



CONFERENCE PROGRAM

Day 1: Monday 11th July 2011

- 07.30-08.30 Arrival-Registration-Fixing Posters
- 8.30-10.30 Session 1: Opening Session
Chair: Jennie Ponsford and Elisa Lavelle
- 08.30-09.00 Maori Powhiri (Indigenous Welcome)
- 09.00-09.10 Jennie Ponsford (Program Chair) – Welcome and Introduction
- 09.10-09.40 **Barbara A. Wilson**
Towards a better understanding of the Locked-In Syndrome
- 9.40-10.10 Morning tea and posters
- 10.10-10.30 Te Miria James-Hohaia
- 10.30-11.50 Session 2: Interventions psychological and substance use problems
Chair: Kathryn McPherson
- 10.30 **Teresa Ashman**
Embedding problem solving and emotional regulation into traditional comprehensive day treatment program for brain injury
- 10.50 **Annabel Clarke**
Educational group treatment for post-stroke fatigue: A randomised pilot trial
- 11.10 **Suzanne Barker-Collo**
Reducing post-stroke attention deficits using Attention Process Training: Results of the START trial
- 11.30 **Carolyn Lemsky**
Substance use and Brain Injury Bridging Project (SUBI): Increasing capacity or concurrent intervention in Ontario, Canada
- 11.50-12.30 Session 3: Interventions for memory and prosopagnosia
Chair: Suzanne Barker-Collo
- Datablitz 1 - **Jonathan Evans**
Performance on simple computerised prospective memory tasks predicts self-reported everyday functioning
- Datablitz 2 - **Wendy Longley**
Spontaneous memory compensation in people with Multiple Sclerosis: A preliminary investigation
- Datablitz 3 - **Barbara Wilson**
Ten year anniversary of a paging service for people with memory and planning problems within a health care system
- Datablitz 4 - **Gunnar Scheibner**
Everyday memory in midlife: An evaluation of a memory group-intervention for healthy middle-aged individuals
- Datablitz 5 - **Ashok Jansari**
Saving face: Assessing rehabilitative training procedures in acquired and developmental prosopagnosia

12.30-12.50	Poster Session
12.50-1.50	Lunch
1.50-3.10	Session 4: Emotional adjustment following brain injury Chair: Jim Malec
1.50	Tamara Ownsworth Early cognitive appraisals, benefit finding and emotional status after stroke: Pre-intervention associations and preliminary intervention findings
2.10	Jacinta Douglas The things that help: Developing and maintaining a sense of connection between the self and society after severe traumatic brain injury
2:30	Samantha Backhaus Comparison of cognitive-behavioural therapy and a self-directed treatment group on self-efficacy and neurobehavioural functioning in brain injury survivors and their caregivers
2:50	David Andrewes Mood and social skills improvement in depressed stroke patients following interpersonal emotional communication training
3.10-3.40	Afternoon tea and posters
3.40-5.00	Session 5: Outcome assessment measures Chair: Robyn Tate
3:40	Nicola Kayes The self-regulatory skills interview: Assessment of a revised scoring protocol
4:00	Michael Perdices Do traditional tests of post-traumatic amnesia (PTA) tell us how early emergence from PTA really occurs?
4:20	Jim Malec Progress assessment with the Mayo-Portland Adaptability Inventory through the client outcome system for 604 participants in four types of postacute brain injury rehabilitation programs
4:40	Caroline van Heugten An international consensus on outcome measures for neuropsychological rehabilitation research in acquired brain injury
5.30	Assemble at front of hotel for Dinner pick up

POSTERS SESSION 1 – MONDAY

1. **Cassandra Shields** - Emotional decision-making following moderate to severe traumatic brain injury: Emotional and executive functioning correlates of Iowa Gambling Task performance
2. **Amanda Lane-Brown** - A model for the non-pharmacological treatment of apathy following traumatic brain injury
3. **Anna-Lynne Adlam** - The Conceptualisation of Contextual Factors in Neuropsychological Intervention Following Traumatic Brain Injury Occurring in Childhood: A Case Description.
4. **Muriel Christianson** - Cognitive Behavioural Therapy for Clients with Traumatic Brain Injury
5. **Caroline Stretton** - 'Activity Coaching' to improve walking for people with neurological conditions
6. **Kate Gould** - Psychiatric Disorders after Traumatic Brain Injury: Frequency Rates, Risk Factors and Psychosocial Outcome
7. **Sinéad Hynes** - Computerised working memory training following head injury (a case example)



CONFERENCE PROGRAM

Day 2: Tuesday 12th July 2011

- 07.30-08.30 Arrival-Registration-Fixing Posters
- 8.30-9.50 Session 6: Mood changes following brain injury
Chair: Theresa Ashman
- 8:30 **Jonathan Evans**
What does the science of happiness have to offer the practice of neuropsychological rehabilitation?
- 8:50 **Gershon Spitz**
The relationship between cognition, coping, and emotional well-being
- 9:10 **Yvette Alway**
Investigating the relationship between relatives' expressed emotion and patient anxiety and depression following traumatic brain injury
- 9:30 **Paul Gertler**
A systematic review of non-pharmacological treatments for depression after TBI
- 9.50-10.20 Morning tea and posters
- 10.20-11.20 Session 7: Single case design
Chair: Janet Leathem
- 10:20 **Robyn Tate**
Rehabilitating neuropsychological impairments using single-participant research designs: A survey of methodological quality of withdrawal/reversal, multiple baseline and other designs
- 10:40 **Jonathan Evens**
Choosing among techniques for quantifying single-case intervention effectiveness
- 11:00 **Phil Howard**
Smartphone-based compensation for face naming difficulties after brain injury
- 11.20-11.45 Session 8: Challenging assessment issues
Chair: Tamara Ownsworth
- Datablitz 6 - **Ieke Winkens**
Unravelling the levels of awareness after brain injury
- Datablitz 7 - **Jane Dahm**
Utility of the Depression Anxiety Stress Scales in assessing depression and anxiety following traumatic brain injury
- Datablitz 8 - **Kris Fernando**

Symptom Validity Assessment in an Insurance Context: the Need to Assess for Potential Fabricated/Exaggerated Neurocognitive and Psychological Symptoms in Acquired Brain Injury

11.45-12.10

Session 9: Challenging management issues

Chair: Elisa Lavelle

Datablitz 9 - **Maria Kangas**

A Case Study Evaluation of the Behavioural and Acceptance Based Therapy

Datablitz 10 - **Joanne Sherry**

An interdisciplinary team approach to managing challenging behavior

Datablitz 11 - **Margaret Darcy**

Use of a 24 hour chart analyses environment and responses prior to the establishment of individual therapeutic daily care programs for clients in minimally conscious states

12.10-12.30

Poster Session

12.30-1.30

Lunch

1.30-2.50

Session 10: Mild TBI, PTSD and Driving after TBI

Chair: Kris Fernando

1:30

Jennie Ponsford

Factors influencing outcome following mild traumatic brain injury - a prospective study

1:50

Jennifer Papoutsis

Complicated mild TBI in early childhood impacts on the reading skills at school-age

2:10

Pamela Ross

'On the Road Again' - Driver rehabilitation outcomes after traumatic brain injury (TBI)

2.30

Adam McKay

Neuropsychological predictors of driving behaviour after traumatic brain injury

2.50-3.00

Conference close (including Indigenous closing)

POSTERS SESSION 2 – TUESDAY

1. **Margus Ennok** - Standardization of praxic tasks for assessment of dementia
2. **Leigh Schrieff** - Pediatric Traumatic Brain Injury and Cognitive Rehabilitation in a South African Context
3. **Leigh Schrieff** - Brain oxygenation and neuropsychological outcomes in children following severe traumatic brain injury
4. **Artemisa Rocha Dores** - One Step Forward: The Test of a Prototype
5. **Olga García Sánchez** - Efficiency of a multidisciplinary neurorehabilitation program (neuropsychology, speech therapy, occupational therapy and physical therapy) in patients with acquired brain injury
6. **Cristina Gonzalez, Agudo** - Neurobehavioral intervention to reduce maladaptive behavior and maximize psychosocial adjustment. A single case study.
7. **Vera Lucia Durte Vieira** - The effects of family guidance combined with cognitive training on performance of AD patients
8. **Jackki Yim** - The Relationship between Cognitive Functioning and Facial Affect Recognition difficulties after Traumatic Brain Injury
9. **Ludmila Zhavoronkova** – Effect of postural control training for mental and motor functions recovery in patients with traumatic brain injury

SESSION 1 - Papers

Towards a better understanding of the Locked-In Syndrome

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Abstract:

Background and aims: This paper discusses the psychological consequences of Locked-in Syndrome (LIS) and considers the personal views of LIS patients. The aims are: (1) to seek evidence for and against the claim that patients with LIS have normal cognitive functioning; (2) to discuss the problems neuropsychologists face in assessing such patients; and (3) to discover how individuals with LIS feel about their quality of life (QOL).

Method: Published accounts of neuropsychological assessments of people with LIS were identified; problems encountered and solutions were noted, and supplemented with an in-depth assessment of one LIS patient. Accounts by patients about their QOL were assembled.

Results: Although patients with LIS are often stated to have normal cognitive functioning, mild problems are usually found. With some planning and adjustment, it is possible to conduct formal neuropsychological assessments. Despite the fact that studies of healthy individuals show they assume QOL of patients with LIS is so poor that life is not worth living, this is not the view of those with the syndrome and most of them feel they have a reasonable QOL

Discussion and Conclusions: Communication with LIS patients is slow but not too difficult. Although certain tests cannot be administered and others may be inappropriate, many measures of cognition, emotion, pain and QOL can be administered. Much of the frustration faced by those with LIS derives from the fact that many people cannot be bothered to communicate with them. Neuropsychologists can exert influence upon this situation.

SESSION 2 - Papers

Embedding Problem Solving and Emotional Regulation into Traditional Comprehensive Day Treatment Program for Brain Injury

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Background and Aims: Evidenced-based literature supports the effectiveness of comprehensive day treatment programs for individuals with brain injury, particularly when integrating metacognitive and targeted cognitive remediation. This study incorporated theoretical assumptions in determining how to utilize bottom-up and top-down approaches: problem-solving is core to executive dysfunction, emotions can support or thwart problem-solving, and problem-solving, emotional regulation and learning are mediated by attention.

Methods: Randomized clinical trial comparing two 26-week cognitive rehabilitation day programs; experimental "Executive Plus" program (EP) and standard rehabilitation program (SP). Description of specific methods of EP to target attention, problem solving, and emotional regulation. Participants were evaluated prior to randomization (T1), at the end of the treatment (T2) and 6 month post-treatment (T3).

Results: 52 participants were randomized, 38 completed T2 and 32 completed T3. Both EP and SP groups improved significantly from T1 to T2 on measures of self-efficacy, quality of life (QOL) and attention. T1 to T3 found significant improvements on attention and QOL in both groups, though EP group also had significantly improved self-efficacy and problem solving.

Discussion: Both groups showed significant improvements in immediately after treatment. Six months post-treatment, effect sizes were larger in EP than in SR for neuropsychological measures of attention, problem solving, self-reported executive function, and on measures of executive function, quality of life, and depression.

Conclusion: Combining specific top-down metacognitive strategies and bottom-up approaches result in lasting benefits that persist after treatment is completed. Both the study's problem solving and emotional regulation methods were effective and beneficial in treating in individuals with TBI.

Educational group treatment for post-stroke fatigue: A randomized pilot trial

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Background: Fatigue is common and contributes to poor stroke outcomes. Educational fatigue management reduces fatigue in other conditions (e.g., cancer). There was no evidence for educational fatigue management in stroke patients. This trial evaluated an educational fatigue management intervention in stroke survivors.

Methods: Participants in this pilot trial were 19 individuals 3-18 months post-incident stroke who experienced fatigue (Fatigue Severity Scale [FSS]>3.9). Participants were allocated a Fatigue Management Group (FMG) or General Stroke Education control group. Assessment occurred pre- and post-intervention and at 3-month follow-up. The primary outcome was FSS fatigue.

Results: Both groups had significantly reduced FSS fatigue from baseline to post-intervention assessment. Though not significantly different ($p>.05$) FSS decreased more in FMG participants than controls. Participant SF-36 social functioning and Hospital Anxiety Depression Scale (HADS) depression scores improved significantly, but the groups did not differ significantly ($p>.05$).

Conclusions: The findings indicate that the FMG intervention is both feasible and likely to have a positive effect.

Reducing post-stroke attention deficits using Attention Process Training: results of the START trial

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Background and Aims: Impaired attention contributes to poor stroke outcomes. Attention Process Training (APT) reduces attention deficits after traumatic brain injury. There was no evidence for effectiveness of APT in stroke patients. This trial evaluated effectiveness of APT in improving attention and broader outcomes in stroke survivors, 6-months post-stroke.

Methods: Participants in this prospective, single-blinded, randomised, clinical trial were 78 incident stroke survivors admitted over 18-months, identified via neuropsychological assessment as having attention deficit. Participants were randomly allocated to standard care (SC) plus up to 30-hours APT or SC alone. Both groups were impaired ($z\leq-2.0$) across measures of attention at baseline, with the exception of PASAT which was below average ($z\leq-1.0$). Outcome assessment occurred at 5-weeks and 6-months post-randomisation. The primary outcome was IVA-CPT Full Scale Attention Quotient.

Results: APT resulted in a significantly greater ($p<0.01$) improvement on the primary outcome than SC. Difference in change on the Cognitive Failures Questionnaire approached significance ($p=0.07$). Differences on other measures of attention and broader outcomes were not significant.

Conclusion: APT is a viable and effective means of improving attention deficits after incident stroke.

Substance use and Brain Injury Bridging Project (SUBI): Increasing capacity for concurrent intervention in Ontario, Canada.

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The high co-morbidity of substance use and neurological impairment is well documented. The Substance Use and Brain Injury (SUBI) Bridging project (WWW.SUBI.ca) was developed to promote access to care for Ontarians living with Acquired Brain Injury (ABI) at risk for or experiencing problematic substance use.

Methods: Cross training materials were developed via a partnership between a community-based ABI and academic medical centre addiction provider. Training reaching 350 service providers across Ontario. An online community of practice was established. Teleconferencing was provided to providers in remote areas. Screening for ABI was undertaken at a large academic addictions and mental health centre. Outcome data are being collected in a group- program based upon the SUBI materials.

Results: The greatest barriers to care were stigma associated with either condition, and the need for information about screening intervention and care partners. After training, providers reported increased frequency of screening for and willingness to treat individuals with Addictions and ABI respectively. Preliminary data from 352 individuals presenting for addictions treatment, 24% reported some history of acquired brain injury. Available programs increased from two to ten ABI/ addictions treatment partnerships.

Conclusions: The SUBI materials are useful in promoting concurrent intervention. Preliminary data suggest that approximately 20% of individuals presenting to a large urban addictions program have unrecognized cognitive impairment. These data may be used to encourage participation of addiction providers previously unaware of this clinical population. Active case management and psycho-educational programming show a trend toward reducing substance use and improving quality of life.

Session 3 - Datablitz

Performance on Simple Computerised Prospective Memory Tasks Predicts Self- Reported Everyday Functioning

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Background and aims: Prospective memory (remembering to carry out intended actions) is necessary for everyday functioning (e.g. taking medication). Although prospective memory (PM) deficits are common following neurological disorders, PM is not routinely assessed in clinical practice. Efforts have been made to develop PM tasks that reflect functioning in everyday life but due to their multi-element nature they can be failed for many reasons. Simple PM tasks typically used to study PM processes in healthy individuals may provide a purer measure of this function, but whether performance on these simple tasks reflect functioning in everyday life is not established.

Method: Twenty healthy individuals completed the Prospective and Retrospective Memory Questionnaire (PRMQ), the Cognitive Failures Questionnaire (CFQ) and two simple computerized PM tasks that required them to carry out an ongoing task into which a PM task was embedded (remembering to make a different response when a pre-determined cue was presented). Performance on the simple computerised PM tasks was measured as change in performance on prospective memory targets following a brief delay during which participants had to do an unrelated task that prevented continuous maintenance of the intention.

Results: PM performance (collapsed across tasks) correlated significantly with subjects' self-reported prospective memory functioning (PRMQ PM score, $\rho = .607$), general memory (PRMQ total score, $\rho = .624$) and cognitive failures ($\rho = .542$).

Discussion and Conclusions: These simple computerised PM tasks would appear to be promising in assessing PM ability, perhaps capturing the attentional demands that are present in everyday prospective remembering.

Spontaneous memory compensation in people with Multiple Sclerosis: a preliminary investigation

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Background and aims: Spontaneous memory compensation has not been examined systematically in Multiple Sclerosis (MS), so we explored this in community-dwelling people with MS.

Method: The Memory Compensation Questionnaire (MCQ), which measures five self-reported memory compensation strategies, was administered to 52 patients accessing neuropsychological services at MS Australia - ACT/NSW/VIC. We also administered the MS Neuropsychological Questionnaire to measure self-reported everyday cognitive difficulties. A subgroup (n=19) was administered additional measures of mood, MS self-efficacy, illness coping style, and an objective memory test (Logical Memory, WMS-IV).

Results: Results showed that in the larger sample each of the strategies were used with similar frequency. The use of two specific strategies was associated with self-reported everyday cognitive difficulties: those reporting greater everyday difficulties were more likely to rely upon others ($r_s = .49$, $p < .00$) and to expend more effort ($r_s = .39$, $p = .00$). In the smaller subgroup, the nature and magnitude of these associations were replicated. In addition, and unexpectedly, strategy use was not found to be associated with the objective measure of memory impairment. However, use of certain strategies was strongly and significantly associated with aspects of mood ($r_s = .46-.60$, $p < .05$), MS self-efficacy ($r_s = .54-.67$, $p < .02$), and illness coping style ($r_s = .48-.66$, $p < .04$).

Discussion and conclusions: Spontaneous memory compensation in MS is strongly associated with a range of psychological factors, but not with objectively measured memory impairment. Furthermore, external compensation strategies are used spontaneously less frequently in MS than in other acquired brain injury populations. These findings have important implications for the practice of memory rehabilitation in MS.

Ten year anniversary of a Paging service for people with memory and planning problems within a health care system

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Background and aims: NeuroPage, a paging service designed to reduce the everyday memory and/or planning problems of people with neurological deficits, was established in 2000 following several research studies evaluating the system. In 2003 Wilson et al published a report of the characteristics of the first 40 patients referred to the service. The service has now been running for 10 years and we wanted to see how it had changed over this period.

Method: We collected information including age, gender, diagnosis, time since injury, types of messages sent and number of messages sent each week. We compared the first forty patients recruited to the service with the last 40 to determine any differences.

Results: In comparison to the first 40 patients referred, the mean age of the last 40 patients had increased; more women were receiving messages; despite some changes in diagnostic groups referred, traumatic brain injury remained the largest sub group; the time since injury had increased; there were differences in the types of messages sent but reminders about medication remained the most frequent message; the number of messages sent per week was similar for both cohorts.

Discussion and Conclusions: The most noticeable difference between the first and last 40 patients referred to the NeuroPage service was that the mean length of time post injury had increased from 55 to 135 months. Despite some changes over the 10 year history of the service, NeuroPage remains a clinically effective method of improving the functioning of people with memory impairment.

Everyday memory in midlife: An evaluation of a memory group-intervention for healthy middle-aged individuals

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Background and aims: Memory interventions are usually intended for older individuals with mild to moderate memory impairment. This study evaluated the effectiveness of a six week memory group-programme specifically intended to improve both subjective and objective everyday memory performance for healthy middle-aged individuals for whom forgetfulness is a nuisance in everyday life.

Method: The intervention consisted of 1) Personal memory goal selection and pursuit, 2) Memory and aging education, 3) Strategy training, and 4) Group discussions about everyday forgetting. Five case studies (48-64 yrs. of age) are presented. Pre-and post programme memory assessments included the Rivermead Behavioural Memory Test, and a questionnaire assessing subjective memory performance, memory control beliefs and memory strategy usage in everyday life.

Results: Results indicated performance improvements on most outcome measures. In addition, memory goal attainment status was monitored throughout the programme and attainment scores progressively increased.

Discussion and Conclusions: The data indicate that the programme has merits for healthy middle-aged adults experiencing everyday forgetfulness.

Saving Face: Assessing Rehabilitative Training Procedures in Acquired and Developmental Prosopagnosia

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Background and aims: Individuals with acquired and developmental prosopagnosia have profound difficulty recognising familiar faces. To date, few studies have reported significant rehabilitation gains in treating such impairments. Employing predictions derived from face-space theory (e.g. Valentine, 1881) and suggestions of preserved featural-

processing (e.g. Moscovitch et al, 1997) in prosopagnosia, this comparative study attempted rehabilitation in such patients.

Method: A case series design compared the performance of four people with prosopagnosia (three with the acquired form and one with developmental prosopagnosia) against that of six matched normal controls. Three conditions were employed: 1) Part-recognition focussed the attention on distinctive individual features; 2) Caricaturing artificially exaggerated aspects of target faces; 3) Simple Exposure acted as a control. Training entailed six learning trials on a different set of 10 previously unseen faces for each condition. Memory was tested after the third and sixth learning trials.

Results; Using d' discrimination scores, results showed that the patient with the purest form of acquired prosopagnosia benefitted most from the rehabilitation regimes while the individual with developmental prosopagnosia received the second highest gains. However, interestingly, there was no simple dichotomy in terms of aetiology and rehabilitation regime.

Discussion and Conclusions: The findings suggest that it is possible to have gains in face-recognition abilities. But they also suggest that rehabilitation of those with prosopagnosia must be nuanced rather than sharply dichotomised, taking into account not only whether they were born with the impairment versus whether they acquired it, but also individual variations and any self-developed compensatory strategies.

Session 4 - Papers

Early cognitive appraisals, benefit finding and emotional status after stroke: pre-intervention associations and preliminary intervention findings

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Background & Aims: The transition home after stroke represents a critical adjustment period during which individuals are vulnerable to increased emotional distress. The study aims were, firstly, to examine associations among early cognitive appraisals, benefit finding and emotional status; and secondly, to describe preliminary findings of an 8-session cognitive-behavioural intervention designed to optimise psychological well-being.

Method: Thirty participants with stroke (70% male; aged 36-85 years) were consecutively recruited at discharge from an acute stroke unit and administered the Stress Appraisal Measure, Hospital Anxiety Depression Scale, State Trait Anxiety Inventory, Post-Traumatic Growth Inventory, Montgomery-Åsberg Depression Rating Scale and Stroke and Aphasia Quality of Life Scale-39 (SAQOL-39). Participants were randomly allocated to the cognitive-behavioural (CB), self-management or standard care (SC) groups.

Results: Threat and stress appraisals were significantly associated with level of depression ($r_s = .37-.46, p < .05$). Individuals with higher anxiety and trait anxiety reported greater threat, stress and uncontrollability appraisals, lower control appraisals and increased benefit finding ($r_s = .37-.68, p < .05$). Preliminary analysis indicated that participants in the CB group experienced heightened distress at post-intervention relative to pre-intervention ($p < .05$); however, they reported increased QoL and personal strength and reduced threat appraisals at 3-months follow-up relative to pre-intervention ($p < .01$) whilst SC participants reported no change.

Discussion and Conclusions: The findings highlight the interrelatedness of appraisals, coping and emotional status during early post-stroke adjustment. A brief cognitive-behavioural intervention may support individuals to process the meaning of their stroke, thus eliciting some distress initially, but ultimately enhancing their psychological well-being in the longer-term.

The things that help: Developing and Maintaining a Sense of Connection between the Self and Society after Severe Traumatic Brain Injury

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Background and aims: A sense of social connection has broad implications for an individual's behaviour, motivation, emotional adjustment and quality of life. The aim of this qualitative investigation was to gain some understanding of the way/s in which adults who have sustained severe TBI develop a sense of social connection several years after injury.

Method: Participants were 16 men and 4 women. Injury severity was indexed by Glasgow Coma Scale (GCS) score ≤ 8 or posttraumatic amnesia (PTA) duration ≥ 14 days. Average age at interview was 35.2 years and a minimum of 5 years had elapsed since injury. The Extended Glasgow Outcome Scale (GOSE) and global quality of life self-rating (QOL) were used to summarise outcome. Sense of social connection was explored within a constructivist Grounded Theory approach using in-depth interviews. Qualitative analysis involved open and focussed coding and identification of emergent categories.

Results: GOSE results showed that participants had severe or moderate disability. Subjective QOL ratings were generally high (mean 7.2; SD 2.2). Factors that supported social connection emerged as categories within an overarching theme labelled in the participants' words as, *the things that help*. They included family, friends, carers, and pets as well as concrete reminders of social experiences and the creation of the biographical narrative. Four distinct themes were evident in participants' self-narratives.

Discussion and Conclusion: The factors identified formed a bridge between the self and society. They enabled the self to be situated in a unique social environment reflecting important social ties for the individual that assisted the dynamic construction of self and maintenance of wellbeing.

Comparison of Cognitive-Behavioral Therapy and A Self-Directed Treatment Group on Self-Efficacy and Neurobehavioral Functioning in Brain Injury Survivors and their Caregivers

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Background and aims: Clinicians seek to understand which types of psychological treatments are most beneficial for individuals with brain injuries (BI). The purpose of this study was to compare two treatments (Manualized Cognitive-Behavior Treatment or CBT versus Self-Directed) on the effects of Perceived Self-Efficacy (PSE) and neurobehavioral functioning.

Methods: Thirty-eight individuals were recruited from an outpatient rehabilitation facility (19 with brain injury and their caregivers). Subjects were randomly assigned to groups who met for 16 weeks. PSE and neurobehavioral functioning were measured at baseline, immediately following intervention, and at 3-months.

Results: ANCOVA showed significantly improved PSE for both groups with no significant difference between them at immediate post-treatment ($F=2.24$; $p=.143$). ANCOVAs did reveal a significant difference between groups on disinhibition ($F=5.34$; $p=.035$), with the CBT group showing more improvement.

Discussion and Conclusion: This study showed both treatments improved PSE, but only CBT helped reduce disinhibited behaviors such as irritability, anger, and emotional lability. In the Self-Directed group, individuals overtly voiced motivation to improve, utilized a Menu of Topics to review from, and independently presented research on these topics on a weekly basis (something not expected from the usual 'support group'). Implications of when and for what purpose CBT treatment is used will be discussed, as this study showed that one therapy did not 'fit all' as some clinicians have assumed when using CBT. Perhaps, "social competition or rivalry" may greatly influence self-efficacy. In contrast, social competition was not as helpful as CBT in improving neurobehavioral challenges which affect family functioning and increase caregiver burden. Implications will be discussed.

Mood and Social Skills Improvement in Depressed Stroke Patients following Interpersonal Emotional Communication Training

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Background: Stroke is often followed by social and emotional difficulties that may undermine crucial relationships with a partner or carer. This study answers the need to provide a training approach to everyday interpersonal communication tailored to the cognitive deficits and depression that is often suffered by these patients.

Method: A scaffolding approach was used to train more positive appropriate interpersonal skills using standardised videoed vignettes of emotional communications presented by professional actors. Six interpersonal scenarios were presented with the viewer as the recipient of the social interactions. Half of each group of 20 depressed and 38 non-depressed stroke patients were randomly assigned to training or no training feedback with the training group encouraged to do home rehearsal. Independent blind assessment of emotional recognition, understanding and appropriate response using novel scenarios not used in training was assessed together with associated cognitive and emotional abilities.

Results: It was found that emotional recognition, understanding and appropriate responses as well as depression improved significantly following training in the feedback group and that this was maintained one week later following home rehearsal. This effect held irrespective of lesion location, state of depression or type of stroke. Executive dysfunction and memory impairment were found to undermine therapeutic benefits of the intervention, but did not interfere with the success of the program.

Conclusion: These results show positive gains in appropriate communication in stroke patients despite depression and cognitive impairment. Further research is required to assess long-term gains in social well-being.

Session 5 - Papers

The Self-Regulatory Skills Interview: Assessment of a revised scoring protocol

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Background: Ability to regulate one's own behaviour and cognition is frequently impaired following traumatic brain injury (TBI). The Self-Regulatory Skills Interview (SRSI) was developed to assess self-regulatory skill in everyday living.[1] While previous reports suggest it to be valid and reliable [1], our own experiences revealed the scoring process to be variable and subjective, raising concerns regarding reliability. In response, we developed decision trees for items and agreed a set of scoring rules to standardise the process. Here, we report the inter-rater reliability and utility of this revised scoring protocol.

Method: Participants were n=53 people with TBI taking part in a clinical trial where self-regulatory skill was the primary outcome. SRSI interviews were audio-taped and transcribed and scored by two independent raters. Weighted Kappa was calculated for individual item scores and scoring bands and feedback from raters on utility of the scoring protocol obtained.

Results: Moderate agreement was found for individual item scores (Kappas ranging 0.42 to 0.56). Agreement for scoring bands was similar with Kappas also indicating moderate agreement for most items (0.34 to 0.62). Raters reported decision trees to be user friendly, but identified some items still prone to subjective interpretation.

Conclusions: Findings suggest the Decision Tree SRSI scoring has moderate inter-rater reliability. Possible refinements and recommendations for use are discussed. Given the importance of self-regulatory skills for functioning and mood, pursuing a robust way to assess and measure them remains important. Future work to further refine the scoring protocol and/or explore alternative methods of assessment is encouraged.

1. Ownsworth, T.L., K. McFarland, and R.M. Young, *Development and Standardization of the Self-Regulation Skills Interview (SRSI): A New Clinical Assessment Tool for Acquired Brain Injury*. *The Clinical Neuropsychologist*, 2000. 14(1): p. 76-92.

Do traditional tests of post-traumatic amnesia (PTA) tell us how early emergence from PTA really occurs?

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Background and aims: Emergence from post-traumatic amnesia (PTA) on two commonly used tests (Modified Oxford/Westmead PTA Scales, MOPTAS/WPTAS) is defined as the first of three consecutive days of score 12/12, but there is no empirical evidence for this criterion. Tate et al. (2006) had demonstrated that in severely injured patients (PTA duration ~10 weeks), there was no difference on a brief cognitive battery between the first and third occasion of score 12/12, suggesting that emergence from PTA occurs on the first occasion of score 12/12. The aim of this study was to examine these issues in a less severely injured sample.

Method: PTA was evaluated using the MOPTAS. A sample (n=27) with PTA <5 weeks duration was assessed on three occasions with the same battery used in the previous study, along with the Galveston Orientation and Amnesia Test (GOAT) PTA test. Testing occurred on three occasions: Time 1 (MOPTAS score 7/12), Time 2 (first 12/12), Time 3 (third consecutive 12/12).

Results: PTA duration was M=15.7 days (SD=10.7). Using Bonferroni corrections (p<0.01) there were significant differences between Time 1 and Time 2 on the GOAT but not on any cognitive test. Between Time 2 and Time 3 difference in GOAT scores was not significant, but simple reaction time improved significantly.

Conclusions: In contrast to patients with long PTA duration, patients with shorter PTA duration may have emerged from PTA much sooner than when they first score 12/12 score, and certainly much sooner than deemed by the traditional criterion.

Progress Assessed with the Mayo-Portland Adaptability Inventory through the Client Outcome System for 604 Participants in Four Types of Postacute Brain Injury Rehabilitation Programs

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Background and Aims: Defining expected outcomes of postacute brain injury programs is an elusive goal due to a lack of reference data. The collaborative, web-based Client Outcome system was designed to fill this gap.

Method: Using Client Outcome system data, progress was examined on two consecutive assessments with the Mayo-Portland Adaptability Inventory (MPAI-4) for 604 participants served by provider members of the Pennsylvania Association of Rehabilitation Facilities. Participants were in one of four program types: intensive outpatient and community-based rehabilitation ("intensive outpatient"; n=235), intensive residential rehabilitation ("intensive residential"; n=78), long-term residential supported living ("residential supported living"; n=246), and long-term community-based supported living ("community supported living"; n=45).

Results: Program types differed in participant age (F=17.77, p<.001), sex ($\chi^2=22.38$, p<.001), initial MPAI-4 score (F=6.89, p<.001), chronicity (F=13.432, p<.001), and time from first to second assessment (F=26.707, p<.001). However, only initial MPAI-4 score and chronicity were significantly associated with the second MPAI-4 rating. Controlling for these variables, program types varied significantly on second MPAI-4 total score (F=5.141, p=.002). Both the intensive outpatient and the intensive residential programs resulted in significant functional improvement across assessments. In contrast, both the residential supported living and the community supported living programs demonstrated relatively stable MPAI-4 scores.

Discussion and Conclusions: Results are consistent with stated goals of the programs, that is, intensive programs resulted in functional improvements; whereas, supported living programs produced stable functioning. Further studies using the large, multi-provider Client Outcome measurement collaboration will potentially provide the foundation for developing outcome expectations for various types of postacute brain injury programs.

An international consensus on outcome measures for neuropsychological rehabilitation research in acquired brain injury

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Background: The body of evidence on the effectiveness of neuropsychological rehabilitation is growing. However, the lack of consensus about which outcome measure to use to evaluate the effectiveness prevents meaningful comparisons between different studies and interventions.

Objective: To reach international consensus on outcome measures for neuropsychological rehabilitation research in acquired brain injury.

Methods: Members of the SIG-NR will be invited to participate in a study group using an iterative, collaborative, evidence-based approach to identify the best of currently available outcome measures. The approach will include consensus workshops (which can be held during the scheduled SIG-NR and INS meetings), a web-based international consultation, a systematic literature review and an evaluation of the selected measures on the basis of agreed criteria looking at psychometric properties, feasibility and utility across countries. The first steps which can be taken during the SIG-NR meeting in July 2011 will include 1) formation of the study group, 2) formulating a concrete project plan, 3) identification of outcome domains, and 4) drawing up a preliminary list of measures. A comparable endeavor has been undertaken in psychosocial intervention research dementia care, which can be taken as an example¹

Discussion and conclusions: The results of this approach will be presented at a SIG-NR meeting and published in an international well-accepted journal in the field of neuropsychological rehabilitation as recommendations for future research.

¹Moniz-Cook E, Vernooij-Dassen M, Woods R, Verhey F, Chattat R, De Vugt M et al. A European consensus on outcome measures for psychosocial intervention research in dementia care. *Aging & Mental Health*, 2008;12(1):14-29.

POSTERS – MONDAY

Emotional decision-making following moderate to severe traumatic brain injury: Emotional and executive functioning correlates of Iowa Gambling Task performance

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Background and aims: The psychobiological model of emotional distress contends that the prefrontal cortex (PFC) is associated with the down-regulation of negative emotion. Difficulty down-regulating negative emotion may be of particular concern after traumatic brain injury (TBI), as these frontal regions are most vulnerable to TBI. The PFC is also involved in cool (i.e., logical & non-emotive) and hot (i.e., emotional & motivational) executive functioning (EF). The Iowa Gambling Task (IGT) is a complex emotional decision-making task that appears to recruit similar neural circuitry to that involved in the experience and regulation of emotions. The IGT is considered to be a measure of hot EF, but also recruits neural regions associated with cool EF tasks. The aim of the current study was to investigate associations between emotional and executive functioning and emotional decision-making performance for individuals with TBI.

Method: Approximately 40 participants with moderate to severe TBI (chronicity: 12-48 months) will be recruited from the community and administered a battery of EF tests (FAS test, Trail Making Test, Letter-Number-Sequencing, IGT) as well as measures of depression, anxiety and emotional dysregulation.

Results: Correlations between IGT indices, executive functioning and emotional factors will be examined. Regression analyses will be used to identify the variance in IGT performance accounted for by emotional and executive functioning after controlling for relevant covariates (e.g., demographics, premorbid IQ, alcohol use).

Discussion and Conclusions: These preliminary findings will identify emotional and cognitive factors which potentially underlie performance on emotional decision-making tasks following TBI.

Evaluation of Patient Satisfaction Following a Novel Multidisciplinary Model of Intervention in an Acquired Brain Injury inpatient population

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Background & Aims: Acquired Brain Injury (ABI) can cause significant social communication and psychological difficulties, which may result in sub-optimal rehabilitation outcomes. Without adequate rehabilitation, individuals often suffer from anxiety and depression, and can struggle with interpersonal relationships, long-term health care use and community re-integration. Despite their significance, such difficulties have been difficult to address during the early stages of ABI recovery at the Rehabilitation Unit of Royal Perth Hospital (RPH) due to caseload demands and traditional separation of departmental roles. A pilot study consisted of designing, implementing and evaluating a multidisciplinary intervention targeting psychosocial skills post-ABI.

Method: A 4-week group program was developed through collaboration between the Speech Pathology (SP) and Clinical Psychology (CP) departments. It targeted skills for effective and appropriate social interaction, and associated psychological disturbance.

Feedback was obtained from participants at the program's conclusion, resulting in ongoing modification to the group structure and content. Satisfaction ratings were collected to determine if the program was beneficial and a positive experience for participants.

Results : This presentation will show high patient satisfaction ratings following the program, as well as positive feedback regarding change in service delivery. Efficiency measures and details of collaboration between the SP and CP departments will also be outlined.

Conclusion: Patient satisfaction and feedback were considered an important part of the outcomes of this study. The results have led to a review of services offered by the SP and CP departments and discussion about how psychosocial difficulties post-ABI will be addressed in the future.

A model for the non-pharmacological treatment of apathy following traumatic brain injury

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Background and Aims: Apathy is a decrease in goal-directed behaviour, clinically characterised by diminished initiation, concern, and decreased activity. Apathy is common following traumatic brain injury (TBI), occurring in around 60% of people. Consequences are widespread, negatively impacting independence, social integration, rehabilitation outcome, vocational outcome, coping and caregiver burden.

Method: Current evidence for non-pharmacological methods of treatment of apathy was examined and rated for methodological quality. Higher quality evidence was synthesised into a treatment model to guide clinical practice.

Results: A model for the non-pharmacological treatment of apathy is provided. Components of the model include initial diagnosis, assessment for non-neurological aetiology, division of neurological apathy into subtypes, and details of evidence-based treatments dependent on aetiology and severity of apathy. Treatments incorporate external compensatory techniques, music therapy and motivational interviewing.

Discussion and conclusions: A step-by-step framework is provided to assist treating the patient with apathy following traumatic brain injury. The new treatment model is discussed in the context of the treating clinician, with consideration of challenges faced by clinicians when treating the patient with apathy.

The Conceptualisation of Contextual Factors in Neuropsychological Intervention Following Traumatic Brain Injury Occurring in Childhood: A Case Description.

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Background & Aims: The importance of contextual factors in neuropsychological rehabilitation following adult-onset brain injury is well established, as represented, for example, in holistic neuropsychological rehabilitation programmes. In neuropsychological rehabilitation following child-onset brain injury attention to developmental processes is also required. Here we present John (16 years old), to illustrate the importance of providing interventions within a developmental contextual framework.

Method: John suffered a traumatic brain injury (TBI) aged 13, following a road traffic accident. Assessments revealed difficulties with prospective memory, executive function, and emotion regulation. These difficulties had significant impact on his interpersonal relationships and mood. A shared contextual formulation of John's presenting problems was developed with John and his family. The formulation was guided by a cognitive behavioural framework of interpersonal process (Vizer & Adlam, in preparation). Specific interventions to help reduce John's prospective memory difficulties and manage anger were provided. These aimed to address interpersonal difficulties by increasing John's independence and his parents' confidence in his ability to care for himself.

Results: John's prospective memory for a specified task increased leading to reduced reliance on family reminders and an increased confidence in his ability to manage tasks. In addition, John showed a clinically significant reduction on a standard measure of anger. This was corroborated by his parents who reported fewer anger outbursts and increases in prosocial behaviour.

Discussion & Conclusions: The findings from this study confirm the importance of developing a contextual formulation of neuropsychological difficulties following TBI in adolescence. The findings are supportive of the need for adapting the adult model of neuropsychological rehabilitation.

Cognitive Behavioural Therapy for Clients With Traumatic Brain Injury

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Background and Aims: The study investigated the efficacy of a Cognitive Behavioural Therapy (CBT) approach for people who experienced adjustment issues following traumatic brain injury (TBI).

Method: Participants were nine people with TBI referred to Massey University Psychology Clinic with adjustment difficulties following injury. Measures used included the Hospital Anxiety and Depression Scale (HADS) to assess for symptoms of anxiety and depression, the Patient Competency Rating Scale (PCRS) to assess awareness of changes, and the Homework Rating Scale Second Edition (HRS-II) to assess the value of homework assignments for participants.

Results: These were presented in graphical format assessing progress using the HADS and PCRS, and in the form of individual case studies outlining progress in achieving individual goals. Participants varied in their response to

treatment. When anxiety and depressive symptoms were secondary to other referral issues such as fatigue and pain, there was limited movement on HADS Anxiety and Depression scores. Low participant numbers impacted on the ability to demonstrate increased levels of awareness over treatment. Participants had difficulty in completing homework assignments. Factors that impacted on achievement of personal goals included ongoing levels of fatigue and pain, level of personal expectation, interpersonal and organisational skills, insight into emotional reactions and good family and social support.

Discussion and Conclusions: CBT techniques assisted with clarification of what the individual was able to realistically sustain with regard to work and social commitments, providing a future base for reintegration, whether that was returning to work, training activities, or to social interaction.

‘Activity Coaching’ to improve walking for people with neurological conditions

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Background: The improvement of walking is a priority for many people with neurological disability. Exercise programmes that provide adequate physical overload have been shown to be an effective way to improve walking ability. Following an exercise based programme, participants with chronic stroke could walk further and faster in the physiotherapy clinic, but disappointingly, there was no change in the amount or speed of walking in their usual environments. Thus, an improvement in physical ability alone does not seem to change physical activity behaviour in people with neurological disorders. Physiotherapists working in rehabilitation have had limited exposure to the behavioural change literature. Health coaching is an emerging field that incorporates behavioural change techniques from psychology for allied health professionals to facilitate health behavior change.

Methods: Review new approaches that incorporate behavioural change techniques for use with patients with neurological conditions. In addition test ‘activity coaching’, for it’s acceptability and feasibility to physiotherapists.

Results: This study is ongoing and therefore findings are preliminary and based on qualitative debriefing with clinicians and patients about taking part in activity coaching. Initial results suggest that the use of activity coaching as part of usual practice was acceptable to therapists and that it provided a structured approach to facilitate their engagement with patients on these issues. The need for additional training in this area was identified.

Conclusions: To our knowledge this study is among the first to apply health coaching in a neurological physiotherapy setting to improve walking and physical activity.

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Psychiatric Disorders after Traumatic Brain Injury: Frequency Rates, Risk Factors and Psychosocial Outcome

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Background and aims: Psychiatric disorders are commonly associated with traumatic brain injury (TBI), but little is known about the frequency rates, risk factors and association with outcome. This study prospectively examined the relationships between psychiatric disorders and TBI.

Method: Participants were recruited and assessed during inpatient rehabilitation admission and completed follow-up interviews at three, six and 12 months post-injury. Data from between 102 and 122 participants were utilised in the analyses. Participants were predominantly young males with moderate to severe TBI. Psychiatric disorder was determined using the Structured Clinical Interview for DSM-IV Diagnosis (SCID) and was confirmed by a significant other.

Results: More than half of participants had a pre-injury psychiatric disorder, predominantly substance use, anxiety and depressive disorders, which was equivalent to demographically adjusted population rates. In the year post-injury, 60.8% of participants had a psychiatric disorder, commonly anxiety and depressive disorders. Results of regression analyses revealed that post-injury psychiatric disorders were associated with earlier psychiatric disorder or psychiatric treatment. Depression and anxiety diagnosed pre-injury or at the initial assessment were significantly related to poorer psychosocial outcome at one year.

Discussion and Conclusions: The results of this study highlight the magnitude of the post-injury psychiatric disorder phenomenon which afflicts more than are spared. This research sheds some light on the factors that may help predict who is most at risk, and when these disorders are likely to emerge, so that clinicians may better instigate early intervention, and reduce the added emotional burden borne by injury survivors.

Computerised working memory training following head injury (a case example)

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Background and aims: Recent evidence from well controlled studies has indicated that repetitive, progressive training on working memory tasks has produced generalised gains in cognitive function (Klingberg, 2008; Klingberg et al., 2005; Olesen, Westerberg, & Klingberg, 2004; Westerberg et al., 2007). The results appear particularly impressive when they are controlled with similar exposure to non-progressive WM tasks. We report the findings of a casestudy of a man (S.D.) with difficulty in the areas of working memory and time perception.

Method: S.D. trained intensively on an online training programme focusing on working memory for four weeks 20-30minutes a day. He initially trained on tasks that were intended to have very low demand on working memory (placebo) for four weeks and then he trained on high demand working memory tasks. S.D. was assessed at baseline, after 4 weeks of daily training on low WM-demand (placebo) tasks, and again after 4 weeks on high WM-demand tasks.

Results: Benefits were seen in measures of time perception and self-organisation - his time reproduction performance was much more accurate after the high WM-demand training than at either of the other assessment points and performance on the self-organisation measure was improved.

Discussion and Conclusions: Intensive training on WM tasks over a 4 week period improved performance in areas that were untrained such as times perception and self-organisation indicating transferences of training gains.

Tuesday

Session 6 – Papers

What does the science of happiness have to offer the practice of neuropsychological rehabilitation?

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Background and aims: Positive psychology (PP) is the scientific study of positive emotion and well-being. In recent years there has been a shift in the focus of PP from understanding the factors that contribute to well-being, to developing and evaluating interventions to improve well-being.

Methods: Through a review of the literature, this paper will address the question of whether the principles and practice of PP are relevant to brain injury rehabilitation.

Results: Theories of factors that contribute to positive mental health and wellbeing offer a framework within which to formulate the consequences of brain injury. A number of tools have been developed to measure aspects of positive mental health – these may offer a means of developing a better understanding of how people positively adjust to the consequences of brain injury. Positive psychology psychotherapy (PPT) has been shown to be effective in treating depression in a number of trials and lends itself to application as part of neuropsychological rehabilitation: the general aims of PPT are consistent with the goals of neuropsychological rehabilitation; the focus of PPT reflects the areas of positive adjustment in those who report post-traumatic growth after brain injury; and the specific techniques of PPT could be applied with minimal adaptation with people who have cognitive impairment.

Conclusions: The evidence suggests that PP is indeed relevant to brain injury rehabilitation, that much of our current (best) practice is consistent with the principles of PP, but there are areas where brain injury rehabilitation practice could draw further on the specific methods of PP.

The relationship between cognition, coping, and emotional well-being

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Background and Aims: Stress-appraisal-coping models have been utilised in TBI to better understand and predict the process of adjustment. Such models emphasise the role that coping strategies and appraisal have in psychosocial adjustment. Specifically, individual resources are proposed to influence psychosocial functioning through their interaction with appraisal and coping processes. Passive, non-productive, and emotion-focused coping have been found to predict poorer psychosocial functioning. However, studies are scarce that have examined the determinants of coping and the subsequent effect on emotional well-being. Therefore, the current study adopted a stress-appraisal-coping framework to investigate the direct and indirect relationship between cognition, coping, and emotional well-being.

Method: Ninety-seven participants with TBI were administered a battery of cognitive tests, which encompassed memory, executive, and attention domains. Participants completed a coping questionnaire—which assessed the use of productive and non-productive coping—and a self-report measure of anxiety and depression.

Results: Hierarchical regression analyses showed that longer time-since injury predicted more frequent use of non-productive coping, whilst cognition was largely unrelated to coping. Executive and attention and information processing domains were associated with both depression and anxiety, even once controlling for demographic variables.

Moreover, productive and non-productive coping strongly predicted depression; however, only non-productive coping was predictive of anxiety. Coping was not found to mediate the relationship between cognition and depression, nor between cognition and anxiety.

Discussion and Conclusion: Overall, these results suggest that cognition and coping directly influence well-being, instead of the mediated relationship hypothesised using the stress-appraisal-coping framework.

Investigating the Relationship between Relatives' Expressed Emotion and Patient Anxiety and Depression following Traumatic Brain Injury

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Background and aims: Five decades of research suggests that relatives' levels of Expressed Emotion are associated with a patient's psychological outcome in a range of psychiatric and medical conditions. Expressed Emotion (EE) refers to the degree of criticism and emotional over-involvement (EOI) a relative expresses toward a patient with an illness or disability. This study aimed to examine the relationship between relative EE and patient anxiety and depression following TBI. A further aim was to examine the degree to which TBI patients perceived their relatives as critical and how this related to patient anxiety and depression.

Method: Participants were 43 patients from the Epworth Rehabilitation Centre who had sustained a mild to severe TBI three-months to five-years previously, and their corresponding relatives. Measures included the Perceived Criticism Scale, Family Questionnaire and the Hospital Anxiety and Depression Scale.

Results: Results indicated that relatives' EE-criticism and EE-EOI were associated with patients' depression levels and EE-criticism was associated with patients' anxiety. Patients' perceived criticism from relatives was associated with patients' anxiety and depression levels, and also relatives' ratings of EE-criticism.

Discussion and conclusions: Relatives' EE appears to be associated with TBI patient anxiety and depression in keeping with findings in other psychiatric and medical conditions. Consequently, interventions aiming to reduce levels of relative EE and to foster more effective ways in which the relative and the person with TBI interact, may be effective in reducing the impact of anxiety and depression following TBI. However, future research with a prospective design is required to determine directionality.

A systematic review of non-pharmacological treatments for depression after TBI.

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Background and aims: There is an increased prevalence of depression after traumatic brain injury (TBI); Dikmen and colleagues (2004) reported moderate to severe depressive symptomatology ranging from 31% at one month to 17% at three to five years post-injury. Despite the prevalence of this problem there is a paucity of research outcomes concerning the efficacy of non-pharmacological treatments. Existing treatments have usually been created for cognitively-intact individuals and may not be suitable for people with cognitive impairments.

Method: This paper presents results from a systematic literature review of treatments for depression following TBI and describes the treatments applied. Four databases were searched (PubMed, PsycINFO, PsycBITE and Google Scholar).

Results: 15 studies were identified that met selection criteria. Although no study focused specifically on a sample of people with TBI and a diagnosed mood disorder, several studies used depression scales as outcomes measures. There was a variety of treatments that were applied either individually or in combination. Four studies evaluated cognitive behavioural therapy or a variant (eg., mindfulness), and three evaluated the effectiveness of problem-solving delivered either in a group/family context or by remote delivery. Other studies evaluated changes in emotional functioning following a disparate range of interventions (eg, multi-disciplinary rehabilitation, music therapy, e-journal writing).

Conclusions: The results provide some evidence in support of interventions that were focused either on behavioural activation or coping skills. Future research is indicated using dismantling designs to evaluate people with diagnosed mood disorders who receive targeted interventions.

Session 7 – Papers

Rehabilitating neuropsychological impairments using single-participant research designs: a survey of methodological quality of withdrawal/reversal (A-B-A), multiple-baseline, A-B, and other designs

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Background and aims: Single-participant designs (SPD) are an established and effective way to measure treatment effectiveness in individual patients. Although they have a specific methodology, they are often misunderstood and misused. This paper examines the types and methodological quality of SPDs archived on PsycBITE

(<http://www.psycbite.com>), an evidence-based database of >3,000 records of all published non-pharmacological studies on interventions for the psychological consequences of acquired brain impairment.

Method: A random sample of 35% of SPDs targeting dementia, stroke and traumatic brain injury populations was selected (n=237). Papers using appropriate methodological designs were individually rated for methodological quality using the 12-item Single-Case Experimental Design version 2 (SCED-2) Scale, a reliable scale containing a minimum core set of established criteria considered necessary for methodological rigor of SPD. All items contribute to a method quality score (range 0-12).

Results: For the sample as a whole, 30% were withdrawal/reversal designs, 23% were multiple-baseline, 7% were A-B designs without control, but 41% did not use appropriate SPD methods to measure treatment effect. On the SCED-2 Scale, multiple-baseline designs had significantly higher total score (M=8.11, SD=1.40) than withdrawal/reversal designs (M=6.34, SD=1.90; $z=-5.12$, $p=0.000$), which in turn showed a trend for higher scores than the A-B designs (M=5.56, SD=1.41; $z=-1.17$, $p=0.087$). In all designs, the two SCED-2 items that were most frequently failed were randomization and independence of assessor/s.

Conclusions: This is the first study to systematically analyse the methodological quality of SPD. Results demonstrate marked variability, even within the stronger designs.

Choosing among techniques for quantifying single-case intervention effectiveness

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Background and Aims: If single case experimental designs are to be used to establish guidelines for evidence-based interventions, numerical values that reflect treatment effect sizes are required. The present study compares four recently developed procedures for quantifying the magnitude of intervention effect using data with known characteristics.

Method: Monte Carlo methods were used to generate AB designs data with potential confounding variables (serial dependence, linear and curvilinear trend, and heteroscedasticity between phases) and two types of treatment effect (level and slope change)

Results: The results suggest that data features are important for choosing the appropriate procedure and, thus, inspecting the graphed data visually is a necessary initial stage. In the presence of serial dependence or a change in data variability, the Nonoverlap of All Pairs (NAP) and the Slope and Level Change (SLC) were the only techniques of the four examined that performed adequately. Introducing a data correction step in NAP renders it unaffected by linear trend, as is also the case for the Percentage of Nonoverlapping Corrected Data and SLC.

Discussion & conclusions: The performance of these techniques indicates that professionals' judgments concerning treatment effectiveness can be readily complemented by both visual and statistical analyses. A flowchart to guide selection of techniques according to the data characteristics identified by visual inspection is provided.

Smartphone-based compensation for face naming difficulties after brain injury

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Background and aims: Difficulties recalling the name of familiar people is a common problem for people who have sustained a brain injury, and can result in social and occupational difficulties. Therefore, finding an effective treatment for this disorder is an important goal. Unfortunately after decades of research an effective intervention has been elusive.

Method: Recent advances in mobile computing technology have made it possible to create custom applications on these devices which act as cognitive prostheses. One such cognitive prosthetic application has been developed for the Apple iPhone by a team at Massey University and is designed to support people who have face naming difficulties. The software provides the user with the ability to search a database of contacts that have been tagged with metadata about

physical characteristics, and location. Based on observed characteristics of a person they are meeting, users can quickly be presented with a small number of matches and determine who the person is.

Results: This presentation will demonstrate this custom application, discussing the challenges faced in interface design for people with significant cognitive impairment. Initial piloting of the software with people who have significant brain injuries will be presented, covering both the extent of their use of the software and user subjective reactions.

Conclusions: The software presented may improve the ability of those who have face-name difficulties to name people in their lives. The processing power now available in mobile computing technology also provides the potential to compensate for a range of other cognitive deficits.

Session 8 – Datablitz

Unraveling the levels of awareness after brain injury

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Background and aims: Crosson et al. [1989] developed a 3-level model of awareness, arguing that different types of compensation are appropriate for patients with different levels of awareness after brain injury. Up to today, therapists still have difficulties objectifying their clinical impressions of patients' levels of awareness, and they lack appropriate instruments.

Method: In 2009 we studied the effects of Time Pressure Management (TPM), a compensatory strategy treatment for patients with mental slowness [Winkens et al., 2009]. We retrospectively objectified and scored our clinical impressions of the patients' levels of awareness in accordance with Crosson's model.

Results: Although the study group was too small for the results to reach statistical significance, patients with higher levels of awareness seem to benefit more from strategy training such as TPM and from rehabilitation treatment in general (mean increase in speed of performance = 109 seconds (SD = 138); mean increase in performance score = 1.7 (SD = 4.1)) than patients with lower levels of awareness (mean increase in speed = 75 seconds (SD = 157); mean decrease in score = 0.8 (SD = 8.7)).

Discussion and conclusions: The results have strengthened our belief that it is most important to objectify level of awareness at the start of and during the rehabilitation period. This may help therapists in choosing the most appropriate treatment approach. The retrospective analyses of the TPM data have given us suggestions for the development of an instrument objectifying the different levels of awareness. A first concept will be presented.

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Utility of the Depression Anxiety Stress Scales in assessing depression and anxiety following traumatic brain injury

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Background and Aims: Prevalence of anxiety and depression following traumatic brain injury (TBI) is higher than population rates and associated with poorer outcomes. A brief self-report measure would assist in identifying those at risk. However, utility of such measures is complicated by confounding symptoms of the injury. This study investigated the sensitivity and specificity of two self-report measures, the Depression Anxiety Stress Scales (DASS) and Hospital Anxiety and Depression Scale (HADS), in predicting DSM-IV-TR diagnoses of anxiety and depression following TBI.

Method: Eighty-six participants with mild to severe TBI were interviewed using the SCID-IV, and completed the DASS and HADS in a separate session.

Results: All scales demonstrated validity in predicting corresponding diagnoses with a significant Area Under ROC Curve. Using recommended cut-offs, the DASS Depression scale (DASS-D) demonstrated a better trade-off between sensitivity and specificity in predicting depression than the HADS Depression scale. However, in predicting anxiety, the HADS Anxiety scale demonstrated a better trade-off than the DASS Anxiety scale (DASS-A), whilst the DASS Stress scale (DASS-S) demonstrated the best trade-off. Sensitivity of DASS-A was improved by excluding somatic items. Sensitivity and specificity of each scale could be improved by adjusting cut-offs for this population.

Discussion and Conclusion: DASS-D is an effective predictor of depression following TBI. DASS-S is a good predictor of anxiety, highlighting the role of general distress. Utility of DASS-A could be improved by reviewing the symptoms it assesses. Ongoing data collection will further explore the influence of general distress and somatic symptoms, to determine the best questionnaire measures of anxiety and depression following TBI.

Symptom Validity Assessment in an Insurance Context: the Need to Assess for Potential Fabricated/Exaggerated Neurocognitive and Psychological Symptoms in Acquired Brain Injury

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The Accident Compensation Corporation (ACC) provides comprehensive, no-fault personal injury cover for all New Zealand residents and visitors to New Zealand.

When assessing ACC clients, there is the potential for secondary gain in that external rewards can be gained by assuming an injury or illness role. Research will be presented which provides evidence detailing the power of external incentives in modifying behaviour. The impact of a secondary gain context is not limited to cognitive measures but also is evidenced on psychological measures. There is a need for assessment of response bias and insufficient effort because of the potential for malingering in secondary gain contexts.

ACC requires that symptom validity is assessed in neuropsychological assessments. New Zealand neuropsychologists are becoming well-skilled in assessing for the possibility of malingered/exaggerated neurocognitive deficits but clinical psychologists and neuropsychologists are less aware of the need for assessing exaggeration or fabrication of psychological symptoms in acquired brain impairment.

In this presentation, evidence will be provided outlining the need to screen for multiple types of symptom exaggeration and techniques and psychometric tools which can be utilised to detect symptom exaggeration and fabrication of psychological symptoms will be discussed.

In addition, discussion will take place as to the possible reasons for symptom exaggeration, the need for appropriate caution in interpreting findings, and the importance of detecting symptom exaggeration in order to implement the most appropriate rehabilitation.

Session 9 – Datablitz

A Case Study Evaluation of the Behavioural and Acceptance Based Therapy (BABT) Program for the Treatment of Anxiety and Depression Following an ABI

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Background and Aims: Research has indicated that up to 40% of adults with mild to moderate ABIs experience psychological disorders. A growing evidence base has demonstrated that Acceptance and Commitment Therapy (ACT) interventions are effective in reducing distress and improving quality-of-life (QoL) in clinical populations. ACT interventions comprise learning via defusion, mindfulness and behavioural strategies, to accept feelings and thoughts pertaining to circumstances that one has no control over or cannot change, and to act in accordance with one's values, to live a purposeful life. Given that ABI patients have to contend with physical and functional changes, an ACT-based approach may be suitable for distressed individuals. To date, no study has tested the efficacy of an ACT intervention with an ABI population. We have developed a manualized ACT-based intervention, the BABT program, with the aim of improving the emotional well-being and QoL of distressed adults with mild to moderate ABIs. The aim of our paper is to

present a case study of a male, 'Luke' (aged 53 years) who met criteria for depression and PTSD as a result of being diagnosed and treated for a primary brain tumour.

Method: Luke completed a comprehensive assessment including a diagnostic interview and neuropsychological testing at three phases: baseline (T1), end of therapy (T2), and at 1-month following completion of the 8-session BABT program (T3).

Results: At T2, Luke no longer met criteria for depression and PTSD, and also reported a substantial improvement in his QoL. These results were maintained at T3.

Discussion and Conclusions: These findings demonstrate that the BABT program has promising utility in treating anxiety and depression in ABI populations. The application of the BABT program for ABI populations will be illustrated through the use of the case.

An Interdisciplinary Team approach to managing challenging behavior

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Background and Aims: Challenging behavior profiles are common after moderate to severe traumatic brain injuries, but remain one of the most difficult aspects for interdisciplinary teams to manage and treat. In residential rehabilitation settings an additional challenge is managing the large number of staff involved with the client so that a structured and consistent message is given.

Methods: A case report is presented outlining an IDT approach to challenging behavior. This is a multi-tiered approach using adapted behavior recording charts, clinical reviews, limit setting approaches and scripting.

Results: Data is presented showing a rapid decline in outburst frequency after implementation of management strategies. For this client, better control of her behavioural outbursts increased her engagement with therapies, enabled stronger rapport development with house staff and raised her insight about the effects of her brain injury.

Conclusions: This would be an approach easily adaptable to individual circumstances and provides a standard process to managing challenging behaviours in this environment.

Use of a 24 hour chart analyses environment and responses prior to the establishment of individual therapeutic daily care programs for clients in Minimally Conscious States

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Introduction: Consideration of the environment and daily routines is often neglected or implemented without thorough analysis of client's specific needs in the MCS client group. There are very few reports of specific targeting of therapeutic interventions to enhance outcomes in MCS.

Aim: To explore the use of a 24hour chart as a tool to establish a therapeutic environment prior to establishing therapeutic goal setting using the Western Head Injury Matrix as a tool in MCS

Method: A range of case studies will be used to demonstrate how a 24 hour chart data collection can be utilized to initially analyze environment and responses to enable daily management of a client to be developed with consideration to fatigue levels, up time, tonic patterns and initial responses.

This information was used to establish targeted individual daily care programs to ensure all manual handling, positioning, and personal care interventions were below startle threshold, comfort was maintained throughout 24 hours of the day, sleep/wake cycle normalized and gross movement patterns minimized.

Results: 24 hour charting enabled the development of an effective daily program prior to utilizing the WHIM scale to implement goal setting.

Discussion: A minimally conscious state does not preclude participation in a rehabilitation program based around optimizing the environment and establishing therapeutic daily activities .

Session 10 - Papers

Factors influencing outcome following mild traumatic brain injury – a prospective study

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Background: Mild traumatic brain injuries (mTBI) causes symptoms in the days after injury, which persist in a proportion of cases. There is debate as to the cause of these symptoms, with recent studies suggesting that post-concussional symptoms may be attributable to pain and general trauma rather than brain injury. Few studies have controlled prospectively for these factors. The present study aimed to examine outcome and its predictors in individuals with uncomplicated mild TBI and trauma controls.

Methods: Participants were 123 adults with uncomplicated mTBI and 100 trauma controls with minor injuries not involving the head presenting to a hospital Emergency Department (ED). Measures included the Glasgow Coma Scale and Revised Westmead PTA Scale, measures of post-concussive symptoms and cognitive performance (ImPACT), psychiatric state, health-related quality of life, pain and other life stressors. Participants were reassessed on these measures one week and three months post-injury.

Results: MTBI patients reported more post-concussional symptoms than controls at acute and one-week assessments and visual memory impairment on ImPACT. By three months both groups had improved significantly, with no group differences in post-concussive symptoms, but persisting deficits in visual memory and more self-reported memory and concentration problems in mTBI participants. At one week post-injury post-concussional symptoms were predicted by presence of mTBI, being female and premorbid psychiatric history. At three months pre-injury physical or mental health problems but not mTBI were the strongest predictors of continuing symptoms, with concurrent anxiety common.

Conclusions: It is important to recognize and address risk factors in managing mTBI

Complicated Mild TBI in Early Childhood Impacts on the Reading Skills at School-age.

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Background and Aims: It has been suggested that children who sustain a mild TBI during their pre-school years have a higher incidence of reading difficulty at school-age. At present, it is unclear whether these children are predisposed to develop reading difficulties irrespective of the TBI or whether cognitive deficits consequent to their injury undermine efficient reading acquisition. The underlying cause is important to establish as it may assist in the future design and implementation of reading intervention programs.

Method: Thirty-four children who sustained a complicated mild TBI before the age of 4 were compared to 33 control children across cognitive, demographic and academic variables at least 7 post-injury.

Results: The control group had reading difficulty rates commensurate with community estimates. In contrast, 1 in 3 children in the complicated mild TBI group met criteria for reading difficulty. Odds-ratio found that the complicated mild TBI were over five times more likely than controls to experience reading difficulty. Phonological processing and rapid automatic naming were associated with reading for both groups. However, divided attention, which was reduced in the complicated mild TBI group, was also an important predictor of reading for the complicated mild TBI group.

Discussions and Conclusions: Poor divided attention may impact on children's ability to efficiently integrate the several subcomponent tasks required for reading, such as the identification and decoding of one or several word segments, the integration of accuracy and text comprehension. This suggests that reading problems following complicated mild TBI may be a consequence of the injury and, contrary to some views, not related to pre-injury factors.

Neuropsychological predictors of driving behaviour after traumatic brain injury

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Background and aims: Neuropsychological testing is often used in clinical settings to inform decisions about readiness to resume driving following a traumatic brain injury (TBI). Research to date, however, has provided mixed support for the utility of neuropsychological tests in predicting driving behaviour after TBI. Inconsistencies in the literature may in part relate to the use of different measures of driving behaviour across studies. In the current study, we explore the relationship of various neuropsychological tests to different measures of driving behaviour after TBI. A key aim was to examine the relationship of specific cognitive domains to different aspects of driving behaviour.

Method: Neuropsychological test data was retrospectively collected for 47 participants with mild to severe TBI who were involved in a driver rehabilitation program at Epworth Rehabilitation. Cognitive measures were compared with two measures of driving outcome after TBI: (1) performance on an on-road driving assessment, and (2) self-reported driving behaviour.

Results: Preliminary results show that cognitive tests associated with executive functions showed the strongest correlation with performance on the on-road driving assessment, whereas measures of attentional function and processing speed were more related to aspects of post-TBI driving behaviour such as near misses.

Discussion and Conclusions: Neuropsychological tests can be helpful in predicting driver behaviour after TBI although the relevance of specific tests will depend on how driver behaviour is being assessed.

'On the Road Again' - Driver Rehabilitation Outcomes after Traumatic Brain Injury(TBI)

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Background : There is a lack of research into the occupational therapy (OT) driver assessment and rehabilitation process following traumatic brain injury (TBI) and post assessment driving behaviour of this group.

Aims: To improve knowledge about predictors and outcomes of driving after TBI in order to maximise road safety and quality of driver assessment and rehabilitation for this group.

Method : Outcome data of all OT driver assessments conducted on patients with a TBI in a rehabilitation setting between 2002 -2009 were documented retrospectively. Injury severity measured by GCS and PTA, years licensed, physical impairments and reaction times were recorded. Outcomes included number of onroad assessments and driving lessons required, conditional licences, and time from injury to return to driving. Self reported changes in driving behaviour and number of pre and post injury accidents were obtained by questionnaire.

Results: No significant differences were found in self reported accident rates pre and post injury or between the two study groups: those who passed the on road assessment and those who required lessons. Logistic regression analysis indicated that PTA duration, driving experience, physical impairment and reaction times classified 88% of cases who passed a driver assessment. Participants who required lessons were twice as likely to report ongoing issues with navigation and near misses. **Conclusions:** Many TBI drivers modify their driving behaviour and those who complete an OT driver assessment and rehabilitation program, not less than 3 months post injury do not appear to be at greater risk of accidents.

POSTERS – TUESDAY

Standardization of praxic tasks for assessment of dementia

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Background and aims: Praxic motor abilities have a key importance in terms of independent living and safety in older people. Deficits in motor abilities or apraxia is considered an important consideration in cognitive decline and dementia. The aim of this study is to standardize a set of different praxic tasks for assessment of motor abilities.

Method: This is an ongoing study of different motor abilities of older people. We are currently gathering data from patients with Alzheimer's disease and healthy control subjects for comparison. Various tasks of motor skills are administered including tests of manual speed and proficiency, ideomotor praxis, ideational praxis and constructional skills.

Results: The study groups will be compared in terms of their overall ability and performance variations in different praxic skills. Influence of various demographic factors (age, sex, education) will also be examined.

Discussion and conclusions: Assessment of motor abilities and praxis is important in differential diagnosis of dementia. As motor speed and proficiency show tendency of decline similar to other cognitive functions then appropriate comparison standards are necessary.

Pediatric Traumatic Brain Injury and Cognitive Rehabilitation in a South African Context

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Background and aims: Traumatic brain injury (TBI) impacts the lives of children and their families in both developed- and developing-world countries. In South Africa, a neuropsychological focus on pediatric TBI has been lacking. This paper describes our early efforts, via two ongoing studies, to remedy the dearth of research in this area in our country. Study 1 aims to provide a demographic profile of children admitted to the Red Cross War Memorial Children's Hospital (RXH) in Cape Town, South Africa. Study 2 aims to describe the continued process and preliminary results of implementing a cognitive rehabilitation service for children following TBI.

Method: Study 1 was a 5-year, retrospective, descriptive study of TBI admissions to the RXH. Study 2 involved the evaluation of a 10-week neuropsychological intervention (Pay Attention!) for children following TBI. The program was evaluated through case-studies ($N = 4$).

Results: Study 1 described trends consistent with those from previous European and North American studies. Study 2 showed that, although there were some positive outcomes of the intervention, they did not generalize across all functional domains.

Discussion: Results identify target demographic groups most in need of intervention, shed light on the process of implementing neuropsychological interventions in a developing-world context where this is scarce, yet needed, and highlight gaps in such service delivery.

Conclusion: Continued research of this nature is needed to identify those factors that make the experience and rehabilitation of pTBI unique to our local context. Such research will aid in facilitating interventions for pTBI in future.

Brain oxygenation and neuropsychological outcomes in children following severe traumatic brain injury

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Traumatic brain injury (TBI) is a leading cause of morbidity and mortality in children and adolescents. Efforts at improving outcome are often directed at preventing secondary brain injury. This aim may be achieved by controlling physiological parameters, such as brain tissue oxygenation (PbtO₂). It is well-established that low PbtO₂ is associated with poor outcome (measured via Glasgow Coma Outcome Scale and the Pediatric Cerebral Performance Category Scale) in both adults and children, although fewer studies on this topic have been conducted in children. No studies to date have investigated neuropsychological outcomes in children in relation to PbtO₂-based monitoring. This pilot study is aimed at investigating this relationship across a range of neuropsychological domains, using a retrospective correlational design. Data were collected from patients who have undergone PbtO₂ and intracranial pressure (ICP) monitoring for brain injury. At our centre, children with TBI are considered for monitoring if their postresuscitation Glasgow Coma Scale (GCS) score is ≤ 8 or deteriorates to this level after admission. The sample included 12 English- and Afrikaans-speaking children, aged 7 – 14 years who were admitted for closed TBI and who were at least 1 year post-injury. Spearman's rank correlation was used to test the association between PbtO₂ and neuropsychological outcome scores.

One Step Forward: The Test of a Prototype

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Background and Aims: Virtual reality technology (VR) brings new potential to neuropsychological assessment and cognitive rehabilitation. It presents characteristics such as: allowing the design of safe learning environments, ecologically valid testing and training scenarios, hierarchical stimulus contingent upon success, the use of "gaming" factors to enhance motivation, or the delivery of immediate feedback following performance. VR seems thus to contribute to improving the way we work in rehabilitation. Our aim is to test the CARP-VR (Computer Assisted Rehabilitation Program - Virtual Reality), an immersive program for cognitive rehabilitation of dysexecutive syndrome and related cognitive functions, such as attention and memory. CARP-VR includes such tasks as navigation inside a supermarket, product acquisition or payments. Planning and execution are required from patients according to the different tasks and roles.

Method: Eight subjects with Acquired Brain Injury were recruited, and their satisfaction levels and performance evaluated. System usability and possible complications with it were also assessed. Patients' performance was compared with the performance of eight healthy controls and correlated with demographic and clinical variables.

Results: The preliminary results are promising, representing a step forward in this project. They improve our knowledge on the importance of VR technology.

Discussion and Conclusions: Currently of importance in this domain is to develop innovative tools and demonstrate their applicability in the field of cognitive rehabilitation. We hope to contribute to this end.

Efficiency of a multidisciplinary neurorehabilitation program (neuropsychology, speech therapy, occupational therapy and physical therapy) in patients with acquired brain injury

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Background: Neurorehabilitation aims to restore, minimize and compensate for functional deficits associated with nervous system injury, a disability that

affects not only the physical, functional and cognitive abilities of the individual but to the lifestyle and their level of social interaction. From this perspective our center implemented a multidisciplinary rehabilitation program to demonstrate that a continued therapeutic in acute and subacute fight successfully with the consequences that presents a person with brain damage. Measure the effectiveness of programs of different therapeutic disciplines is the aim of our study.

Method: The study comprises 12 patients with acquired brain injury in subacute phase. Some of the measures to show the effectiveness of our programs were (*Neuropsychology*: Stroop, Fas, TMT, WAIS III, WMS III, BADS; *Occupational Therapy*: Barthel, Rivermead, Lawton, Amps, *Physiotherapy*: Berg, Tinnetti, Ashworth, Up and Go; *Speech Therapy*: Boston, Token).

The rehabilitation program had a duration of 36 months. Conducting assessments before and after, and every 12 months.

Results: Assessments show a statistically significant improvement in balance, trunk control, increased sensitivity, no differences in levels of spasticity.

With regard to functional levels (occupational therapy), the main differences are the decrease in level of support for basic and instrumental activities.

Neurocognitive aspects are statistically significant increase in processing speed, improve understanding and recall, and improved planning and sequencing. It shows the cognitive rigidity as a factor of poor prognosis.

Discussion: To analyze the effectiveness of neurorehabilitation programs in the coming years will be necessary to deepen the study of the factors of good and poor prognosis, all framed in a holistic treatment to achieve maximum independence and improved quality of life.

Neurobehavioral intervention to reduce maladaptive behavior and maximize psychosocial adjustment. A single case study.

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Backgrounds: The consequences of head injury include physical problems, changes in cognitive and psychosocial. Psychosocial aspects affect the emotional components, behavioral and social functioning of the person concerned and his family, the main impediment in the rehabilitation to their old environment and the main burden for the family (Marsh, Kersel, 2002).

Aims: To evaluate the effect of neuropsychological intervention in neurobehavioral disorders and psychosocial adaptation in a patient with severe head injury in chronic phase.

Method: Go to the center daily to receive multidisciplinary treatment. There has been an external behavioral control through a weekly register with different parameters, along with techniques for self and external management by keywords. Neuropsychological intervention has been focused on optimization of attention and increased speed of information processing, improve the recognition and expression of emotions and reduce neurobehavioral alterations.

Results: Qualitative assessment (records, video, etc) and quantitative (FrSBe scale, neuropsychological tests) show an increase in processing speed, increase span of attention and improvement in mental manipulation. We observed a reduction in break time, improving participation in the sessions. Interpersonal distance has increased significantly, showing an improvement in the interaction with other people.

Conclusions: The results show that a neuropsychological and psychosocial behavioral intervention is effective, even presenting severe disease and found in the chronic phase of injury.

The effects of family guidance combined with cognitive training on performance of AD patients

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Background: Numbers of families affected by dementia have jumped dramatically in recent decades. Family guidance provides information on the disease, helps others understand its impact on patients' daily lives and the importance of restructuring their routines, efficient use of residual skills, and training in and implementing functional strategies

Objective: Investigate the importance of family guidance for maintaining functionality in patients with early stages of AD.

Methodology: Twelve initial Alzheimer's disease patients (6 women), mean age 75.42 (6.22), schooling 9.58 (5.6) years, all meeting NINCDS/ADRDA criteria, on maximum anticholinesterase doses, were evaluated on the MMSE, the ADAS-Cog, the Neuropsychiatric Inventory, and the B-ADL Bayer Scale for daily living activities. We evaluated patients before and after 8 months of rehabilitation, holding two sessions every week (individual and group) and providing family guidance every two weeks. During individual sessions, we provided functional training (shopping at a supermarket), and each patient was instructed to write a list of items organized by categories, given some money, and taken to do their shopping.

Results: Comparative analysis showed no significant loss of cognitive profile on the MMSE (23.25 to 23.42), ADAS-Cog (17.11 to 21.2). B-ADL functionality improved (100.58 to 98.58), as did NPI behavior (23.42 to 19.83).

Conclusion: Family guidance may be an important means of improving performance and helping patient continue daily living activities for a longer period, since the family is the best way of inserting compensatory strategies in everyday living, thus enhancing autonomy and quality of life.

The Relationship between Cognitive Functioning and Facial Affect Recognition difficulties after Traumatic Brain Injury

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Background and aims: Substantial evidence suggests that cognitive functioning and facial affect recognition are impaired to some degree after moderate and severe traumatic brain injuries (TBI). However, very few studies have been set up to investigate the direct relationship between these two cognitive domains in this clinical group, and those that have are limited by small sample sizes and conventional neuropsychological tests. Thus, the primary aim of this paper is to test potential relationships between cognitive functioning and facial affect recognition and address these limitations.

Method: The correlation between facial affect recognition and cognitive abilities will be analyzed from data of a multi-centre randomized controlled clinical trial that examined the efficacy of two new treatments to improve emotion recognition in people with TBI. This trial is currently being conducted in three international sites: St Catharines Ontario, North Carolina, and Wellington. 55 adults with moderate to severe TBI have been administered with tasks assessing aspects of emotion recognition and measure of empathy. They have also undergone a comprehensive computerized cognitive battery (CogState) with tests assessing attention, learning, psychomotor function, executive function, memory, and social emotional cognition. CogState was shown to be sensitive in capturing subtle changes in cognitive functioning.

Results: Results will be discussed in terms of the underlying cognitive mechanisms that may be contributing to the incapacity to recognize facial affect following TBI.

Discussion and Conclusions: Several interventions designed to remediate facial affect recognition deficits for people with TBI have been documented. The findings from this paper may provide valuable information, both theoretically and in terms of rehabilitation.

Effect of postural control training for mental and motor functions recovery in patients with traumatic brain injury

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Background and aims. Cognitive and motor deficits are common consequence of traumatic brain injury (TBI). The general goal of rehabilitation revolves the resumption of effective functioning of these patients in social environment. During last years was shown that rehabilitation using postural control training produces improvement of gait and mental functions in patients with brain damage. The aim of present study was to investigate the recovery of mental and motor functions in TBI patients after rehabilitation using stabilotraining (ST).

Methods. Complex clinical (FIM and MPAI-III), stabilographic and EEG examination were carried out in 38 patients (28.5 ± 7.4) before and after ST course (from 4 to 6 weeks) and in 28 healthy subjects (27 ± 12.2). Ten of these patients experienced problems of mental sphere predominantly (posttraumatic Korsakoff's syndrome) and others – of motor one.

Results. EEG coherence analysis demonstrated decrease of EEG coherence in all patients and some specificity in patients with impairment in different spheres before rehabilitation course. Complex examination demonstrated the positive effect resulting in recovery of postural control, brain functional state and clinical status of TBI patients enrolled in rehabilitation course with ST.

Discussion and Conclusions. Effective rehabilitation is accompanied with EEG coherence increase that may reflect the brain functional state recovery after rehabilitation with ST. These EEG-changes could be considered as marker for integrative role of postural control in restoration of patients with TBI. This process includes improvement of motor as well as mental functions.

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