# Neuro-rehabilitation & Emotion


**Huw Williams**

CCNR
School of Psychology
University of Exeter
&
Emergency Dept,
Royal Devon & Exeter Hospital
w.h.williams@exeter.ac.uk


*Centre for Clinical Neuropsychological Research (CCNR)*

UNIVERSITY OF EXETER

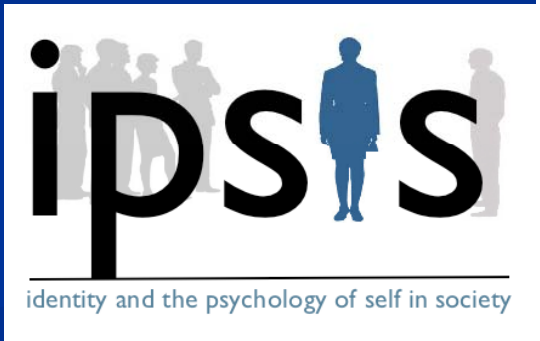
Building the bridge between academic and clinical neuropsychology

NHS

With thanks to:
Profs Barbara Wilson OBE & Jonathan Evans
staff and clients at -

# Thanks to:


- James Tonks, Phil Yates, Ian Frampton, Alan Slater, Luke Mounce, Sarah Wall, Helen Ryland
- Adrian Harris, Adam Reuben, Jonathan Benger
- Alex Haslam, Janelle Jones, Catherine Haslam, Jolanda Jetten
- Penny Weeks consulting, CBIT, Encephalitis Society, Headway Devon, Headway UK, UKABIF, OZC
- Patients/clients/members who participated in projects


# Brain Injury: Scale of problem

- WHO: "Brain Disease" =
  - 35% of Europe's total disease burden
- *Head Injury is the leading cause of death and disability in children & working age adults*
- "TBI [Traumatic Brain Injury] - among young adults, account[s] for a quarter to a third of trauma deaths and for a much larger proportion of lifelong disability" Maas et al., (2006)

# All brain injuries 1998-2003 by gender

## (Suspected & Moderate-Severe)

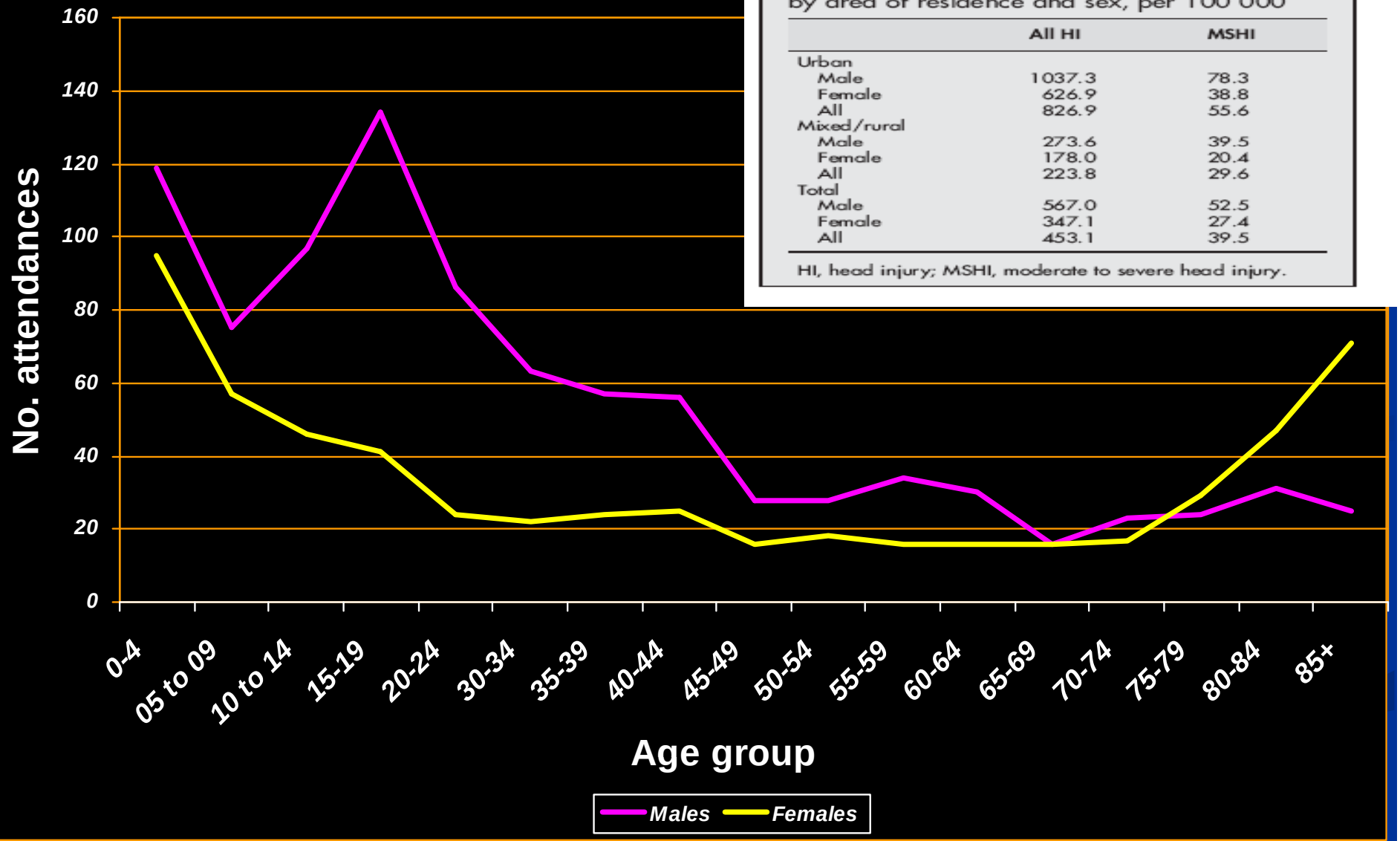



**Table 1** Attendance rates for all HI and MSHI by area of residence and sex, per 100 000

| | All HI | MSHI |
|---|---|---|
| Urban | | |
| Male | 1037.3 | 78.3 |
| Female | 626.9 | 38.8 |
| All | 826.9 | 55.6 |
| Mixed/rural | | |
| Male | 273.6 | 39.5 |
| Female | 178.0 | 20.4 |
| All | 223.8 | 29.6 |
| Total | | |
| Male | 567.0 | 52.5 |
| Female | 347.1 | 27.4 |
| All | 453.1 | 39.5 |

HI, head injury; MSHI, moderate to severe head injury.

Yates, Williams et al. 2006, JNNP

# Brain Areas that typically Injured…

- **frontal-tempo-limbic systems** are crucial for **Monitoring arousal level & control of behaviour towards "goal states"**
  - Injury often leads to:
    - impulsivity, poor planning, inadequate response inhibition and inflexibility (Milders, Fuchs & Crawford, 2003).

      &

    - "poor anger management (reactive), irritability and impulse control are common" (Hawley et al. 2003).

- personality and emotional deficits – due to **de-coupling of cognition and emotion** has been described by Damasio (1994), as "acquired sociopathy"" -

# …is there a case for Neuro-rehab "OF EMOTION"…

- Are there mental health problems?
  - Are such MHPs related to psychological or – proportionally - "biological" factors
- Are there cognitive-behavioural phenomena that may be amenable to CBT?
  - Related to mood
    - ? pain, sleep and other "health" issues
- What about neurologically based emotional deficits?
- How can CBT be delivered? And does it work?
  - Considering cognitive systems and neuro-affective systems that may be affected…

# Neuro-rehabilitation and emotion

- **Typically referring issues for services involves mood problems, break-ups, drink/drugs..etc…**
  - See Williams & Evans, 03
  - Special Issue of *Neuropsychological Rehabilitation* on Biopsychosocial Issues in Neuro-Rehab

# Suicidality…

- Simpson & Tate (2007) review:
  - Suicides account for 1-7% of deaths - over medium to long term in mortality studies – and ? Under-rep
- Teasdale et al (2001)
  - SMR (Standardised Mortality Ratios) of:
    - 4.05 TBI
    - 3.02 Concussion

*(also see Fleminger et al 2003)*

•SUICIDE RISK:
Call for better & management of
Mental health issues for
survivors of neurological trauma
See editorial, JNNP, Sept, 01

# Mood disorders post TBI

- **Silver, Kramer, Greenwald, & Weissman (BI 2001) community sample of over 5,000 adults 361 (i.e. 7.2%) had suffered TBI (with LoC) and of this sub-sample (versus non TBI)**
  - **11% suffered major depression (5.2)**
  - **11% phobic disorders (7.4)**
  - **5% OCD (2.3)**
  - **3% panic disorder.** (1.2)
  - 24.5% Alcohol dependence (10.1)
  - 10% Drug dependence (5.2)

# Depression post TBI

Holsinger et al. (2002)

- *Lifetime risk (general population) of depression highest in head injured*

Garske & Thomas (92)

55% mild-severe depression

Bowen et al. (99)

35% "caseness"

Iowa study (03):

33% "major depressive disorder" during the first year.

**BPAD – Bipolar Affective**

Van Reekum (00) BPAD in 4% (5x population)

**Causes:**

Biological "gradient"?

Levin et al (01) no consistent pattern of focalised lesions

Jorge et al (04)– reduced volume in ventro- and dorsolateral prefrontal regions

*Therefore consider role of:*

- Pre-injury coping
- Identity crises
- Lack of support & treatment

See:

**Rogers & Read - Review (2007)**

# Anxiety

- **Anxiety - all elevated**
  - Van Reekum **(00) - GAD** (9.1%)/**Panic** (9.2) **OCD** 6.4%)

- PTSD:
  - **Bryant et al. (00)** - 27%
  - **Williams et al. (03)** - 18% rate of symptoms – (of which a third severe)
  - **Greenspan et al. (06)**
  - PTS at 11% at 6 months & 16% at 16 months
  - **[Bruggimann (06)**
  - Of 49 non-severe stroke ptnts - 31% had significant PTSD symptoms]
  - *Lack of natural recovery compared to other groups*
    - *(Mayou et al, 00)*
  - *Pain maintaining PTSD*
    - (Bryant, 99; see McMillan, Williams and Bryant, 2003)

# …LOTS OF MENTAL HEALTH ISSUES…more focus on "how to treat" needed

"Evidence documenting the presence of these disorders in significant proportions of those with TBI is sufficient….[however there is ] insufficient evidence available to guide effective practice…to provide a basis for …more targeted interventions,"

Gordon et al (p. 28, AJPMR:06) emphasis mine

## Mood problems…pragmatic view

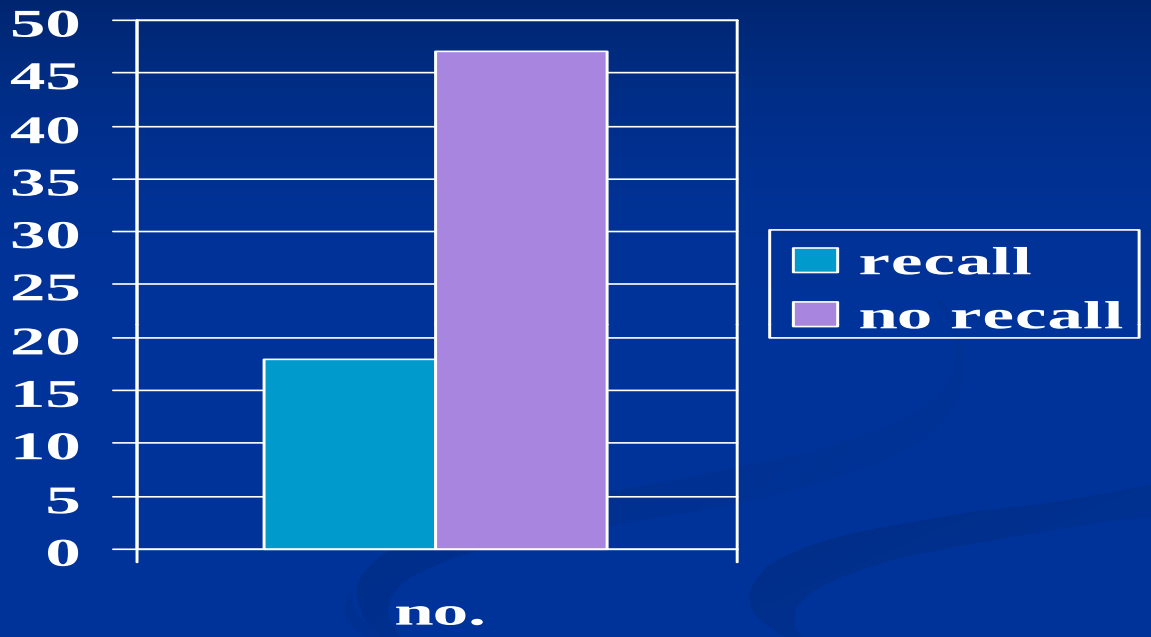
- "a paucity of data continue to preclude the formulation of a definitive account of the aetiology… post-TBI psychiatric **syndromes may be phenomenologically similar** to their idiopathic counterparts…[which suggests they] may be amenable to standard therapeutic interventions" Rogers and Read (2007: Brain Injury). emphasis mine

# Coherence of mood disorders and schemas post-TBI

- Do survivors of TBI have the cognitive-emotional-motivational "architecture" consistent with mood disorders that can be targeted?
  - Sufficient memory of what has happened (& does it matter)?
  - What kinds of coping styles, schemas and distortions get set up by trauma & aftermath?
    - Attributions for trauma event
    - Mood induced compromised access to autobiographical memory (ABM)
    - Coping styles
    - Rumination (over trauma) that might contribute to ABM problems & suggest negative automatic thoughts

# Memory of the event: a risk factor?

- Gil et al (2005) (Am J Psychiatry)
  - 120 TBI hospitalised for obs – BUT mostly **MILD**
  - 14% PTSD (full) at 6 months
  - Memory of event more likely to have PTSD esp. re- re-experiencing cluster of symptoms
  - Memory WITHIN 24 hours predicting PTSD at 6 months




**Williams, Evans, Needham & Wilson 03**
**(Brain Injury and J. Traumatic Stress)**

**•Up to a third had some recall**

**•( Forrester, Encel & Geffen, (1994)**

**•IES (PTSD) mean scores:**

**•Recall group: 12.6**

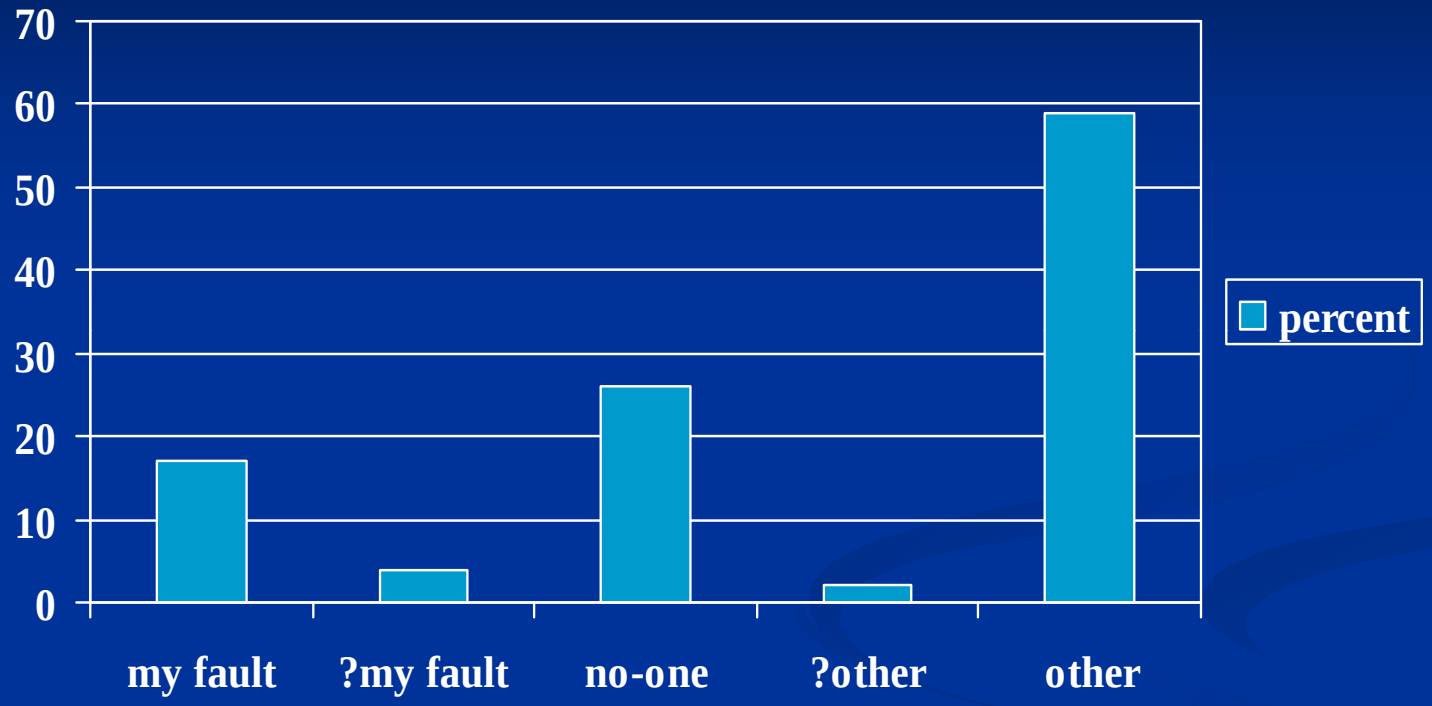
**•no recall group 12.7**

***•no difference…***

# Causal Attributions as predictor of PTSD

**(Severe TBI group)**

(Williams, Evans, Needham & Wilson, 03 (Brain Injury))




- positive correlation between attribution of external control for the event and severity of PTSD
  - Turnbull et al (BI: 2001) TBI "remembering" the emotional tone…
  - **Meiser-Stedman et al. (JAP: in press) greater subjective sense of threat at time of trauma**
  - **fear … a Near Death Experience (N D E)**

# "Appraisal at injury" may be key predictor of PTSD…

- **Examples of Islands of (peri-traumatic) memories**
  - **HT: no PtSD**
    - "..emergency workers freeing me from the wreckage, police talking to me…*feeling* I'll survive…"
  - **KE: severe PtSD**
    - "[I was] coming around for a short period…[I] *felt I was dying…I* was in the car. Smoke … blood…I couldn't see…I reached for my girlfriend... she was dead..".

# Trauma causality, stress and autobiographical memory (ABM)

**Williams, Williams & Ghadiali,( 1998: Neuropsych Rehab)**

- 18 participants, TBI
- Measures: Causal Dimension, HADS, ABM task
  - Both Internal and external: (N: 6)
    - "I was at [the] races. I backed two winners..my friend lost [and asked for money]..we argued..I refused him the money..[we] ended up fighting..he was responsible [but] I'd said he wouldn't get the lend".
  - External: (N: 12)
    - "We were...[outside a nightclub]waiting for a taxi...[taxi came] a lad said it was his...after an argument...he punched me..I banged my head [on the kerb]... I collapsed..."

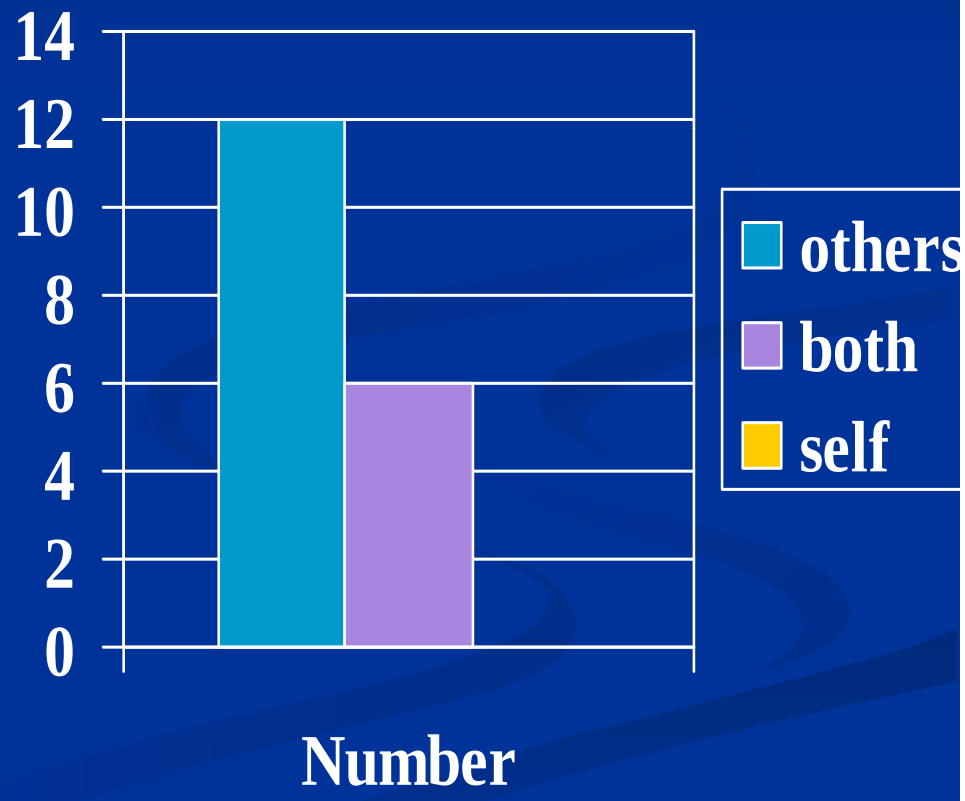
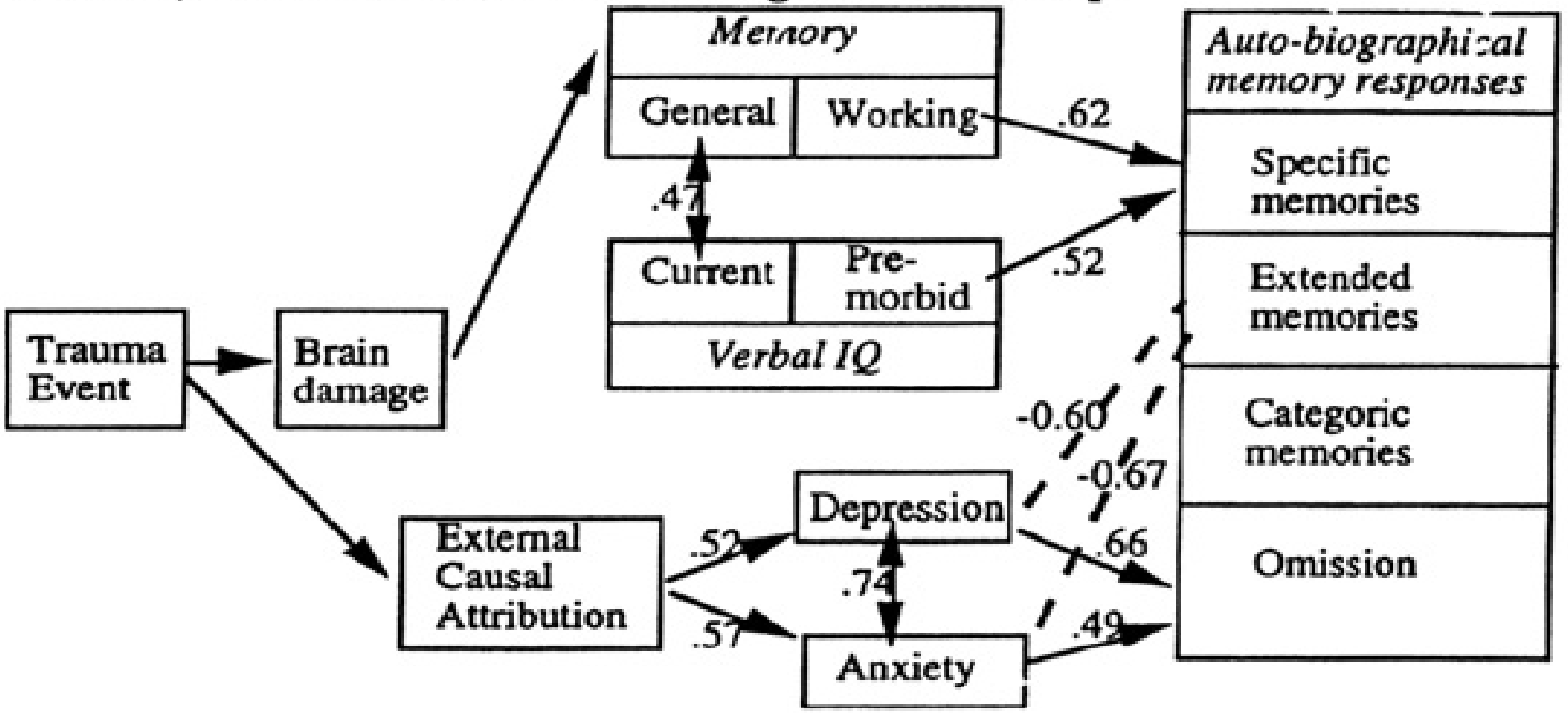


**Figure 1: Model of Neuropsychological and affect predictors of Autobiographical recall: arrowed lines indicates a positive relationship between variables, and a dotted line indicates a negative relationship.**




- Externalizing causal attribution predictive of Depression & Anxiety
- Depression and anxiety predictive of poorer autobiographical recall (controlling for cognitive problems)

## Rumination & overgeneral Memory Bessell, Watkins & Williams (2008: JINS)

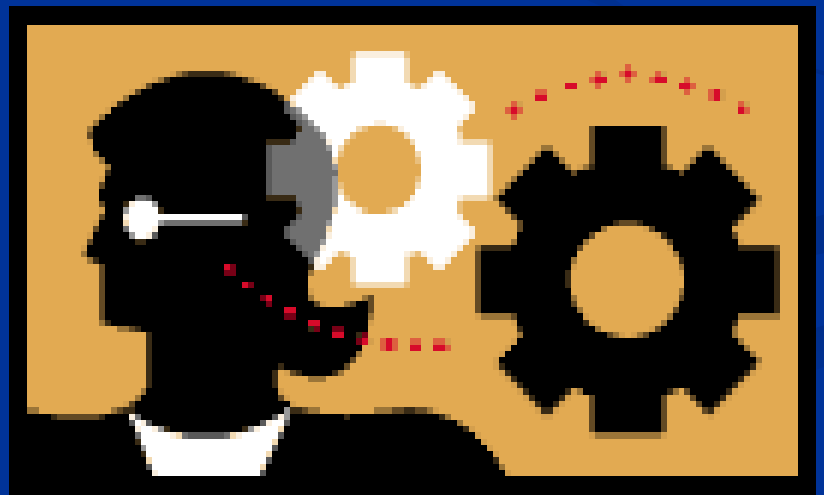
- Rumination =

  repeated dwelling on the self, depressed symptoms, upsetting events, and personal problems-

  e.g. "Why did this happen to me? Why do I feel like this? Why do I always react this way?" (see Nolen-Hoeksema (1991))

- Predicts:

  onset & increased duration of depression (see Watkins, pc)



# Rumination & overgeneral Memory Bessell, Watkins & Williams

Participants:

(45 m 16 f), MILD and SEVERE impairments due to ABI

**Measures & Procedure:**

•Autobiographical Memory Test (AMT)

•Neuropsych tests, mood measures (Beck) and "Rumination Q"

•Matched pairs PPS assigned (random) to one of two different attention tasks (rumination or distraction) lasting less than 10 minutes.

**Conditions:**

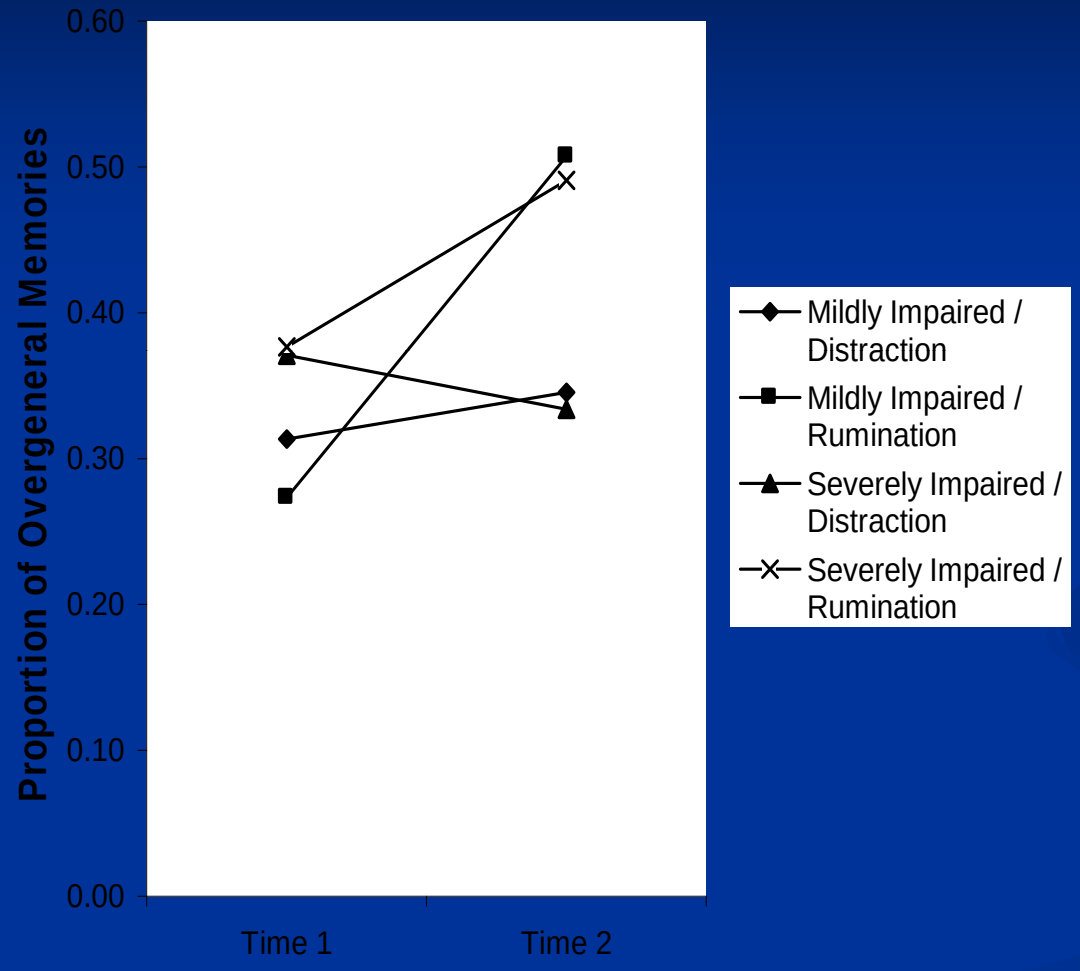
Rumination: items like - "think about why you react the way you do"".

Distraction: items like - "think about and imagine a boat slowly crossing the Atlantic"".

**Post-intervention:**

PPS asked to carry out a second AMT to assess the level of change in overgeneral memory from baseline.

# Results




- Rumination significantly increased overgeneral memory, for BOTH groups (Severe & Mild)
- Distraction did not influence over-general recall in either group

*Figure*: Mean Proportion of Overgeneral Memories across Conditions by Time

# Psychological adjustment & **coping styles**

- Moore & Stambrook (1995)
- 131 Participants, TBI
- ? predictors of long term outcome, IQ/Memory/Coping Styles

- Group 1:
  - external locus of control, "high variety" of strategies & **poor outcome**
    - *"T'd do anything to top the pain...Life stopped…I'm being punished"*
- Group 2:
  - re-appraised control for life events, Problem solving strategy & **good outcome**
    - *"terrible day…I appreciate life and family more... take a day at a time"*

Finset & Andersson (2000)

•70 ABI (& 70 1 controls)

•COPE

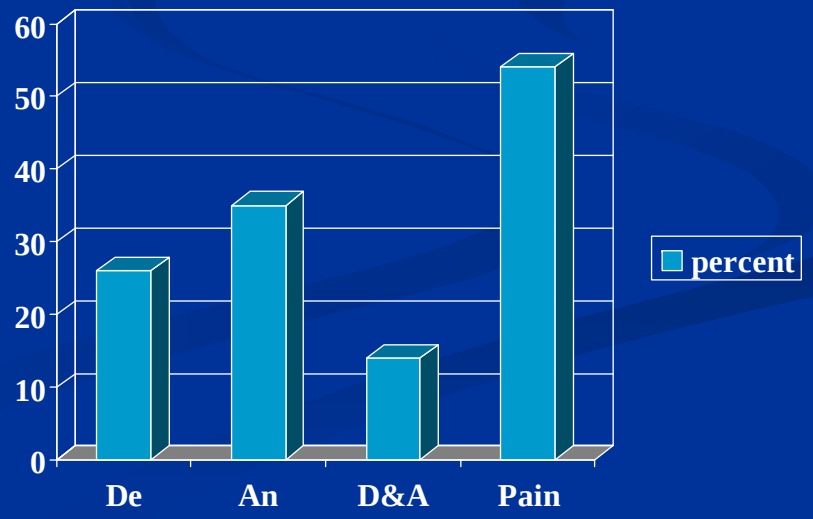
•lack of active approach oriented coping style associated with apathy

•Avoidant coping assoc. with depression

•Williams & Dunt: pilot…(29 ABI pps)

•Depression LESS problem-focused coping.

•Anxiety & avoidant coping style



# Psychological adjustment & coping styles

- Losses & Grief: cognitive, physical, social roles & relationships *(See Coetzer et al. (03)*
- Complex process of adjustment *and Roundhill & Williams (2008)*
  - **Avoidance of loss (early phases)**
    - "You don't want to remember that life, how it was, and how it is now."
  - **Anticipation of gain (later phases -- especially if supported)**
    - "There is a lifetime of recovery. You've got to be positive about these things."

# Mood related Schemas* and Coping Responses

- **Anxiety**
  - themes of threat and vulnerability
    - "stuck in trauma" rumination
  - Trepidation and fear in anticipation of the future
    - Externalised "sense" of control
  - Avoidant coping style
  - Compromised autobiographical access

*** note: co-morbidity very high for mood disorders, so overlapping schemas**

- **Depression**
  - themes of loss and devaluation of the self –
  - cognitions invariably focus upon regrets and recriminations – self-focussed negative rumination
  - Less adaptive coping styles
  - Compromised autobiographical access

See:

- Moore & Stambrook (1995)
- Finset & Andersson (2000)
- Curran, Ponsford & Crowe (2000) re: coping styles after Brain Injury
- Le Doux (AJP: 2003) re: overcoming fear and active coping

# Affective processing

- **"Brains become minds when they learn to dance with other brains"** W.J. Freeman

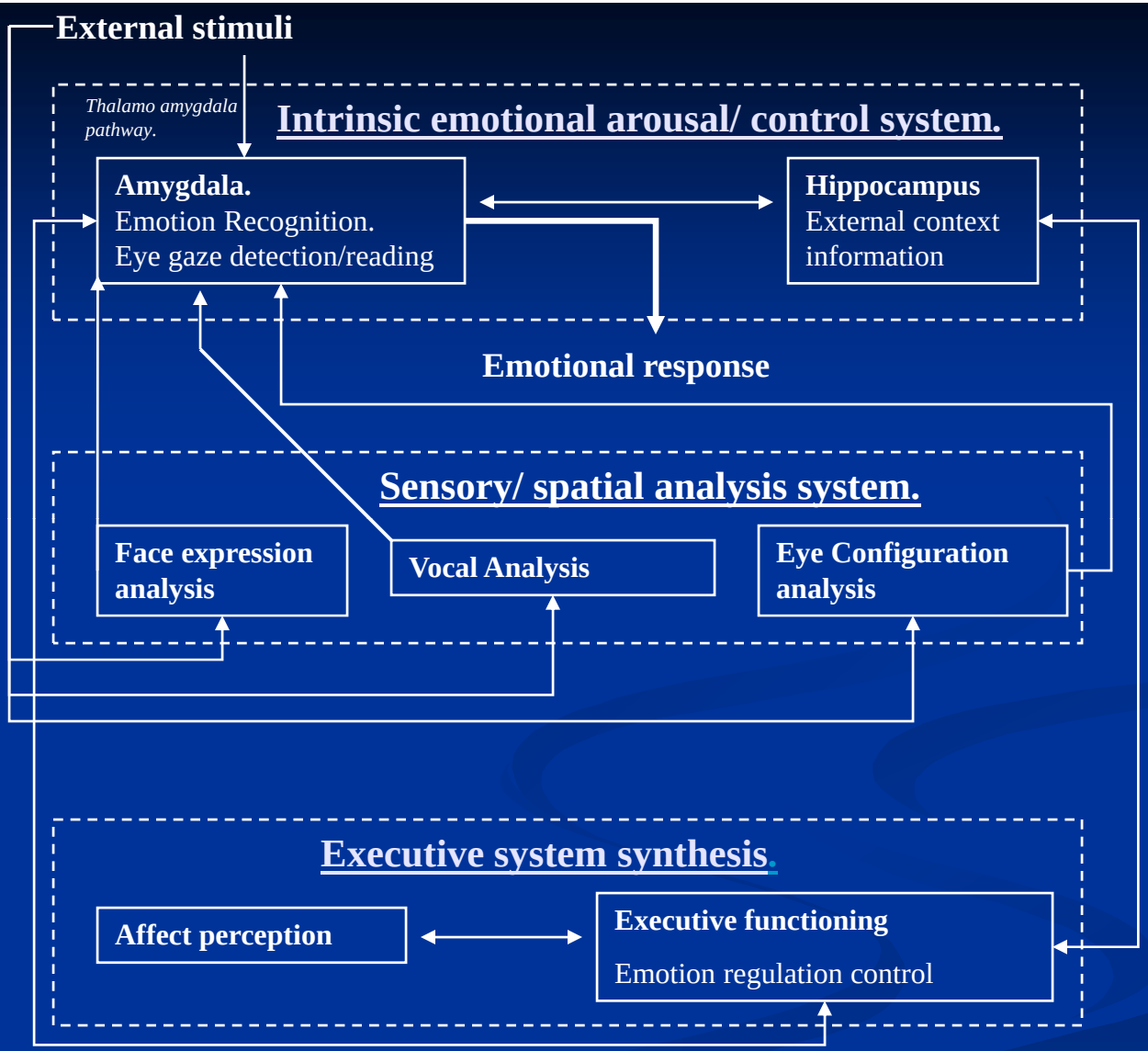
- **Being in a role involves <u>emotional stability & synchrony</u> WITH others…**
  - *Cognition can be de-coupled from "basic" emotion inputs*
    - **Emotion unavailable for decision making/setting goals…**
    - **Specific deficits e.g. ability to process socio-emotional cues**

# Tonks et al, 2007/2008: A HEURISTIC FOR SOCIO-EMOTIONAL PROCESSING IN THE BRAIN

*Functional at birth. Enables association learning.*

*Develops rapidly during the 18 months following birth, with an identifiable further significant stage of improvement at around 11 years old*

*Develops throughout childhood and adolescence, assuming increasing executive control over emotions.*




(Le Doux, 1999; Rolls, 1999; Hornack, Rolls & Wade 1996; Jackson & Moffat, 1987; Baron-Cohen, 2000; Evans, 2003)

# Tonks, Williams et al - Emotion processing post ABI

| Age group | Male or Female: male | Male or Female: female | Total | Mean Time Lapse Since Insult (yrs) | Mean Injury Age (yrs) | Nature/ Frequency of Insult. *(M=Male, F=Female)* |
|---|---|---|---|---|---|---|
| Nine to ten | 2 | 1 | 3 | 2.17 | 5.3 | *M= 1 Severe TBI, 1 Stroke. F= 1 Severe TBI* |
| Ten to eleven | 1 | 1 | 2 | .88 | 9.8 | *M= 1 Heamorrage (AVM). F= 1 Meningitis* |
| Eleven to twelve | 3 | 1 | 4 | 5.4 | 5.17 | *M= 1 mild TBI, 2 Tumour. F= 1 moderate TBI* |
| Twelve to thirteen | 2 | 0 | 2 | 6.46 | 6.33 | *M= 2 Severe TBI.* |
| Thirteen to fourteen | 2 | 1 | 3 | 6.14 | 7.17 | *M= 1 Severe TBI, 1 mod TBI. F= 1 Severe TBI.* |
| Fourteen to Fifteen | 4 | 0 | 4 | 2.89 | 11.42 | *M= 1 Severe TBI, 1 mod TBI. 1 mild TBI. 1 Stroke.* |
| Fifteen Plus* | 1 | 1 | 2 | 2.33 | 13.79 | *M= 1 Severe TBI. F= 1 Severe TBI* |
| **Group Total** | 15 | 5 | 20 | | | TBI=14, Meningitis=1, Tumour=2, Heamorrage=1, Stroke=2. |

# Tonks, Williams et al - Emotion processing post ABI **controls**

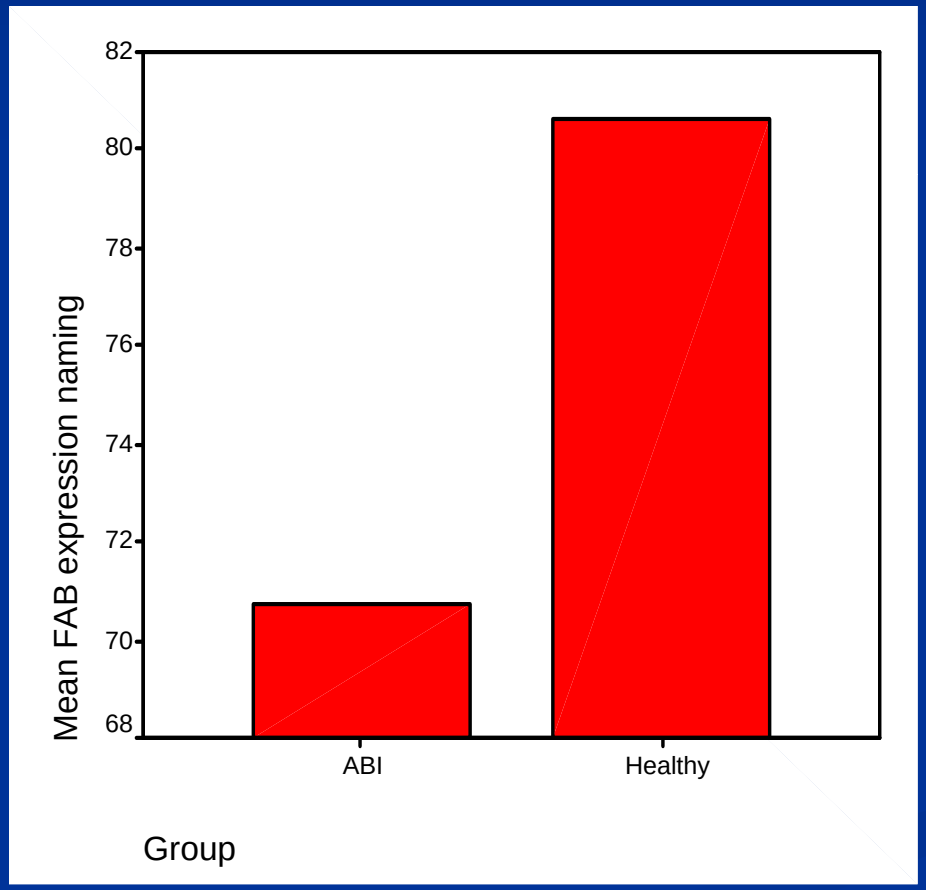
Table 2: The sample of participants used in the current study.

| Age group | Male or Female: male | Male or Female: female | Total |
|---|---|---|---|
| Nine to ten | 6 | 5 | 11 |
| Ten to eleven | 5 | 5 | 10 |
| Eleven to twelve | 9 | 7 | 16 |
| Twelve to thirteen | 4 | 6 | 10 |
| Thirteen to fourteen | 5 | 5 | 10 |
| Fourteen plus* | 5 | 5 | 10 |
| Group Total | 34 | 33 | 67 |

*1 participant was 15 yrs & 1 month. Remaining participants were 14 to 15.

67 (age matched) children were recruited from primary and secondary schools. These were given the batteries of tests.

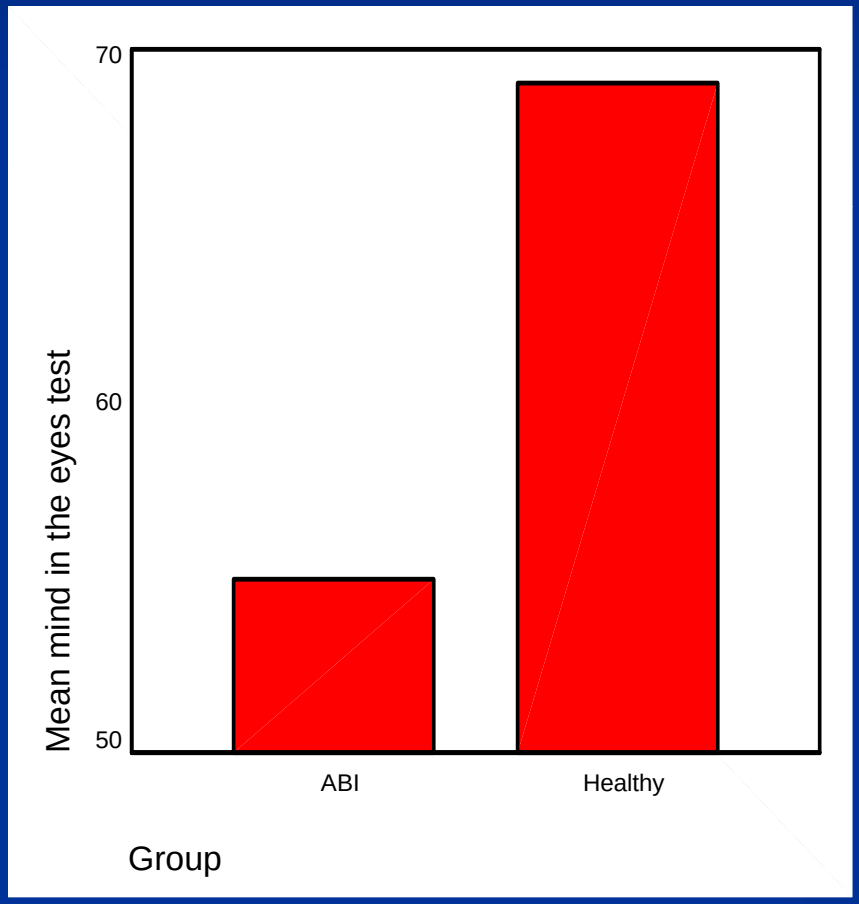
# How do ABI children compare to non-injured children?

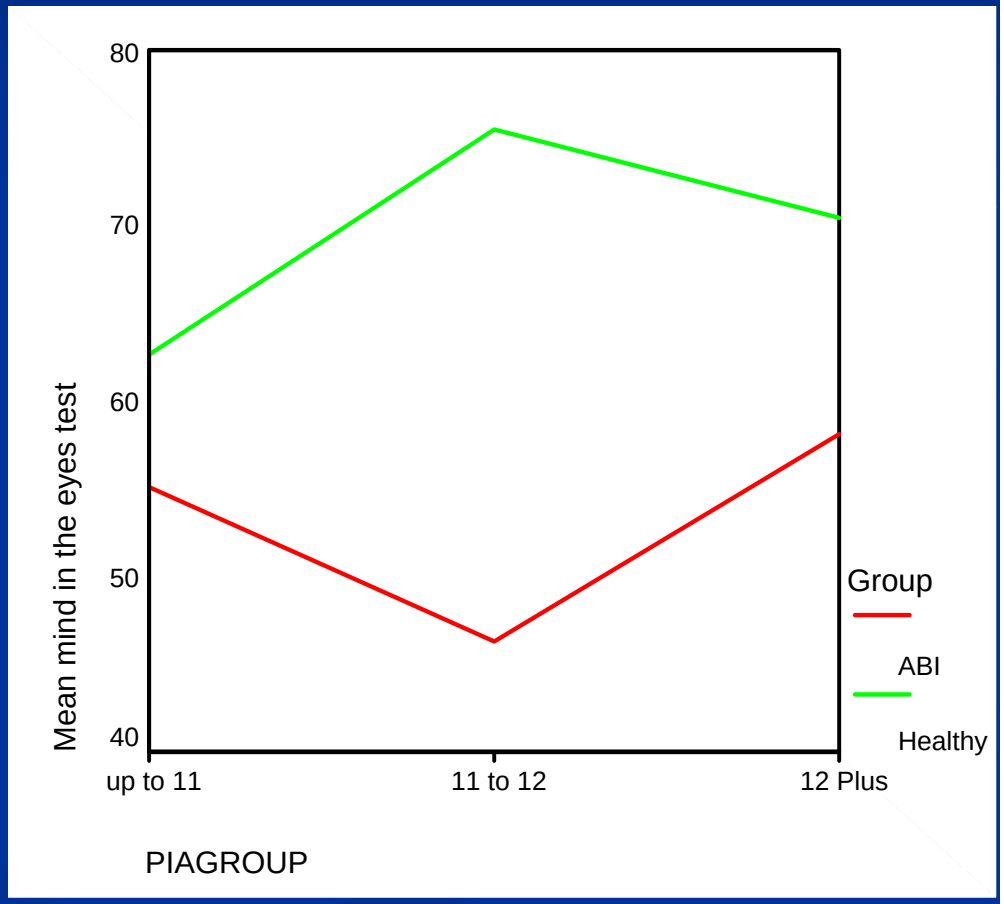



**F(1,85)=14.227 p<.000**

**ANCOVA (FAS):**
**F(1,84)=10.992 p<.001**

# How do ABI children compare to non-injured children ("Mind in the Eyes")?



# Problems in emotion processing in children with ABI

- **Group trends:**
- those with difficulties with angry faces experienced peer problems

- poor at identifying expressions reported less pro-social.

- **Specific deficits**

  - KL - not recognise sad faces
  - MN – not "getting" emotional tone. He could not understand sarcastic remarks
  - OP- reads all "eyes" as hostile. increasingly violent

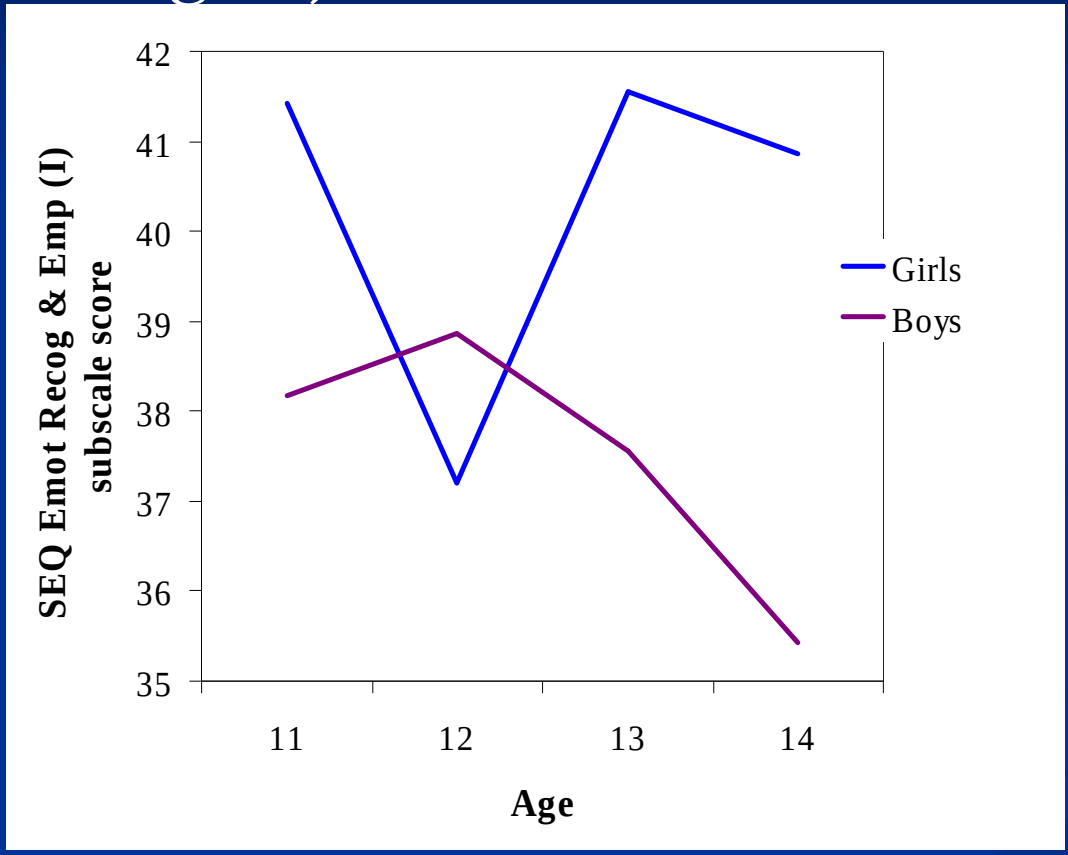
[also see: Milders, Fuchs and Crawford 2003 re: adults with TBI;
Skye MacDonald & colleagues re: TASIT (awareness of social inference)]

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

# Theory of Mind & Empathy in TBI (in press) : Sarah Wall, Huw Williams, & Ian Frampton

- ToM
  - A Test of Social Processing (Turkstra et al., 2001)
  - Faux Pas test (Baron-Cohen et al., 1999)
- Empathising
  - Socio-Emotional Questionnaire for Children
    - "I (he/she) notice(s) when other people are happy"
    - "I (he/she) prefer(s) being alone than with others"
- + Strengths and Difficulties Q & DEX-C (Dysexecutive)

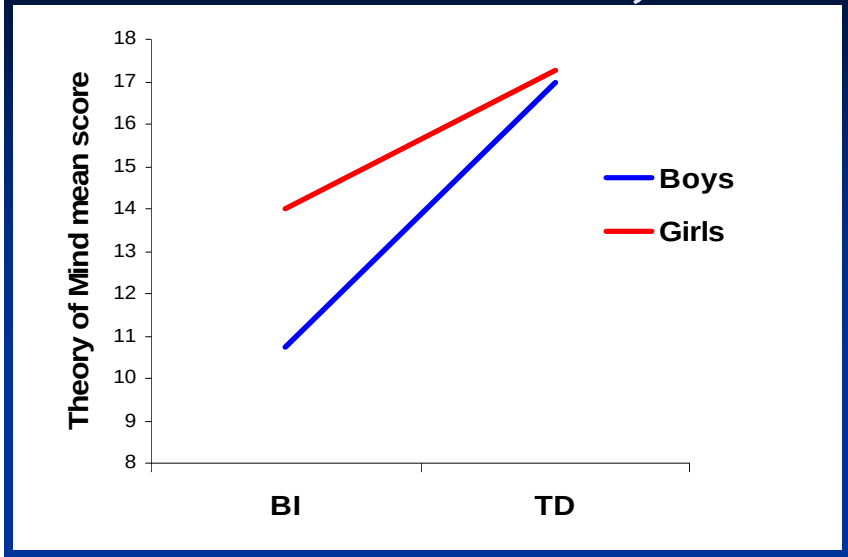
# Empathy in non-injured children in early adolesence (100+ boys and girls)



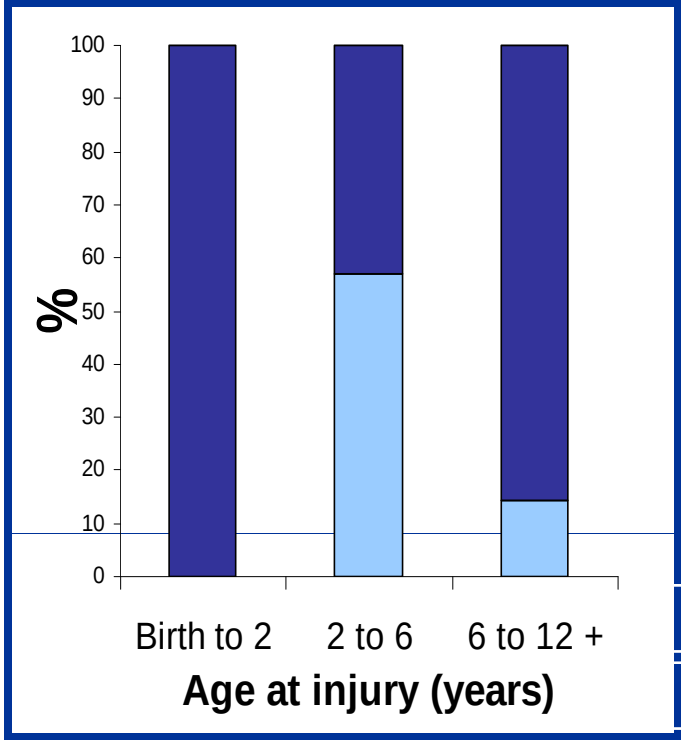

boys tended to show a *decrease* in positive social-emotional functioning, alongside self-reports of increased anti-social behaviour.

**Those with a history of MTBI rated particularly low**

# Theory of Mind (complex) & Critical age of injury
## Wall, Williams, Frampton (in prep)




- 25 young adolescents (10 to 15yrs) with a history of ABI, 50 typically-developing (TD) matched controls
- Global impairments
  - Poorer empathic responding
  - Less accurate ToM
  - Parental reports of poor emotion recognition and empathy
  - Self-reports of poor emotion recognition and empathy
  - + executive impairments (DEX-C + EF measures), increased daily difficulties and impact (SDQ)



# What is Rehabilitation?

- "Rehabilitation is a process whereby people who are disabled by injury or disease work together with professional staff, relatives and members of the wider community to *achieve their optimum physical, psychological, social and vocational well-being*" (McLellan 1991)

"…[aims at] supporting survivors to become more independent and achieve meaningful goals that are *self-sustaining and self-rewarding*" (Williams, Evans & Fleminger, 03)

# Bio-psycho-social formulations & CBT

**Complex forms of emotional disturbance**

- dysexecutive and amnestic syndromes
  - INSIGHT!
- Possible deficits in emotional processing

- in **a "mix" with reactive mood disorders**

- Additional health issues, & eg pain
- Possible alcohol/drug issue
- Poor sleep

<u>CBT to:</u>

- Identify triggers for - mood/behaviour

- Do behavioural experiments

- Challenge 'negative thoughts'

- Reappraise negative attributions

- Challenge unhelpful self-views
- DEVELOP INSIGHT!

See Williams & Evans (2003) Special issue of Neuropsychological rehabilitation on Biopsychosocial approaches…

# PTSD & TBI: CM

(Williams, Evans & Wilson, 2003: in Cognitive Neuropsychiatry)

- **Background**
  - 26 yr, Arts & Education officer
- **Injury:**
  - stabbed with a knife in the head
  - right temporal-parietal area
  - clear narrative of the event
- **Neuro-cognitive**
    - hemianopia
    - fatigue
    - attention (coping w/ distraction/switching)
    - reduced speed of processing

# Narrative of event: CM

- "... People got off [the train], and I was alone. I [was] engrossed in a book ...I saw a man go past...he smiled and went to the next carriage. He came back two minutes later ... after 30 seconds I felt pain in my head and weight as if the carriage had fallen onto me. I got up and realized something terrible had happened...I went into the next carriage... another man told me to sit down, and that he would get help ...I put my hand up and felt the knife. I asked if I had been stabbed, I asked if I was to die. He said no, he'll get help. At the next stop an ambulance arrived and took me to hospital."

# PTSD & TBI: CM, assessment, 1.5 yrs post

- HYPERAROUSAL
  - daily panic attacks & hyper-vigilant
  - claustrophobia & social fears
- INTRUSIONS:
  - upset by reminders
  - frequent unwanted memories and nightmares (2-3 a night)
    - seeing the man who stabbed her
    - visual images of people being stabbed
- AVOIDANT & DEPRESSED:
  - avoids public transport or "busy" places
  - depressed
  - *not involved in art/education*

# CM: Rehabilitation Stages

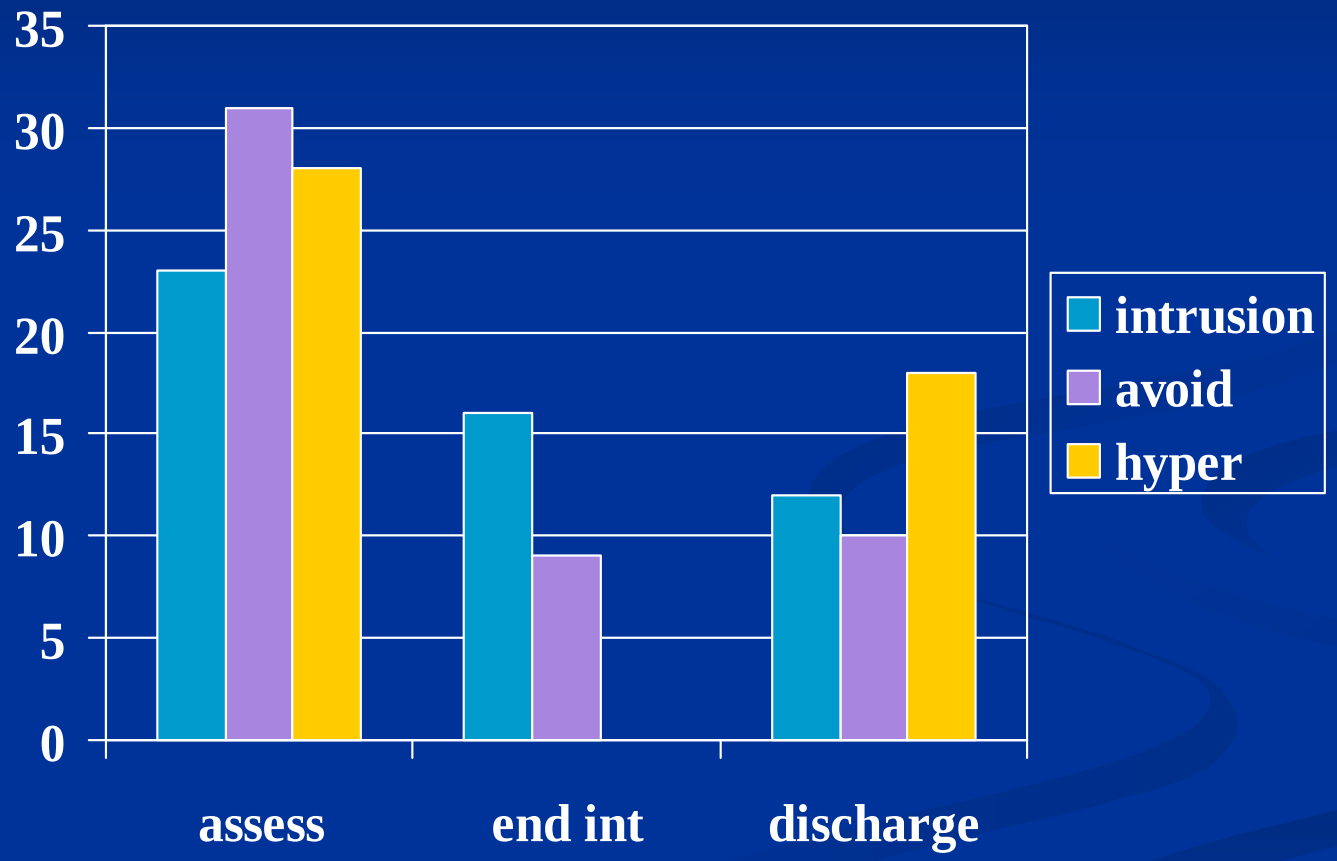
- **understand cognitive and emotional issues**
  - e.g. attention system, "over-inclusive" for threat
- **develop cognitive/emotion control skills in "safety"**
  - relaxation skills
    - for graded desensitization
  - guided visual imagery
    - to tolerate & switch between images (e.g. make "cartoon-like")
- **develop use of memory (filofax) system**
  - e.g. plan for travel/cue cards/ pleasant scenes
- **apply emotional control skills in practice**
  - work through "hierarchies" of avoided situations

# PTSD & TBI:CM

- *traveled by train* on two short routes, independently
- *engaged in social activities* (eating out, cinema)
- *managing "A" level* Art,
- *less severe intrusive thoughts*
- *less frequent unpleasant dreams* (2-3 a night to 1 a fortnight)

# Outcome: CM Scores on CAPS:

**(Clinician Administered PTSD Scale)**



[*M: Memory (RA: Retograde, AA: Anterograde), Dx: Dysexecutive, A: Attention, V: Visuospatial, L: Language, S: Speed]

| Case | Cog | Emotion | Neuro-rehab | CBT e.g. | Outcome |
|---|---|---|---|---|---|
| **KE**: TBI, RTA (death) | M, Dx, S | PTSD, Alcohol misuse Anger | Palm-top (pacing, planning> self monitoring) ABC diary> | "Stop, Think, Relax, Do" Imaginal -exposure | ➢PTSD symptoms sig. reduced) ➢No anger – 3 mths ➢Alcohol reduced 50% ➢PT work/ New relationship |
| **DC:** TBI RTA | M, (RA/ AA) | OCD Depression Health worries | Voice-corder Planning diary Man-U "ABM-thread" | hierarchical exp behavioural expts "doubt-reduction" "over-attending" | ➢HADs non-clinical ➢not "checking" ➢Socially engaged ➢PT student |
| **SR** TBI RTA (P) | M DX | "Capgras" Depression isolated | Neuropage & Diary | Belief-evidence? Behav expts "think into feeling" | ➢time with kids ➢socialising |
| **MT** TBI RTA | M V | Depression Mood swings | Diary with "SUDS" ratings p.day | Small disagreements => anger Mis-reading faces? | ➢Mood "+" & stable ➢Full time at work ➢Improved relationships |
| | | | | | |

# KE: Monitoring, Relaxation Training & Imaginal exposure

**Desensitize & gain coherent story**

- monitoring for intrusions

  "watched TV programme with a crash in it & had breathing problems"

- reporting, in detail, following relaxation

  "[from above]...its happening again, ..imagining where [she was].. the steering wheel against my chest] couldn't scream...that's what it is.. can't breathe, crushing..blood in my eyes"

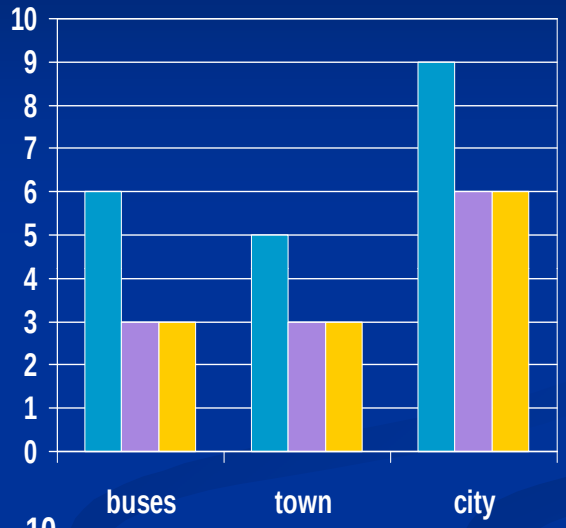
- prompted re: use of calming breaths, orientate to surroundings

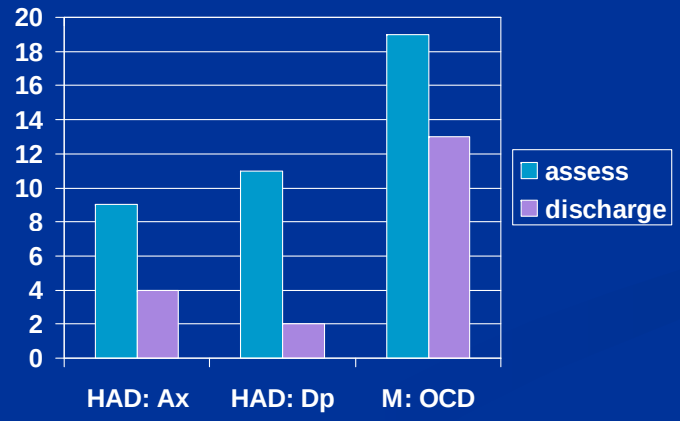
- Go though hierarchy of avoided activities

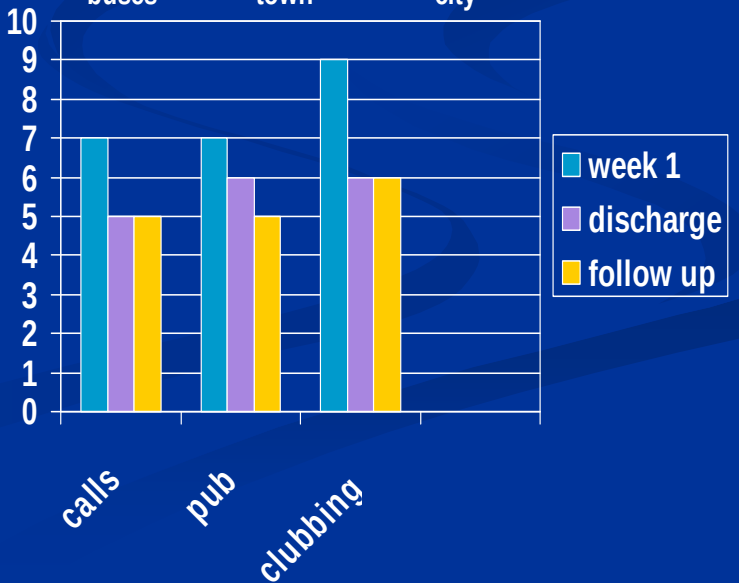
# Graded Hierarchy & "doubt reduction" with visual imagery

**"Meeting friends in a pub/club"**

1. leaving house
   - check breathing & listen to door
   - "click" - "burn in" current task
2. Worry over leg
   - "how likely…what was the explanation from physio…"
3. Unable to keep track of conversations/plans
   - quiet area – **USE voice-corder**, then f-fax



# MT: re- "reading" emotion as part of changing NATs

- CBT & Rehabilitation
- Identify triggers for mood (mood diary)
  - small disagreements become huge
  - "confirm" that "not liked or wanted"
    - Eg Pub with work-mates
    - ***Facial recognition & expression??***
- "Re-read" emotions -tone/proximity/posture

Interested--- sceptical?

**He looks like hes a little bit cross**

# CBT – further developments

- Need -
  - Single case design studies
  - RCT type studies – maybe with "staggered" wait-lists
- Specific formats for sub-groups with particular needs
- For:
  - Mood
  - Emotion regulation
  - Health & habit issues
- Ensure interdisciplinary training for CBT principles as "a way of working" in neuro-rehab (see Gracey et al 05)
- Use of CBT for enabling adaptive coping:
  - Partners
  - Parents
  - significant-others

# So, Why do CBT in Neuro-rehab?

at least its one way, that has some evidence, of instilling hope, in realistic manner, that can encourage positive change …

**DC: "…I spent all the time..afraid that if I do something I'd look foolish… [now] every weekend, [I'm with] friends…[through] using strategies... that was confusing [but]** you get used to the new habits… and *you get to trust [yourself].. get confident*..**[but]** you've got to watch for that vicious cycle of withdrawal.."

# References…


- *Judd, T (1999) Neuropsychotherapy and Community Integration. Brain Illness, Emotions and Behaviour. Kluwer press. AND SEE NRSI 2003
- *Lishman, L (1998) Organic Psychiatry, Oxford Press
- *Ponsford, J (1995) Traumatic Brain Injury: Rehabilitation for Everyday Adaptive Living, Laurence Erlbaum Associates, Hove. & SEE RECENT BOOK
- Powell, T (1992) Head Injury a Practical Approach. Headway.
- Prigatano, G et al (1989) Neuropsychological Rehabilitation, FA Davis Philadelphia (updated in 2000)
- Ramachandran. V.S. and Blakeslee, S. (1999) Phantoms in the Brain. 4th est.
- Damasio, A. (2003) Looking for Spinoza. Vintage.
- Halligan, P, et al. (2003) Handbook of Clinical Neuropsychology
- **Williams, W.H. and Evans, JJ (2003) Biopsychosocial Approaches in Neurorehailitation:…Special Issue of Neuropsychological Rehabilitation, Psychology Press.**
- Yates, Williams, Harris, et al (in press) Incidence of Brain Injury in an Emergency Dept. Journal of Neurology, Neurosurgery and Psychiatry.
- **Iddon, J. & Williams W.H. (2003) Memory Booster Workout. Hamlyn. (or in 2005 as "Memory Boosters")**
- **Tonks et al (2007) Brain Injury – (a) and (b) and Brain Impairment**

- Bessel, A, Watkins, E. Williams, W.H. (2008) Depressive Rumination reduces specificity of Autobiographical Memory Recall in Acquired Brain Injury, *Journal of the International Neuropsychological Society*
- Roundhill, S., **Williams**, H. (2008) Grief and Coping after brain injury. *Journal of Qualitative Research.*
- Haslam, C., Iyer, A, Jetten, J, Holme, A., Haslam, A., & **Williams, W.H**. (2007). Maintaining group memberships: Social identity continuity predicts well-being after stroke, *Neuropsychological Rehabilitation* .
- Pewter, S, Kay, J, Haslam, C. and **Williams, W.H** Neuropsychological profiles in encephalitis. (2007) *Neuropsychological Rehabilitation.*
- Hooper, **Williams**, et al. (2007). Stress, parental style and coping in parents of children with encephalitis. *Neuropsychological Rehabilitation.*
- Tonks, J., **Williams**, **W.H**., Frampton, I.J. and Slater, A. (2007): Assessing emotion recognition in children with brain injury. *Brain Injury*
- Tonks, J., **Williams**, **W.H**., Frampton, I.J. and Slater, A. (2007): Assessing emotion recognition in 9- to 15-year olds: preliminary analysis of abilities in reading emotion from faces, voices and eyes. *Brain Injury*
- Tonks, J, **Williams**, W.H., Frampton, I., and Yates, P Submitted. (2007) Neuro-regulation of emotion: An overview. *Brain Impairment.*
- Burridge A, **Williams**. W.H, Yates, P. and Harris, A (2007). Social emotional problem solving and carer stress in traumatic brain injured survivors. *Neuropsychological Rehabilitation.*
- Yates, P.J, **Williams**, W.H., Round, A., Jenkins, R. & Harris, A (2006) An epidemiological study of head injuries in a UK population attending an Emergency Department. *Journal of Neurology, Neurosurgery and Psychiatry*.
- Wall, SE, **Williams**, W.H., Cartwright-Hatton, S., Kelly, T.P., Murray, J., Murray, M., Owen, A. & Turner, M. (2006) Neuropsychological dysfunction following repeat concussions in jockeys. *Journal of Neurology, Neurosurgery and Psychiatry*
- Fleminger, S, **Williams**, W.H., Evans, J.J. (2003) The neuropsychiatry of Depression in Acquired Brain Injury. *Neuropsychological Rehabilitation* – Special Issue, 1, 65-88.

- **Williams**, W.H., Evans, J.J. and Fleminger, S (2003) Assessment and Management of Anxiety Disorders in Acquired Brain Injury. *Neuropsychological Rehabilitation* – Special Issue, 1, 133-148.
- McMillan, T., **Williams**, W.H. and Bryant, R (2003) Post-traumatic Stress Disorder after Traumatic Brain Injury: A review of Causal mechanisms, assessment and treatment. *Neuropsychological Rehabilitation* - Special Issue.,1, 149-164.
- **Williams**, W.H., Evans, J.J., Needham, P. & Wilson, B.A. (2002). Neurological, Cognitive and Attributional Predictors of reports of Posttraumatic Stress Disorder symptoms after Traumatic Brain Injury. *Journal of Traumatic Stress*, vol 15, 5, 397-400.
- **Williams**, W.H., Evans, J.J. & Wilson, B.A. (2003). Neurological Rehabilitation for Posttraumatic Stress symptoms after Traumatic Brain Injury. *Cognitive Neuropsychiatry*. Vol 8. , 1, pp. 1-18.
- **Williams**, W.H., Evans J.J. and Wilson, B.A. (2002). Prevalence of Posttraumatic Stress Disorder after Severe Traumatic Brain Injury in a representative community sample. *Brain Injury*, vol 16,8, 673-679.
- **Williams**, W.H., Williams, J.M.G. & Ghadiali, E.J. (1998). Autobiographical memory in traumatic brain injury: Neuropsychological and mood predictors of recall. Neuropsychological Rehabilitation, 8, 43-60.
- Wilson, B.A., Evans, J.J. and **Williams** (in press). Memory Problems. In A.D. Tyerman (ed.), Rehabilitation after traumatic brain injury: A psychological approach. Leicester: The British Psychological Society.
- **Williams**, W.H. (2004) Rehabilitation of emotional disorders following acquired brain injury. In B.A.Wilson (ed) Neuropsychological Rehabilitation; Theory and Practice" In series *Studies in Neuropsychology: Development and Cognition*.
- Turkstra, L., **Williams, W.H**, Tonks, J and Frampton, I. (in press): Measuring Social Cognition in Adolescents: Implications for Students with TBI Returning to School. NeuroRehabilitation.
- Wall, S., **Williams**, W.H., Morris, R. and Bramham, J. (in press): The Development of a New Measure of Social-Emotional Functioning for Young Adolescents. Clinical Child Psychology and Psychiatry
- Tonks. J, **Williams** H. et al. (2009): The development of emotion and empathy skills after childhood brain injury." Developmental Medicine and Child Neurology. (2.4)