typically reported during semantic processing. Even when behavioural performance on some of the category types was no different to control performance, the patients with schizophrenia did not show any activation of this network.

Conclusions: The imaging data showed impairments in the distributed frontal temporal network that is engaged in the representation and processing of meaning of words, text and discourse. It is these abnormalities that may underlie schizophrenic thought disturbance.

Jumping to conclusions in delusions: fact or fallacy?

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Background: A jumping-to-conclusions (JTC) bias refers to the gathering of minimal data when making probabilistic judgments and has been associated with delusion formation. Approximately 50% of patients who experience delusions have previously been shown to have a JTC bias. However, the literature is fraught with methodological differences. This study sought to address one of these differences by examining state and trait delusions using large groups of patients with psychosis.

Methods: Three matched groups (patients with bipolar disorder, patients with schizophrenia and healthy controls) completed the standard beads probabilistic reasoning task and two emotional variants, which examined reasoning using personality and health traits. For each of the three tasks, two probability ratios were used, 85:15 and 60:40. JTC was defined, using the Institute of Psychiatry, London, criteria, as requiring two or less draws. Patients were divided into those with state and trait delusions.

Results: On the beads 85:15 task, only 4% of patients with schizophrenia and 0% of patients with bipolar disorder showed a JTC bias. The emotional variants produced a similar degree of JTC bias. The 60:40 ratio resulted in an even smaller proportion of JTC. There were no state-trait differences.

Discussion: Two groups of Australian patients with psychosis (schizophrenia and bipolar disorder) did not show a JTC bias. The authors discuss possible explanations for the discrepancy of these findings with the literature. These include the following: are Australians more indecisive or cautious, how state and trait delusions influence performance, and methodological problems with the task itself.

Building and evaluating effective mental health networks in rural communities

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Background: Rural communities suffer significant disadvantage in accessing mental health services. Conversely, these communities may have greater capacity

to develop and maintain networks of nontraditional service providers to compensate for this lack of access; however, many agencies are unaware of each others' roles in maintaining the health of the community. A novel method of building and evaluating mental health service networks was trailed in rural New South Wales.

Methods: Workshops providing education and support for agencies involved in providing services to rural communities were held in 12 locations. Participants' knowledge of mental health issues and the role of other support agencies, and their confidence in using this knowledge, were evaluated by pre- and postworkshop surveys. A new method of evaluating existing network strength and efficacy, using structured key informant interviews and network analysis methods, was trailed in several locations. Local service networks were re-evaluated following the workshops to determine the extent, direction and determinants of network change.

Results: About 96 workshop participants completed pre- and postworkshop surveys. Significant improvements in knowledge, confidence and social distance were found. Local referral networks were successfully mapped and changes in local communities following the workshops were evaluated.

Conclusions: Existing networks of service providers in rural communities have substantial capacity to act in nontraditional ways to improve the mental health of those communities. A relatively simple intervention, combined with ongoing support from local health agencies, can increase this capacity and the strength and efficiency of networks.

A taxometric exploration of alcohol and cannabis problems in a community sample

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Background: There is growing evidence that problems associated with substance use disorders (eg dependence and abuse) are most appropriately conceptualized using one or more continuous dimensions rather than as categorical 'yes/no' entities. Taxometric analysis is a statistical technique specifically designed to test this assertion.

Method: DSM-IV symptoms associated with the use of alcohol and cannabis dependence and abuse were subjected to a taxometric analysis using data from a large epidemiological survey of mental disorders in the general population.

Results: Alcohol use problems were best explained by a latent, continuous dimension ranging from mild to

severe, while problems associated with using cannabis were best explained by a latent discrete category.

Conclusions: These findings have implications for the way that substance use problems are measured and classified and show specificity with regard to the type of substance under investigation.

Diagnosing mild cognitive impairment: the problem with subjective complaints

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Subjective cognitive complaints (SCCs) are common in older adults with up to 88% of people aged over 85 years complaining of memory problems. The concept of SCCs is ill defined even though they comprise the first of Petersen's diagnostic criteria for mild cognitive impairment (MCI). There is little agreement on how to operationalize SCCs – is it sufficient to simply ask 'have you noticed problems with your memory or thinking?' Nonmemory cognitive complaints have been relatively ignored. The criterion is sensitive but not specific because SCCs are so common. Evidence suggests that SCCs correlate poorly with objective cognitive impairments. It is therefore important to examine the most useful way to define SCCs and whether they contribute significantly to the diagnosis of MCI. We are currently conducting a community study of memory and aging, during which each participant completes three different measures of SCC – two focused on memory and one that covers other cognitive domains. We present data from 300 participants aged 70–90, 35% of whom have cognitive impairment on neuropsychological testing. Cognitive impairment was defined as a result 1.5 SDs or more below normal for age. Cognitive complaints were common in our group – with each measure of SCC being affirmed by up to 66% of participants. We confirmed a lack of correlation between SCCs and objective cognitive impairment. No one measure of SCC was shown to be more accurate at predicting objective impairment than another. In conclusion, we question whether it is appropriate to preserve SCC as a diagnostic criterion for MCI.

Collective trauma: the case for a multilevel social-ecological perspective

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Background: Complex emergencies that follow war and natural disasters have an impact on not only the

individual but also on the family, community and society. Just as the mental health effects on the individual psyche can result in nonpathological distress as well as a variety of psychiatric disorders, massive and widespread trauma and loss can impact on family and social processes as well as the collective unconscious causing changes at the family, community and societal levels.

Methods: This ecological study used qualitative methods of Participatory Action Research in Cambodia and Northern Sri Lanka, while involved in community mental health programmes among the Tamil and Khmer communities. Participant observation, key informant interviews and focus group discussion with community relief and rehabilitation workers and officials were used.

Results: Fundamental changes in the functioning of the family and the community included the dynamics of single-headed families, lack of trust among members, and changes in significant relationships (mother-child), and childrearing practices. Communities were more dependent, passive, silent, without leadership, mistrustful and suspicious. Additional adverse effects included the breakdown in traditional structures, institutions and familiar ways of life, and deterioration in social norms and ethics. On the positive side, the study observed the emergence of community organizations, enhanced female role and leadership, and a decrease in suicide rates.

Conclusions: Exposure to conflict, war and disaster impact on family and community dynamics resulting in changes at a collective level. Relief, rehabilitation and development programmes will need to use integrated multilevel approaches.

Multilevel modeling of rural mental health

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Background: The lack of consistent findings regarding comparisons of mental health between rural and urban areas has been attributed in part to methodological shortcomings, including poor conceptualization of rurality. The influence of social environment context (community, family and individual factors) on mental health may be addressed through multilevel modeling. A rural mental health database was developed to address the diversity of rural communities and included data on health, lifestyle, social capital, climate patterns, agricultural activity and primary industry.

Aim: The study sought to investigate the association between mental health, health behaviours and social context in rural communities.

Method: Items from the NSW Health Survey were used, initially across the 37 Divisions of General Practice in New South Wales. The response variable of the percentage of people who had high or very high psychological distress, as measured by the K10, was regressed against social capital items (such as attending community events), health accessibility item (difficulties in accessing health care) and measures of rurality (remoteness, population density and changes in population structure over time).

Results and Conclusions: Associations between psychological distress and measures of health service accessibility, social capital, lifestyle and rural population changes will be reported. Analyses will be extended in a multilevel framework to include important agricultural, meteorological and environmental stress indicators, to assess the effects of drought on psychological distress. This analysis will be conducted using the 176 local government areas in New South Wales and will allow more detailed analysis to examine any heterogeneous effects in rural New South Wales.

Prevalence of mental disorders in the elderly: the Australian National Mental Health and Well-being Survey

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Background: We describe 1- and 12 month prevalence of mental disorders, demographic correlates and impact on service utilization and disability in individuals 65 years of age and over in the Australian National Mental Health and Well-being Survey (NMHWS)

Methods: A noninstitutionalized national probability sample of elderly Australian residents was interviewed as part of NMHWS. The prevalence of ICD-10 and DSM-IV mental disorders was estimated from the Composite International Diagnostic Interview and other screening instruments.

Results: Of 1792 elderly NMHWS respondents, 13% reported symptoms consistent with a mental disorder in the past month, and 16% reported symptoms consistent with a mental disorder in the past 12 months. Women experienced higher rates of affective disorders and generalized anxiety disorder and had lower rates of substance abuse compared with men. Increasing age was associated with less likelihood of having

symptoms of any mental disorder. Older age and never having been married were associated with less likelihood of having symptoms of an affective disorder. Those with cognitive impairment were more likely to have had symptoms consistent with an affective disorder. Comorbidity was predictive of increasing disability on the SF-12 but rates of mental health consultation were low, even for those with multiple disorders.

Conclusions: Community-dwelling elderly Australians experience substantial rates of mental disorders. Demographic correlates of mental disorder in this elderly population appear to differ from those established in younger populations. Mental disorder in elderly Australians is associated with significant disability, but rates of specialist mental health consultation is low.

Innovative ways of treating comorbid diabetes type II and depression: piloting the 'MADE-IT' program

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Background: Both diabetes and depression are considered 'chronic' conditions and affect an increasing number of people each year. The pilot phase of an innovative eight-session treatment program using an integrated CBT and diabetes education model was undertaken, prior to commencing a larger randomized controlled trial.

Methods: Participants with diabetes type II were recruited from two specialist diabetes clinics in New South Wales. Screening was conducted for depressive symptoms (BDI-II), Problem Areas in Diabetes (PAID) Scale, psychological distress (K10) and quality of life. Those with scores >15 on BDI-II were invited to participate. Participants were evaluated on physical and psychological measures pre/posttreatment, and tracked each 2 weeks on BDI-II, PAID Scale and fasting BGL's. Data were analyzed using matched paired *t*-tests. Qualitative information on the acceptability of the program was gathered.

Results: Thirteen subjects (7 men/6 women) aged 36–69 years attended sessions once a week for 8 weeks. Significant postintervention improvement was detected in depressive symptoms ($P \leq 0.001$), improved diabetes knowledge ($P = 0.008$) reported number of PAID ($P = 0.029$) and psychological distress scores ($P = 0.001$).

Conclusions: The 'MADE-IT' program marries evidence-based interventions for depression and diabetes

and looks at the connections between the disorders. The program uses a small group context and has a standardized leader's manual and participant handbook to assist enhance treatment fidelity. While outcomes are positive, the sample is small and no control comparison was included. Further evaluation of the program will be undertaken with a multisite randomized controlled trial in the near future.

Complex mental activity and risk for dementia

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Background: This paper will review our work in the area linking complex mental activity and dementia risk, focusing on epidemiological evidence and potential underlying mechanisms based upon *in vivo* metabolic and structural neuroimaging.

Methods: A quantitative parametric meta-analysis of cognitive dementia studies. Mechanistic studies include a longitudinal study of cognition and magnetic resonance imaging volumetry as well as a randomized control trial of a memory training intervention with pre- and postmagnetic resonance spectroscopy of the medial temporal, frontal and occipital lobe.

Results: Meta-analysis of 22 cohort studies showed a significant reduction in risk for dementia incidence based on history of high complex mental activity (odds ratio: 0.54, confidence interval: 0.49–0.59). Longitudinal analysis found that a history of complex mental activity was significantly associated with a slower rate of hippocampal atrophy over 3 years after controlling for relevant confounders ($P < 0.01$). Furthermore, differential rates of hippocampal atrophy accounted for the different rates of cognitive decline in the high- and low-mental-activity groups. Systematized memory exercise selectivity increased phosphocreatine-creatine signal in the medial temporal lobe over our 5-week intervention.

Conclusions: There is compelling epidemiological evidence that complex mental activity is associated with a lower risk for dementia and cognitive decline. We have found that part of this association may be mediated by differential hippocampal atrophy. This link was further supported by finding selectively increased phosphocreatine-creatine in the medial temporal lobe as a consequence of focused memory exercises, particularly because upregulation of this high-energy buffer system has a neuroprotective effect in mouse models of neurodegeneration.

Degeneration vs. degeneracy: a neural systems approach to functional reorganization

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Background: The term functional reorganization has been used to describe a number of dynamic neural processes related to changes in brain-behaviour connectivity. These include process efficiency, such that localized metabolic work decreases with expertise; process redundancy, whereby subtly different neural networks are able to resolve a given computational problem; and degeneracy, in which novel brain-behaviour relationships can be expressed in response to lesion or challenge. These processes are argued to reside within the framework of a type of ‘neural Darwinism’: dynamic brain-behaviour relations are in a constant state of competition for the most effective resolution of a given computational task, with selection pressure at the level of metabolic economy.

Methods: Exemplars of process efficiency, redundancy and degeneracy will be presented from a functional neuroimaging study of working memory and association learning processes in both healthy older subjects and those with mild cognitive impairment.

Results: Individuals with either no neurological deficit or incipient Alzheimer’s disease (as indicated by medial temporal lobe atrophy) show a large degree of variance in response to increasingly difficult working memory tasks, as assessed by a multivariate analysis of brain-behaviour correlations.

Conclusions: The principles of efficiency, redundancy and degeneracy are applicable to the functional response to any static or progressive brain lesion. Novel approaches to describing and quantifying these processes may therefore improve our understanding of the clinicopathological disconnect observed in a number of clinical areas, in particular neurodegeneration.

Modeling risk from conception to disease: issues in the design of a population health database for psychiatric research

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Background: In Western Australia, mental health register data are linked to other state-wide health registers.

A population-based study of children born in Western Australia, 1980–2001, to mothers with schizophrenia or affective psychosis and mothers with no psychiatric illness aimed to examine genetic and environmental risk factors for schizophrenia. Longitudinal linked data were used to analyze health patterns and associations of these children.

Methods: The linked data were of such diverse types, it was difficult to retrieve data for analysis based on the relationships between individuals. A data model was required to manage this complexity. We describe the database design and issues in its construction and the adaptation of a validated system, which uses case note reviews for scoring obstetric complications as risk factors for psychiatric morbidity, for use with electronic registers.

Results: The database includes 472 733 births to 249 119 women, with paternal data available for most children. The data model design views all records as related to a person with one or potentially many ‘events’ recorded across health registers over the study period, and linked by a unique identifier. It allows for consideration of families from an intergenerational perspective. We can easily extract information such as the number of siblings in the database, family sizes, intervals between siblings’ births, illnesses within families and changes of residences between siblings’ births.

Conclusion: A data model has been implemented that permits intergenerational gene-environment analysis and expansion to include new data and validation of event records across datasets.

Integrating vocational services into Australian community mental health services

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Integrating vocational services into community mental health teams is now recognized as an evidence-based practice in psychiatric vocational rehabilitation. This presentation will summarize the evidence supporting service integration and outline progress at several Australian demonstration sites. This is proving to be a challenging enterprise because of organizational cultural differences, and structural and systemic barriers. Nevertheless, the results obtained to date indicate that integration is not only feasible, but necessary, given the potential benefits and low additional costs once an integrated approach is established.

Risk factors for physical inactivity across the adult life span: the impact of depression

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Aim: To determine the relative importance of sociodemographic characteristics, physical health and psychosocial functioning as correlates with physical inactivity across adulthood.

Methods: Data were collected from a population-based study of 7485 participants in three cohorts aged 20–24, 40–44 and 60–64 years. The prevalence of physical inactivity was determined for each age group. Data were gathered on potential risk factors for physical inactivity from sociodemographic, health and psychosocial functioning domains, with the aim of determining whether psychosocial functioning, especially depression, was an important correlate of physical inactivity after accounting for sociodemographic and health variables.

Results: The rates of physical inactivity increased with age, with 42.5% of younger and 53.8% of older adults classified as physically inactive. The importance of various correlates of physical inactivity differed across adulthood, with chronic physical conditions such as diabetes [odds ratio (OR) = 1.52, $P < 0.05$] and health behaviours such as current smoking (OR = 1.75, $P < 0.001$) being the strongest correlates for older adults. For younger and middle-aged adults, sociodemographic variables such as being unemployed ($P < 0.05$) and fewer years of education ($P < 0.001$) were correlates of physical inactivity. In terms of psychosocial functioning, depression ($P < 0.01$) remained a significant correlate of inactivity across all age groups, even after accounting for sociodemographic and health variables.

Conclusion: Depression is an important correlate of physical inactivity across the adult life span even after considering sociodemographic factors, health and lifestyle behaviours, and physical health.

Factors influencing the decision to learn 5-HTT genotype results and subsequent impact on the individual

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Background: We reported an association between the 5-HTT gene and onset of MDD following exposure to adverse life events in a longitudinal cohort of post-graduate teacher trainees (Wilhelm et al. 2006). Many cohort members expressed interest in learning of their genotype results. With permission from the UNSW HREC, cohort members were given the opportunity to learn of their results and we investigated the reasons members did or did not want to know their results and how they received the knowledge.

Method: The 128 members who had genetic testing were sent measures prior to receiving their results covering: attitudes, perceived benefits and limitations to genetic testing; causal attributions to and perceived risk of depression onset; information needs and positive and negative affect. Follow up questionnaires were conducted at 2-week and 3-month follow up.

Results and Conclusions: Of the 116 responding members, 82 (71%) indicated that they wanted their results, 22 (19%) declined but agreed to complete the follow up questionnaires and 12 did not wish to participate. More members expected to have the s/s genotype than was the case. There were no differences in rates of lifetime MDD diagnosis, but receivers had a later onset, fewer episodes, higher mean neuroticism scores and there was a trend towards more family MD history. All were glad to have received their genetic results and the perceived risk to depression fell across all genotype groups, with the greatest reduction for those with the s/s genotype. Implications for research and the general community will be discussed.

Understanding altered neural synchrony in first-episode schizophrenia

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Background: First-episode schizophrenia (FES) is characterized by psychotic symptoms as well as profound difficulties in cognition and emotion. Our integrative neuroscience model of FES highlights the lack of coordinated neural synchrony underlying these features. The objective was to identify the cognitive, affective and neural synchrony markers that best differentiate FES from healthy controls, and the combination of markers that predict functional outcome.

Methods: We tested 56 FES (within 3 months of service contact) and 112 matched healthy controls as part of the Brain Resource International Database. Testing

included a detailed medical history, psychometric testing, a battery of cognitive tests and EEG recordings in response to cognitive and emotion-related tasks. A new measure of neural synchrony was used to quantify phase synchrony within EEG bands, focusing on gamma.

Results: FES was defined by marked impairments in social functioning and perceived quality of life, related to severity of negative symptoms. This clinical profile was associated with similarly marked deficits on cognitive measures of executive function, working memory and emotion perception. In terms of neural synchrony, a pattern of 'hypersynchrony' compared with healthy controls was apparent in response to processing of salient information.

Conclusions: These findings provide support for a model of FES that focuses on alterations in synchronization of brain function required for effective binding of complex and significant stimuli. Because poor emotional function and negative symptoms in FES are valid predictors of 'real-world' functional outcome, neural synchrony markers show promise as an objective marker of illness progression.

Happy trails to you – a review of subjective well-being in successful aging

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Background: Many studies have examined depression in aging with the assumption that this also provides information concerning the nature of happiness. There is consequently a paucity of research on happiness, in particular its determinants and relationship with successful aging. The aim of this research was to review studies concerning happiness in aging.

Methods: MEDLINE, PsychINFO, CINAHL and EBM reviews were searched from their inception to June 2006, using the terms happiness, optimism, positive affect, subjective well-being, well-being and life satisfaction.

Results: The main findings can be summarized as follows: most studies support an increase in happiness with age although some longitudinal research has shown decreases over the life span. Correlates of happiness and subjective well-being in aging include marital status, religious commitment, subjective ratings of health status, social capital, task- or avoidance-oriented coping, cognitive function and housing quality. Positive affect appears as much of a protective factor as negative affect is a risk factor for functional disability

in aging, especially following illness or injury. Finally, early results suggest that positive psychology interventions such as the 'good-things-in-life' exercise may be efficacious in increasing and maintaining levels of happiness.

Conclusion: Happiness is an important contributor to successful aging and further intervention studies should be pursued to improve the health of older persons.

Behavioural problems following stroke – is there a relationship with cognitive impairment?

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Background: This study aimed to show the contribution of cognitive impairment toward the development of behavioural disturbance following stroke.

Method: Subjects in the Sydney Stroke Study comprised patients admitted to two university hospitals after an ischemic stroke and controls from the community who received extensive medical, psychiatric and neuropsychological assessments, with a subset receiving a magnetic resonance imaging scan. Patients were assessed 3–6 months after their stroke and again a year later. Controls were similarly assessed twice, 12 months apart. This sample comprised 123 stroke patients and 88 control subjects, with complete ratings on cognitive impairment at 15 months.

Results: Of the 88 controls, 55.7% were classified as having no cognitive impairment, 30.7% had mild cognitive impairment and 2.3% had dementia at 15 months. Of the 123 patients, 42.3% had no cognitive impairment, 39.8% had VCI and 16.3% had dementia. The stroke group had significantly higher rates of dementia [odds ratio (OR): 8.35, 95% confidence interval (CI): 1.90–36.73] but not of cognitive impairment (OR: 1.71, 95% CI: 0.93–3.15). Using nonparametric correlation, total NPI score was correlated with cognitive impairment in the total sample (Spearman's $\rho = 0.27$, $P = 0.001$). Within the stroke group, dementia was significantly associated with NPI score at 15 months but not MMSE, stroke severity, IADL/ADL score, more than one stroke, total stroke volume, total atrophy or total white matter hyperintensities.

Conclusion: Having a stroke does not necessarily lead to behavioural disturbance; however, it is associated with higher rates of cognitive impairment (in particular dementia), which in turn is associated with more disturbance.

A T2-relaxometric investigation of the brain in early psychosis: preliminary findings

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Despite over 15 years of research, our understanding of the brain abnormalities associated with the early phase of psychotic disorders remains rudimentary. Much effort has been put into volumetric techniques, with much variable findings. For every study that has detected abnormality in a specific brain region, there is at least one that fails to find such a difference. In part, this may be because pathology (especially in the early phase of a disorder) is not always associated with re-

ductions in volume. T2 relaxometry, on the other hand, is an extremely sensitive (though unspecific) technique to detect brain pathology. We have studied the T2 relaxation times in the brains of 10 patients with first-episode psychosis and seven healthy controls. We found significant reductions in T2 in several brain regions; the anterior limb of the internal capsule [$F(1, 15) = 4.9, P = 0.043$], orbitofrontal cortex white matter [$F(1, 15) = 4.5, P = 0.051$] and the superior temporal gyrus [gray and white matter, $F(1, 15) = 10.9, P = 0.005$]. Interestingly, there were no differences in the hippocampus, amygdala or dorsolateral prefrontal cortex (all $P > 0.4$). Reductions in T2 are most likely to reflect reduced tissue water content and are strongly suggestive that edema is not a feature of the early phase of psychotic disorders. Expansion of this dataset and an examination of the relationship between T2 and other imaging variables are required.
