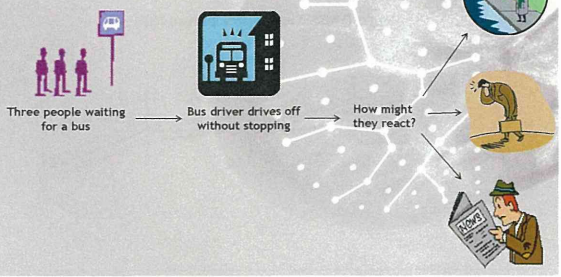
e.g. Explaining the CBT model



MONASH University
Medicine, Nursing and Health Sciences

School of Psychological Sciences

Outcome Measures

- Participants assessed by RA's blinded to treatment condition at:
  - Baseline Screening using Structured Clinical Interview for DSM-IV-TR Axis 1 disorders
  - Baseline, 3 weeks (post MI/NDC), 12 weeks (post CBT), 21 weeks, and 30 weeks (post-booster sessions).
- Anxiety symptoms
  - Hospital Anxiety & Depression Scale (HADS) - Anxiety subscale
- Depression symptoms
  - Depression, Anxiety & Stress Scales (DASS) - Depression subscale
- Psychosocial functioning
  - Sydney Psychosocial Re-integration Scale – 2 (SPRS-2)

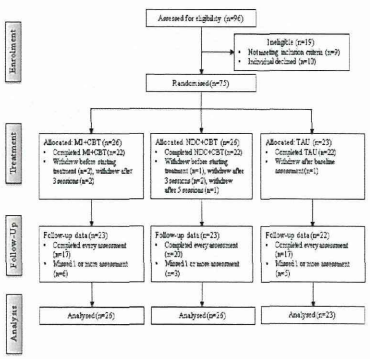
Results

MONASH University
Medicine, Nursing and Health Sciences

School of Psychological Sciences

Participants

- Recruitment
  - 96 screened
  - 75 recruited
- Random allocation:
  - 26 MI+CBT
  - 26 CBT only
  - 23 TAU
- High retention in treatment and follow-up assessments



Participants

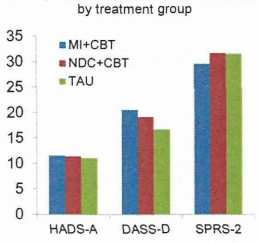
• No significant group differences in baseline demographics, injury-related or clinical characteristics

Participant characteristics at baseline by treatment group

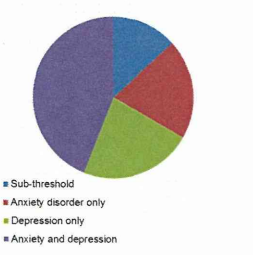
	MI+CBT (n=26) Mean (SD)	NDC+CBT (n=26) Mean (SD)	TAU (n=23) Mean (SD)
Female	30.8%	23.1%	26.1%
Age at study entry	46.69 (15.43)	39.88 (14.24)	39.87 (12.88)
Years post-injury	4.88 (11.40)	3.58 (5.87)	2.61 (3.68)
PTA (days)	19.09 (16.00)	18.55 (22.27)	28.76 (29.46)
GCS	10.43 (3.78)	10.48 (4.11)	8.23 (4.79)
Years of education	13.86 (3.63)	12.54 (3.11)	11.89 (3.49)
NART IQ	108.87 (9.77)	105.11 (25.04)	99.23 (24.93)
BIRT Verbal memory	41.12 (15.53)	41.12 (15.53)	36.45 (11.05)

Participant diagnoses:
did not differ significantly across groups at baseline

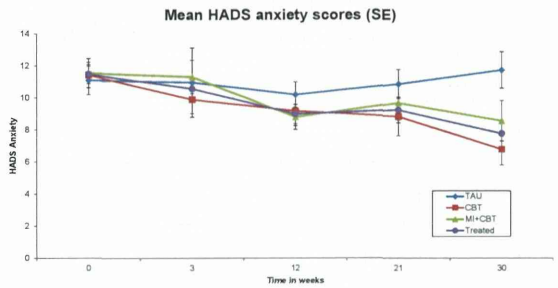
Participant outcome measures at baseline by treatment group



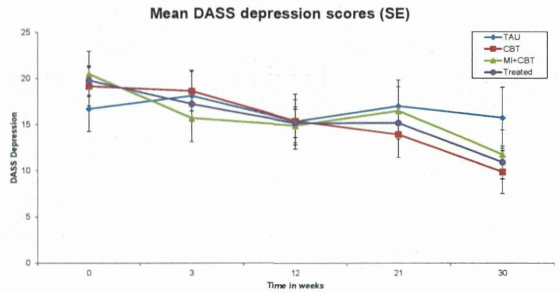
Participant diagnoses at baseline (SCID-I)



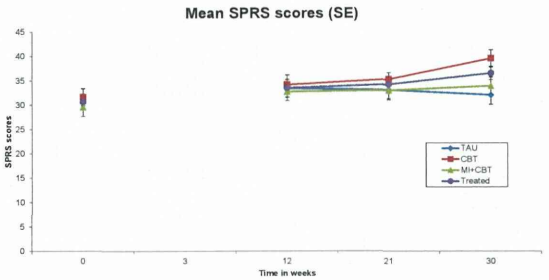
Anxiety



Depression



Psychosocial functioning



Change over time: effect sizes compared to baseline

Treated groups showed only small to moderate symptom reduction on completion of the 9-weeks of CBT, but these gains had increased to moderate to large by 30-week follow-up, following receipt of 3 CBT booster sessions.

	3 weeks	12 weeks	21 weeks	30 weeks
HADS-Anxiety				
Treated	.20 (-.19 to .60)	.59 (.19 to .99)	.47 (.06 to .88)	.84 (.87 to 1.31)
TAU	.03 (-.36 to .63)	.23 (-.37 to .83)	.06 (-.53 to .66)	-.15 (-.80 to .51)
CBT	.36 (-.19 to .92)	.52 (-.05 to 1.08)	.18 (-.05 to 1.10)	1.17 (.43 to 1.86)
MI+CBT	.85 (-.31 to .61)	.64 (.07 to 1.21)	.99 (-.19 to .97)	.61 (-.88 to 1.25)
DASS-Depression				
Treated	.22 (-0.17 to .62)	.42 (.02 to .82)	.40 (-.01 to .81)	.32 (.85 to 1.29)
TAU	-.11 (-.70 to .48)	.11 (-.49 to .70)	-.02 (-.62 to .58)	.69 (-.57 to .73)
CBT	.85 (-.50 to .50)	.34 (-.22 to .89)	.46 (-.11 to 1.04)	.91 (.22 to 1.61)
MI+CBT	.38 (-.19 to .95)	.49 (-.08 to 1.07)	.32 (-.26 to .91)	.74 (.09 to 1.38)
SPRS-2				
Treated	NA	.31 (-.17 to 1.67)	.43 (-.09 to .71)	.68 (.01 to .84)
TAU	NA	.22 (-.39 to .84)	.17 (-.43 to .78)	.06 (-.59 to .72)
CBT	NA	.27 (-.36 to .83)	.44 (-.18 to 1.02)	.93 (.25 to 1.61)
MI+CBT	NA	.34 (-.24 to .92)	.99 (-.21 to .98)	.48 (-.11 to 1.11)

Treated vs.TAU control

Random-effects regressions showed significantly greater reduction in HADS anxiety, DASS depression and increased SPRS scores in treated groups over 30 weeks post-baseline (18 weeks post-intervention) when controlling for baseline scores

	Coefficient	95% CI
HADS-Anxiety		
Time in weeks	-0.06***	-0.09 to -0.03
Baseline anxiety score	0.73***	0.62 to 0.84
Treated vs TAU	-1.07*	-2.07 to -0.06
DASS-Depression		
Time in weeks	-0.15***	-0.22 to -0.09
Baseline depression score	0.77***	0.66 to 0.88
Treated vs TAU	-2.86**	-5.61 to -0.12
SPRS		
Time in weeks	0.12***	0.06 to 0.17
Baseline total score	0.75***	0.65 to 0.84
Treated vs TAU	1.86**	0.04 to 3.69

MI+CBT vs.TAU
NDC+CBT vs. TAU

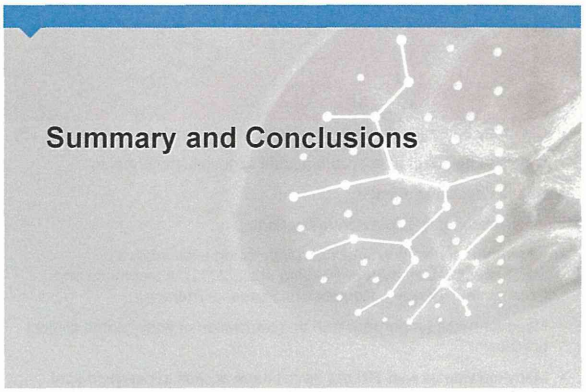
Random-effects regressions controlling for baseline scores showed that the NDC +CBT showed a significant reduction in HADS-Anxiety and increase on SPRS over the 30 weeks, relative to TAU, but not in DASS-Depression. The MI+CBT group showed a significant reduction in DASS-Depression over 30 weeks relative to the TAU group, but not for HADS-anxiety or SPRS.

	Coefficient	95% CI
HADS-Anxiety		
Constant	3.38***	1.86 to 4.90
Time in weeks	-0.06***	-0.09 to -0.03
Baseline anxiety score	0.73***	0.62 to 0.84
CBT vs TAU	-1.28*	-2.43 to -0.14
DASS-Depression		
Constant	5.57***	2.53 to 8.62
Time in weeks	-0.15***	-0.22 to -0.09
Baseline depression score	0.77***	0.66 to 0.89
CBT vs TAU	-2.28	-5.41 to 0.85
SPRS		
Constant	6.86***	3.33 to 10.40
Time in weeks	0.12***	0.06 to 0.17
Baseline total score	0.75***	0.65 to 0.85
CBT vs TAU	1.77	-0.32 to -3.85

Examining effects of MI over CBT only: MI+CBT vs. NDC+CBT

Random-effects regressions showed that HADS-Anxiety, DASS-Depression and decreased and SPRS scores increased significantly over the 30 weeks. However there were no significant differences between the groups in change over time on HADS-Anxiety, DASS-Depression or SPRS scores at 30 weeks, or at any earlier timepoint.

	Coeff	95% CI
HADS_Anxiety		
Time in weeks	-0.09	-0.13 to -0.06
Baseline anxiety score	0.77**	0.64 to 0.89
MI+CBT vs CBT	0.45	-0.63 to 1.53
DASS_Depression		
Time in weeks	-0.22**	-0.31 to -0.14
Baseline depression score	0.72**	0.59 to 0.85
MI+CBT vs CBT	-1.08	-4.01 to 1.85
SPRS		
Time in weeks	0.17**	0.10 to 0.23
Baseline total score	0.70**	0.59 to 0.81
MI+CBT vs CBT	0.03	-2.02 to 2.09



MONASH University
Medicine, Nursing and Health Sciences

School of Psychological Sciences

Summary of findings

- Using intention-to-treat analyses, treated groups combined, and the CBT+NDC group showed a significantly greater reduction in HADS anxiety over 30 weeks post-recruitment, after controlling for baseline levels of anxiety.
- The treated groups combined and the MI+CBT group showed a significantly greater reduction in DASS-Depression scores over 30 weeks post-recruitment, relative to TAU.
- Participants with higher depression and anxiety showed greater response to treatment.
- Approximately two-thirds of participants in the treated groups responded to therapy by moving to a lower diagnostic severity category.

Summary of findings

- The treated groups showed:
  - small to moderate symptom reduction after 9-weeks of CBT
  - moderate to large symptom reduction by 30-week follow-up (after booster sessions).
- Provision of booster sessions was important to attain benefit from CBT in this sample of individuals with TBI.
- Significantly greater increase in psychosocial function on the SPRS in the Treated groups at 30 weeks
  - improvements in mood/anxiety were associated with broader gains in psychosocial function (daily functioning, work, leisure and relationships) over the course of the study.

Comparison with previous findings

- Reduction in HADS anxiety consistent with Bryant et al. (2003) and Hodgson et al. (2005), demonstrating reduced anxiety in response to CBT intervention.
- Two recent studies evaluating the efficacy of CBT for depression did not find a significant reduction in depression symptoms on BDI-II post-treatment (Ashman et al., 2014) or on HAMD -17 at 16 weeks post-recruitment (Fann et al., 2014). However, these protocols did not address anxiety, had no or shorter follow-up periods and did not include any booster sessions.

Conclusions

- First attempt to address both anxiety and depression symptoms in individuals with mild-severe TBI using a CBT protocol adapted to allow for cognitive impairments.
- Positive effects of intervention emerge only gradually over extended periods.
- Further examination of the factors influencing response to this intervention may shed further light on which individuals with TBI are most likely to benefit.
  - Working alliance
  - Change expectancy
  - Cognitive function
  - Time post-injury
- Next challenge is to translate the intervention into clinical practice!

Overall conclusions

- CBT may be employed to reduce anxiety and depression following TBI
- Needs to be adapted to accommodate cognitive impairments
- Booster sessions needed
- Gains occur only over extended periods
- Other therapeutic techniques currently being evaluated, e.g., Mindfulness-based therapy (Bedard et al., 2012), Acceptance and Commitment Therapy, Compassion Focused Therapy.
- Need for much further research and translation of findings into clinical practice!
- Many individuals with TBI still do not have access to psychological therapy

Acknowledgements

- Dr Henry Westra & Dr David Dozois
- Research team at Monash-Epworth Rehabilitation Research Centre

ACHIEVING COMMUNITY REINTEGRATION AND RETURN TO EMPLOYMENT AND STUDY AFTER TRAUMATIC BRAIN INJURY

Professor Jennie Ponsford, PhD
Director, Monash-Epworth Rehabilitation Research Centre, Epworth Hospital;
School of Psychological Sciences, Monash University,
Melbourne, Australia

MONASH University

Epworth HealthCare

0

Epworth Rehabilitation Centre

1

Head Injury Rehabilitation Programme

- Inpatient programmes at two hospitals - average length of stay 26 days
- Community-based rehabilitation programme
- Transitional Living Centre

2

Transitional Living Centre

3

TAC TRANSPORT ACCIDENT COMMISSION

Responsible for all costs of:

- hospital care,
- rehabilitation and
- long-term care needs, including attendant care, integration aides, sponsorship of work trials, home help, etc.

4

Longitudinal outcome study sample

- Over 2300 TBI patients followed at least once:
  - 1545 at 1 year
  - 1473 at 2 years
  - 1094 at 3 years
  - 1046 at 5 years
  - 448 at 10 years
- Funding:
  - 83% TAC
  - 14% Workcover
  - 3% other
- Injury Cause:
  - 57% motor vehicle accidents
  - 11% motorcycle accidents
  - 18% pedestrians
  - 4% cyclists
  - 10% other

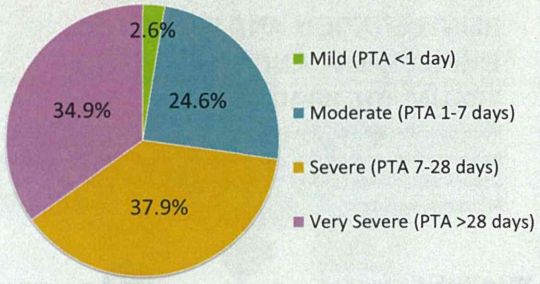
5

Demographics and injury severity by sample

Years post-injury	1		2		3		5		10	
	M (SD)	range	M (SD)	range	M (SD)	range	M (SD)	range	M (SD)	range
Education (years)	11.30 (2.41)	3-22	11.22 (2.35)	3-19	11.31 (2.40)	3-21	11.28 (2.38)	3-21	11.45 (2.31)	5-21
Age at Inj	34.31 (16.80)	13-88	34.05 (16.60)	10-89	34.94 (16.48)	13-84	32.99 (15.37)	10-79	31.34 (14.36)	10-73
GCS	8.15 (4.29)	3-15	7.92 (4.33)	3-15	8.10 (4.32)	3-15	7.34 (4.16)	3-15	6.61 (3.91)	3-15
PTA (days)	25.53 (28.69)	.01-270	29.79 (33.22)	.01-270	27.58 (30.96)	.01-240	32.83 (36.11)	.01-270	35.89 (38.24)	.01-185

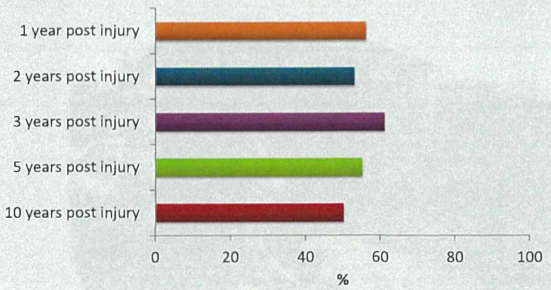
6

Injury severity



7

Employment status for those employed prior to injury



8

Employment stability

- Of those employed at one year post-injury, 84% were employed at 2 years, and 75% were employed at 5 years post-injury.
- Of those unemployed at one year post-injury, 18% were employed at two years, and 28% were employed at five years.

9

Quality of Experience of Return to Work

	Control %	1 year %	2 years %	3 years %	5 years %	10 year %
More mistakes	10.1	23.1	25.9	25.6	23.1	28.4
Problems keeping up	11.4	28.9	28.5	28.2	27.2	25.1
More fatigued	30	50.0	47.7	48.2	44.5	51.4
Difficulty with people	8.9	10.2	13.2	13.4	11.8	20.3

10

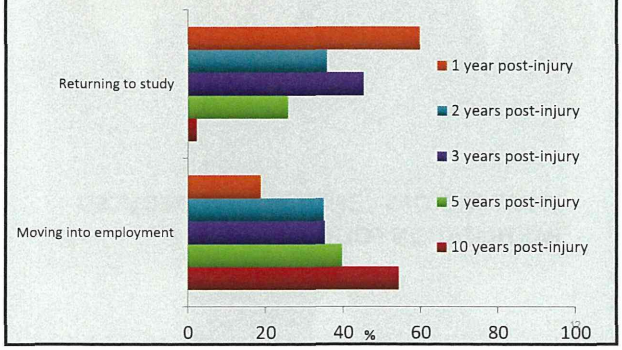
Factors predicting stability of employment over first 3 years post-injury

Greater instability in employment was reported by individuals who:

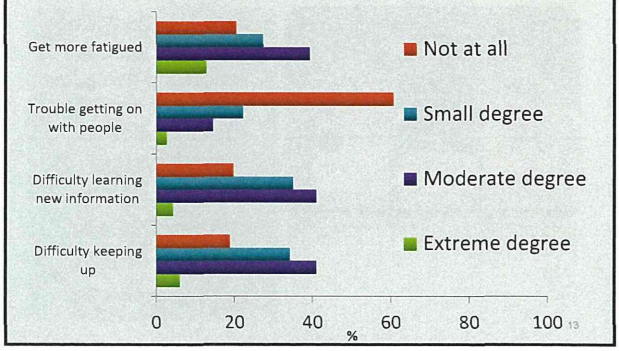
- were machinery operators or labourers prior to injury
- had longer duration of PTA
- reported more cognitive difficulties
- were less mobile one year post-injury

11

% of pre-injury students returning to study or employment

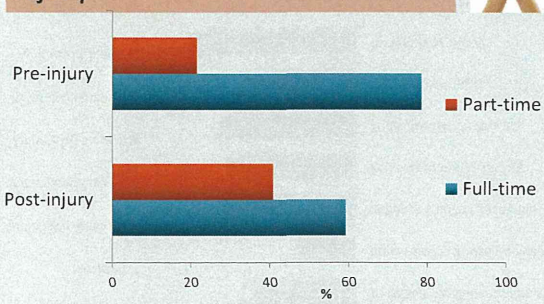


Quality of experience of return to study



13

Study mode pre- and post-injury



53.5% applied for special consideration compared with 6.5% pre-injury
43% of received individual tuition post-injury versus 7% prior to injury

14

Predictors of failure to return to productivity in students

- Longer PTA duration
- Behavioural sequelae (reduced initiative and self-centredness)

15

Return to Study

- With support, 79% of students returning to study passed their courses

16

Relationship status

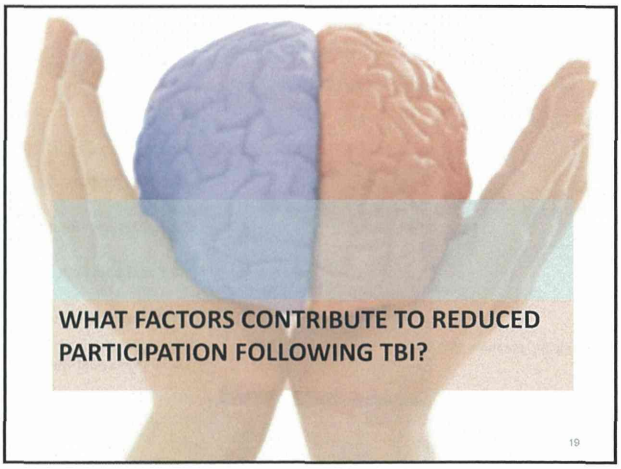
- Of those married prior to injury, 3.3% were separated or divorced at one year post-injury, 7.0% at two years, 6.7% at three years, 10.6% at five years, and 12.3% at 10 years.
- Of those single prior to injury, 10.0% were married one year, 9.4% at two years, 13.2% at three years, 20.5% at five years, and 36.3% at ten years.
- A quarter (24.4%) of respondents at one year reported that they were having difficulties in personal relationships or getting on with friends, whereas 38% of the 10-year cohort reported this to be the case.

17

Social Isolation

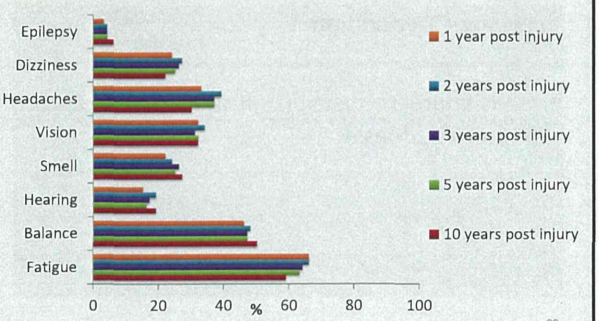
- At 1 year 29.1% of TBI participants reported having lost friends or become socially isolated since the injury
- at 2 years 41.4%
- at 3 years 38.4%
- at 5 years 40.5%
- at 10 years 46.9%.

18



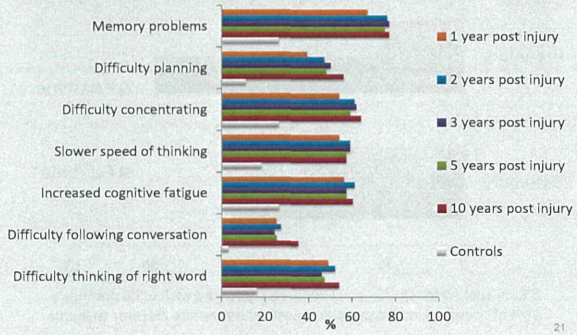
19

Neurological complaints



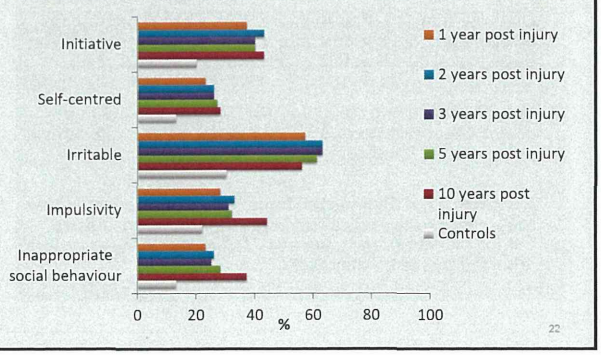
20

Cognitive & communication changes



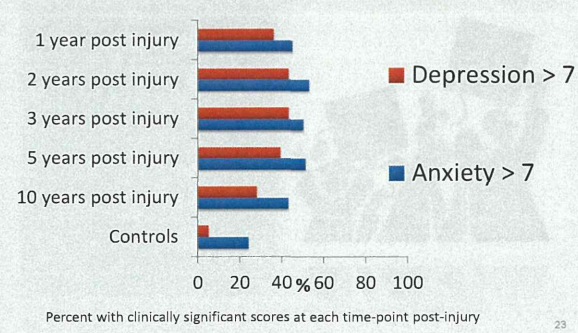
21

Behavioural changes



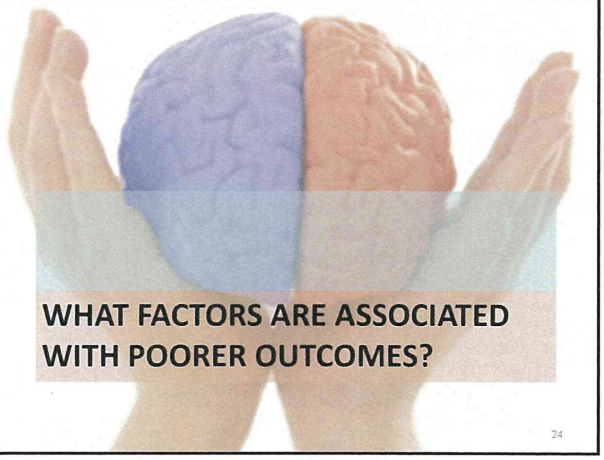
22

HADS Anxiety & Depression



Percent with clinically significant scores at each time-point post-injury

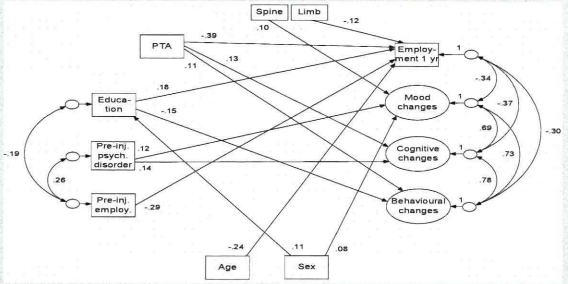
23



WHAT FACTORS ARE ASSOCIATED WITH POORER OUTCOMES?

24

Final predictive model of employment outcome



X^2 (59)=103.4, p<.001; CFI=0.99; RMSEA =0.03

Schönberger, M. Ponsford, J.et al (2011) *Journal of Neurology, Neursurgery &Psychiatry.* 82:936-941

25

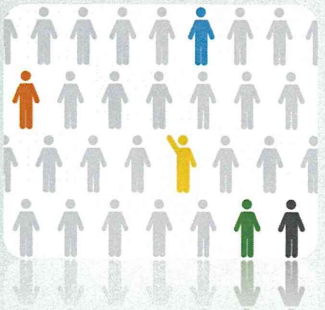
Major impediments to better outcomes

1. Higher level mobility problems
2. Memory difficulties
3. Executive dysfunction
4. Reduced attention and information processing speed
5. Fatigue and sleep disturbance
6. Social communication difficulties
7. Irritability and anger management
8. Anxiety and depression
9. Family stress

26

What is a meaningful outcome?

Varies from one individual to the next, depending on their roles, priorities, pre- and post-injury strengths and weaknesses, environment and supports.



27

Identify individually meaningful goals

- Maximise motivation by setting personally meaningful goals in collaboration with client and family.
- Document objectively, e.g., using Goal Attainment Scaling

28

Goal Attainment Scaling

Target Area (Role) : .....

Goal: (sub-role or Activity) : .....

Levels of Outcome :

+2 (much better than expected)
+1 (better than expected)
0 (expected outcome)
- 1 (starting point)
- 2 (worse than expected)

Initial:	Review:	Review:
Date:	Date:	Date:
Score:	Score:	Score:

29

Embed intervention in injured individual's world

- Assess and treat in the community
- Consider the individual's pre-injury activities, interests, strengths and weaknesses, motivations, psychological state, family and social relationships

30

Consider the right approach for the client

- Training
- Metacognitive strategies
- Compensatory approaches
- Use of technology
- Environmental modification
- Pharmacological interventions – may be combined with training
- Consider pre-injury strategies/experience, cognitive function, availability of support
- Need for research examining factors influencing use/success of different strategies, as well as appropriate frequency and intensity of treatment

31

Evaluate outcomes in relation to goals

- Focus on goal attainment
- Community participation

32