UQ SuPPORT Study
Psychological and Physical Outcomes following a Road Traffic crash: 24 month follow-up

Justin Kenardy, Michelle Heron-Delaney, Jacelle Lang, Erin Brown, Joan Hendrikz, Luke Connelly, Michele Sterling, Nicholas Bellamy

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- **Research Funding**
  - Motor Accident Insurance Commission (MAIC)

- **Acknowledgements**
  - The Policy and Research Team at MAIC

Impact of Road Traffic Crashes (RTCs)

- Worldwide, up to 50 million people suffer a non-fatal injury from RTCs
  - Leads to long term disability in many individuals *(WHO, 2009)*

- Annual total cost of RTCs in Queensland = $3.6 billion *(Connelly & Supangdan, 2006)*

- The number of RTC fatalities ↓ in Queensland over recent years
  → More survivors of RTCs

- Most common psychological disorders seen in RTC survivors are:
  - Posttraumatic stress disorder (PTSD) – prevalence 6% - 45%
  - Depression – prevalence 8% - 19%
  - Generalised Anxiety Disorder
  - Driving phobias/other anxiety disorders

Aims

- To describe the physical and mental health in a sample of CTP claimants who have been injured in an RTC in Queensland and sustained predominately minor injuries

- To evaluate the impact of physical and mental health on recovery (e.g. level of disability, Return to work)
    - Are there factors which may be helpful to facilitate early identification of claimants that may have poor recovery?

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Study setting

- Queensland has a common law 'fault' based Compulsory Third Party (CTP) scheme – the scheme covers unlimited liability for personal injury in incidents to which the *Motor Accident Insurance Act 1994* applies

- Being a fault-based scheme, the injured party must be able to establish negligence against an owner/driver of a motor vehicle – injured person then has the right to seek monetary compensation for their injury/losses

- MAIC regulates the CTP scheme in Queensland

Eligibility criteria

1. Injured driver/passenger of a car/motorcycle, cyclist, or pedestrian
2. Injury defined as Abbreviated Injury Scale (AIS) = 1-3
3. CTP claimant with CTP claim made between April 2009 & September 2010
4. Aged ≥ 18 years
5. Claim notification date < 3 months post injury date*
6. Proficient English speaking ability
7. No severe cognitive/physical impairment
8. Australian resident

To ensure first assessment was as soon as possible post-RTC

Procedure (1)

1. MAIC sent letter inviting participation (approx 3 months post-RTC)

2. Written consent obtained – **Wave 1** survey mailed (with reply-paid envelope)

3. Approx 1 month after survey - Computer Assisted Phone Interview (CATI)

4. Same procedure of staggering survey and phone interviews implemented at **Wave 2** and **Wave 3**.

Wave 1 =   *6 months post-RTC*
Wave 2 = *12 months post-RTC*
Wave 3 = *24 months post-RTC*

Procedure (2)

- Survey took approx 20 – 30 mins to complete

- Interview lasted anywhere from 10 mins to 1.5 hrs, depending on the level of participant's symptoms

- Staff conducting the phone interviews were highly trained, yet independent from the research team

- Claimant details remained confidential

Measures - Survey

Measure	Description
Orebro Musculoskeletal Pain Questionnaire (**OMPQ**)	The OMPQ measures physical and functional level and adjustment to injury and pain. It screens for factors that may hamper recovery including emotional state, fear-avoidance beliefs and coping strategies.
Short Form 36v2 Health Survey (**SF-36v2**)	The SF-36v2 measures physical and mental health constructs as well as perceived health status and daily functioning. Respondents were instructed to describe their health in the past 4 weeks.
Multidimensional Scale of Perceived Social Support (**MSPSS**)	The MSPSS is a 12-item self-report measure to assess perceptions of interpersonal functioning and social support.
Return to Work	An additional questionnaire at Wave 3 assessed whether the participant had returned to work in a full- of part-time capacity and if they were performing full or modified duties.

Plus: IES-R, HADS, AUDIT

Measures - Interview

| Measure	Description
Perception of threat to life	Threat to life perception was assessed by asking "How much did you believe you were going to die during the accident?" The 5-point scale ranged from "Not at all" to "Very strongly".
World Health Organization Disability Assessment Schedule, Second Edition, 12-item version (**WHO-DAS-II**)	The WHO-DAS-II is a 12-item disability and health measure. Six domains are measured: cognition, mobility, self-care, getting along with others, life activities and participation in society.
Composite International Diagnostic Interview (**CIDI-PTSD**)	CIDI-PTSD was used to assess **PTSD** via a full structured diagnostic interview based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria.
Composite International Diagnostic Interview Short Form (**CIDI-SF**)	CIDI-SF was used to assess Major Depressive Episode (**MDE**), Generalized Anxiety Disorder (**GAD**), Agoraphobia and Panic Attack via a full structured diagnostic interview based on the DSM-IV criteria.
Health Care Utilisation	Patients reported the number of contacts with medical doctors/health professionals since their accident for a physical injury or other problem.

Participants (1)

- RTC survivors <u>recruited from MAIC database</u> between April 2009 & September 2010

    - 'at-fault' vehicle needed to be registered with CTP insurance in Queensland(majority of participants resided in QLD)

    - The study sample, therefore, does not included:

        - At-fault drivers (not compensable)

        - Those entitled to claim who didn't

Participants (2)

- 382 participants consented

- 372 participants completed assessments at <u>at least one Wave</u>

- Flow chart shows:

  - Very good participant retention over the 2-year study period

    - 88% completed <u>interview</u> at Wave 3

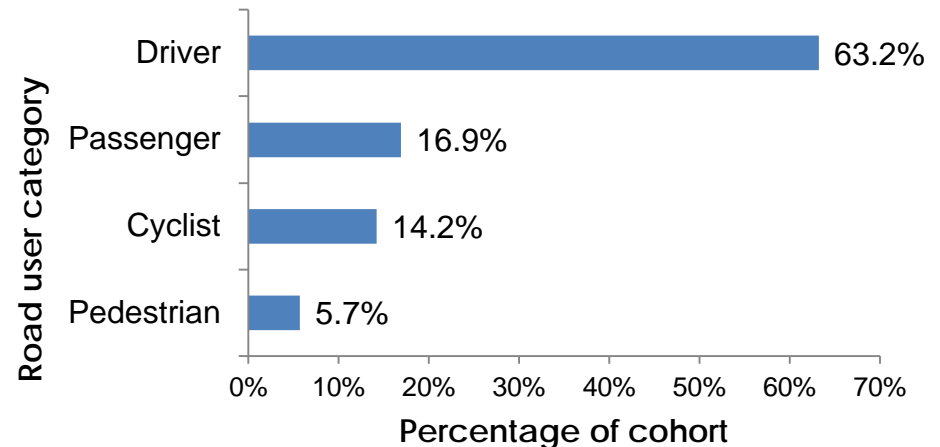   - 69% completed <u>survey</u> at Wave 3
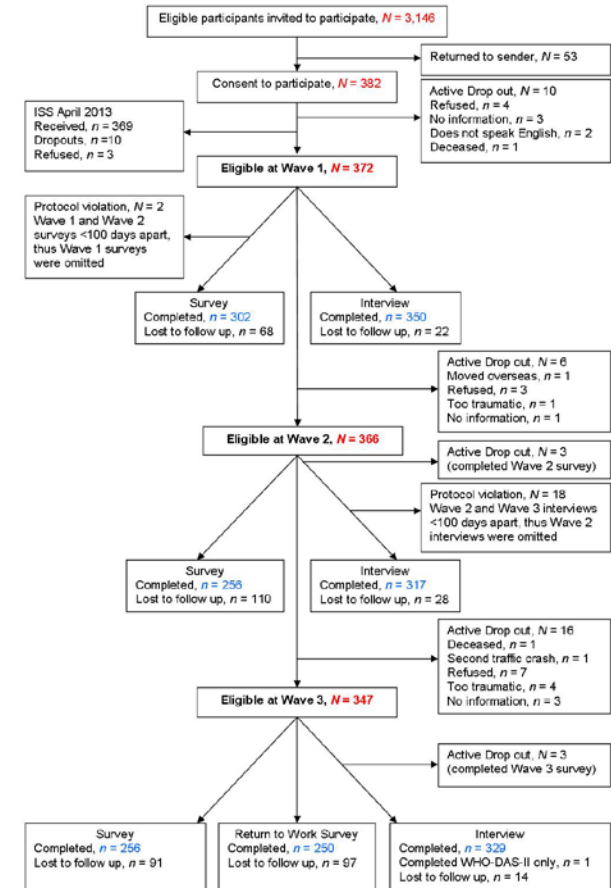
Cohort characteristics

- Average age = 48 years
- 38% Male; 63% Female
- 64% had an Injury Severity Score (ISS) = 1 – 3 (Minor)
- 70% had > 12 years education
- 57% currently married
- Road user type:

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Bar chart showing Percentage of cohort by Road user category:
- Driver: 63.2%
- Passenger: 16.9%
- Cyclist: 14.2%
- Pedestrian: 5.7%

Size of the issues

Mental health history

History of pre-RTC mental illness?	DSMIV diagnosis present?					
	Wave1 N = 350		Wave 2 N = 317		Wave 3 N = 327	
	No	*Yes*	*No*	*Yes*	*No*	*Yes*
Yes pre-RTC diagnosis	34 (39%)	53 (61%)	28 (35%)	53 (65%)	22 (29%)	54 (71%)
No pre-RTC diagnosis	120 (46%)	143 (54%)	111 (47%)	125 (53%)	136 (54%)	115 (46%)

Mental health history

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- Approximately **50%** of the sample who reported **no history of mental illness** pre-RTC had **subsequent mental health diagnoses** at each wave

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Mental health problems *post-RTC*

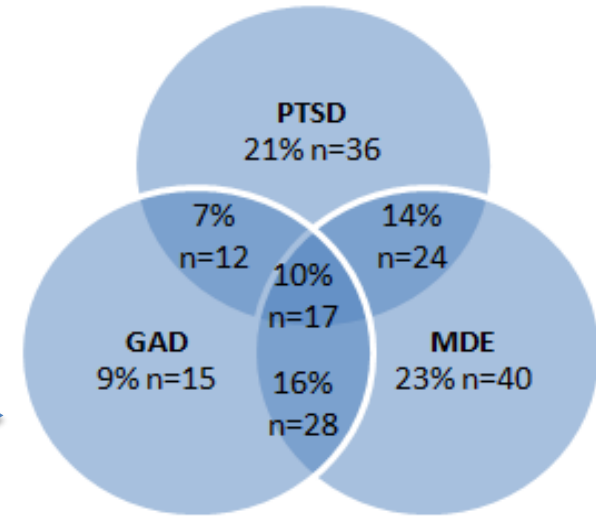| DSM-IV Diagnosis	Wave 1 (N = 350)
No DSM-IV diagnosis	154 (44%)
At least 1 DSM-IV diagnosis	**196 (56%)***
At least 1 PTSD, MDE or GAD diagnosis	*172 (49%)*

*Note: Of these 196 participants:
- 27% (n=53) had a pre-RTC diagnosis
- **73%** (n = 143) had **NO pre-RTC diagnosis**

Mental health problems *post-RTC*

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- 73% (n = 143) had NO pre-RTC diagnosis

PTSD
21% n=36

7%
n=12

14%
n=24

10%
n=17

GAD
9% n=15

MDE
23% n=40

16%
n=28

Co-morbid diagnoses – Wave 1

Co-morbid mental and physical health post-RTC

Physical Health Measure	DSMIV diagnosis present?					
	Wave 1		Wave 2		Wave 3	
	No	Yes	No	Yes	No	Yes
Disability	7.25	14.98***	6.36	14.98***	5.26	14.38***
Physical quality of life	41.53	38.06**	43.86	38.52***	46.46	39.07***
Pain	38.22	52.55***	26.83	38.59**	19.69	38.04***

*p < .05, **p < .01, ***p < .001

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Work absenteeism

Amount of sick leave	Wave 3 (N = 243)
0 days (no sick leave)	59 (24.3)
1-30 days (short-term sick leave)	88 (36.2)
> 30 days (long-term sick leave)	96 (39.5)

Work absenteeism

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0 days (no sick leave)	59 (24.3)
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Amount of sick leave	DSMIV diagnosis present at any stage?	
	No	Yes
0 days	33 (41.8%)	26 (15.9%)
1-30 days	31 (39.2%)	57 (34.8%)
> 30 days	15(19.0%)	81 (49.4%)

Chi-squared test: $p < .001$

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Health service utilisation

	RTC related health care visits	
	Within first 12 months post RTC (N = 290)	Within 12 – 24 months post RTC (N = 246)
No DSM-IV diagnosis	25.9 (26.2)	15.8 (23.5)
At least 1 DSM-IV diagnosis	54.2 (56.2)***	26.7 (36.7)**

Average number of visits - standard deviation in brackets
$p<.01$*$p<.001$.

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Expectations regarding recovery

Proportion of participants who **expect to recover** from their injuries
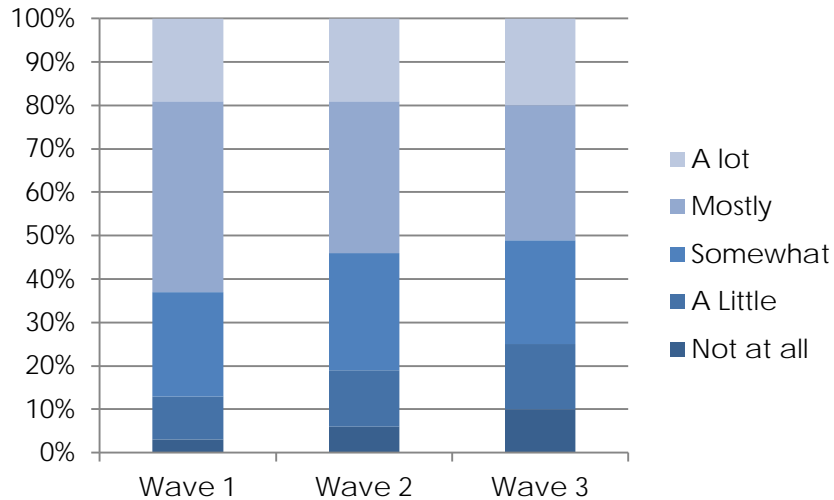
Expectations regarding recovery

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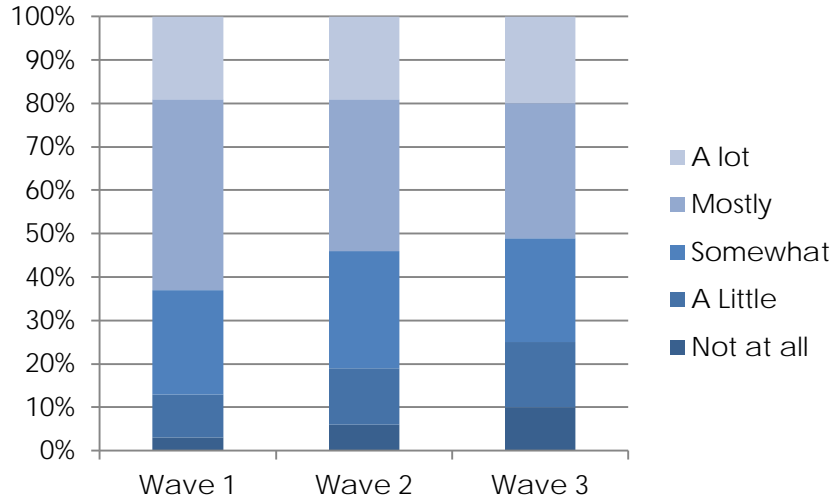
Proportion of participants who **expect to return to doing what they did before the accident**
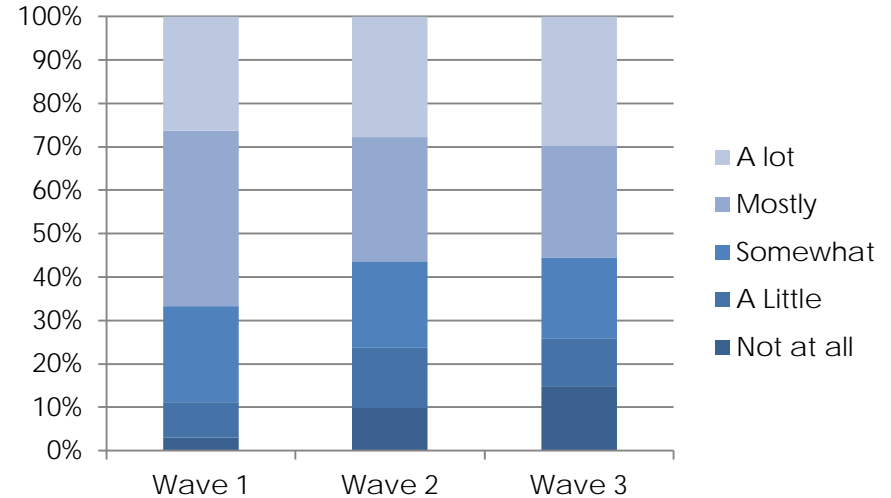
Indicators of Recovery

Self-reported disability: Recovery trajectories
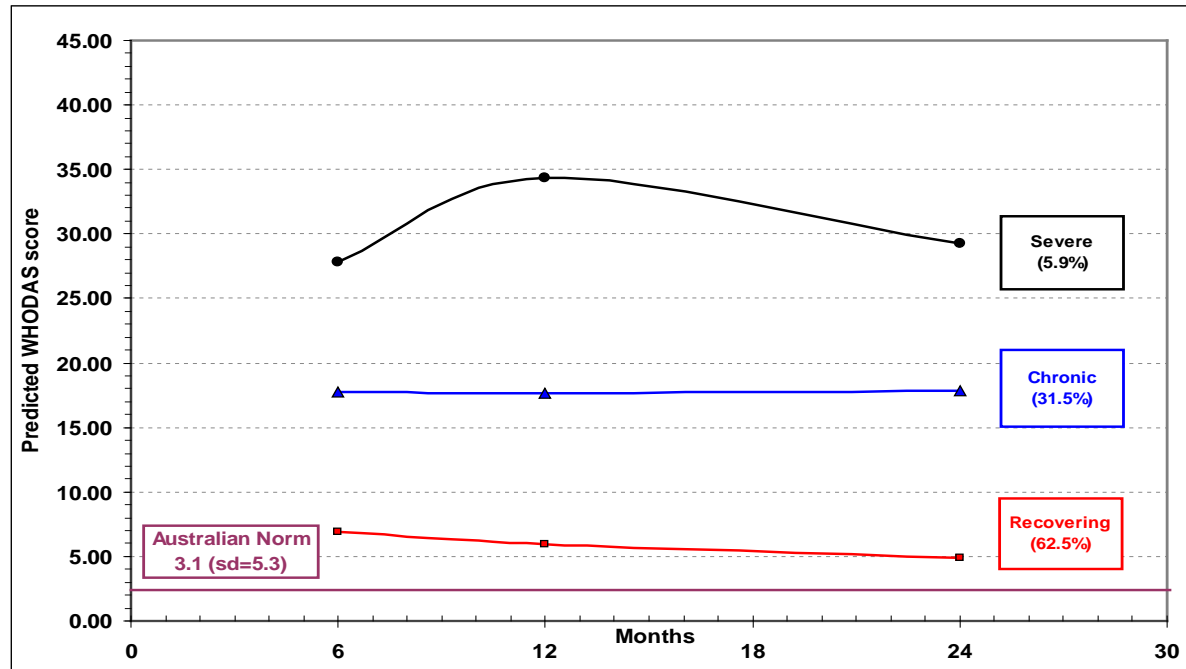
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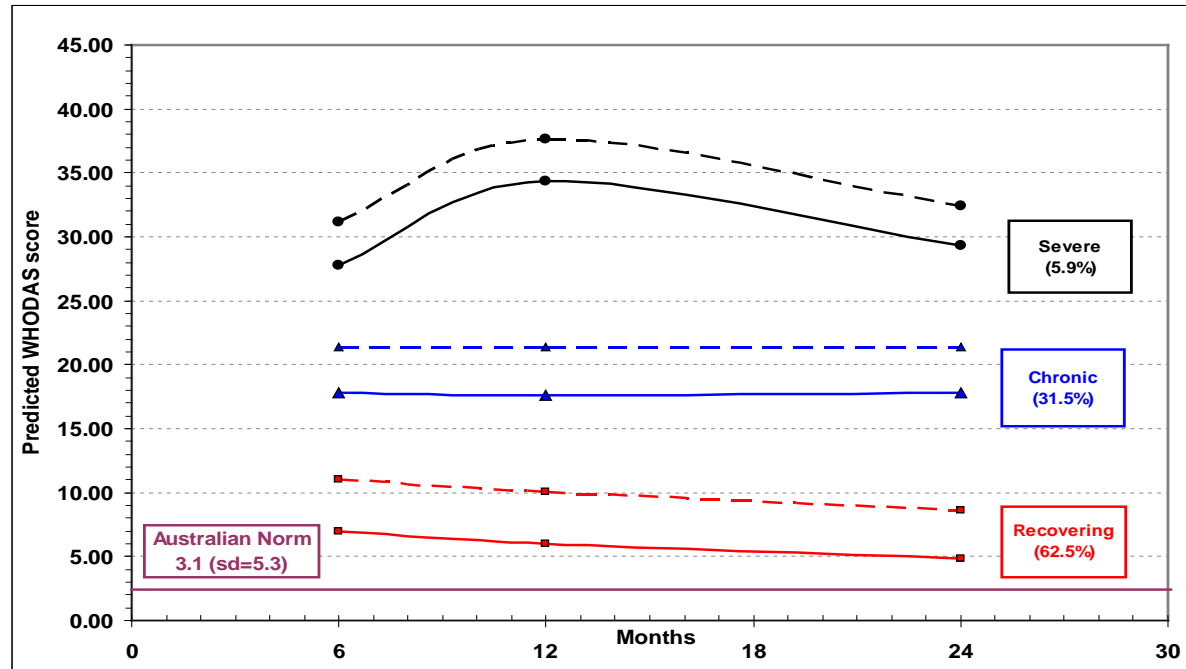
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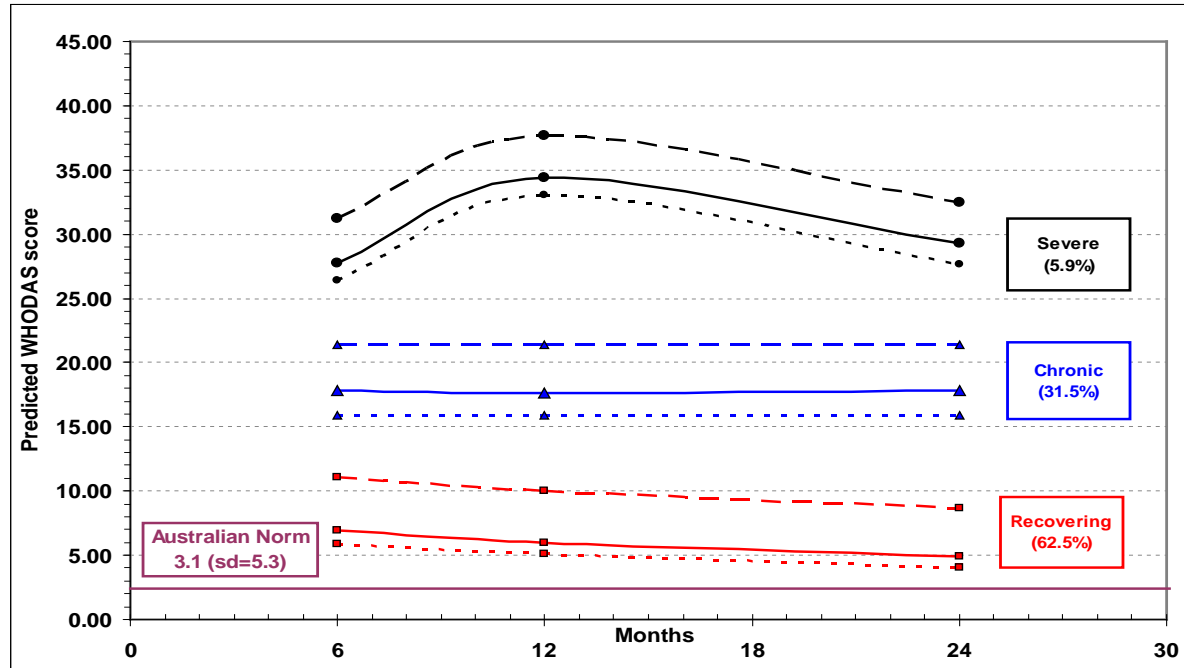
Self-reported disability: Predictors

- The following were found to significantly **predict higher disability**:

  - ↓ expectation to return to work
  - ↓ expectation to recover
  - ↑ pain
  - ↑ perceived threat to life
  - ↑ age – but only for those with PTSD

  - History of mental illness
  - Presence of Anxiety
  - Presence of Depression
  - Presence of PTSD

Self-reported disability: Summary

- Claimants report disability levels above the average for the Australian population

- Disability levels at 6 months post-injury remain stable at 2 years post-injury – very little recovery seen over time

- Higher disability levels are reported by claimants with:
  - *Lower expectations to recover/return to work*
  - *Increased pain*
  - *Psych diagnoses*

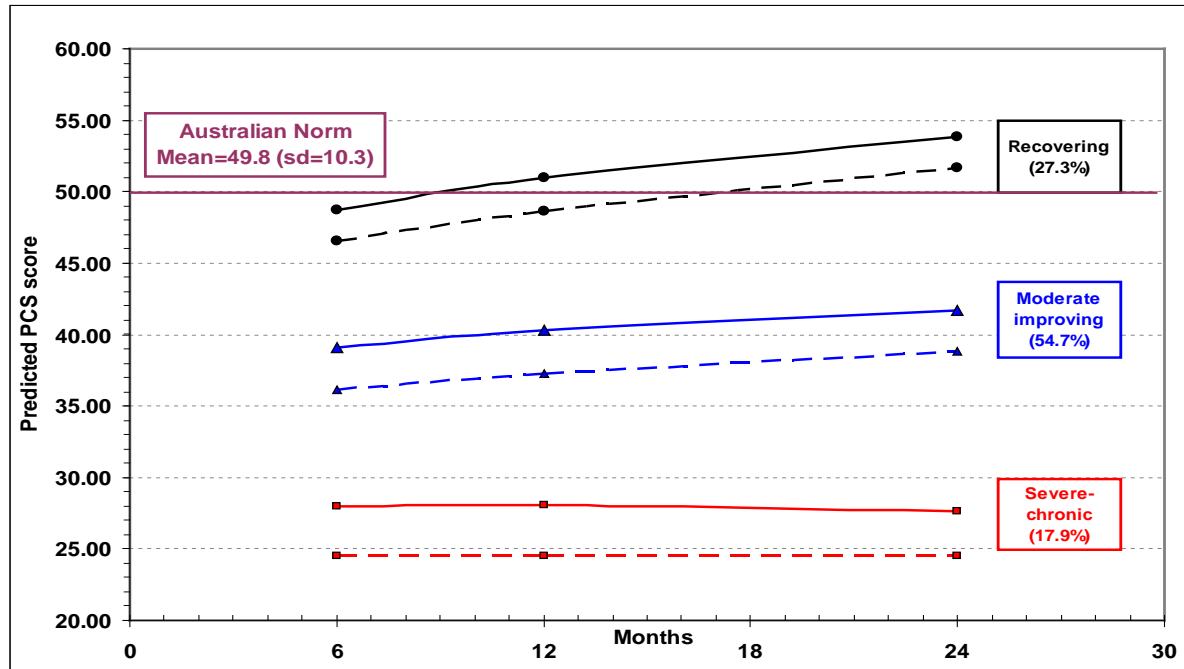- Higher disability levels are reported by claimants with PTSD, especially as age increases

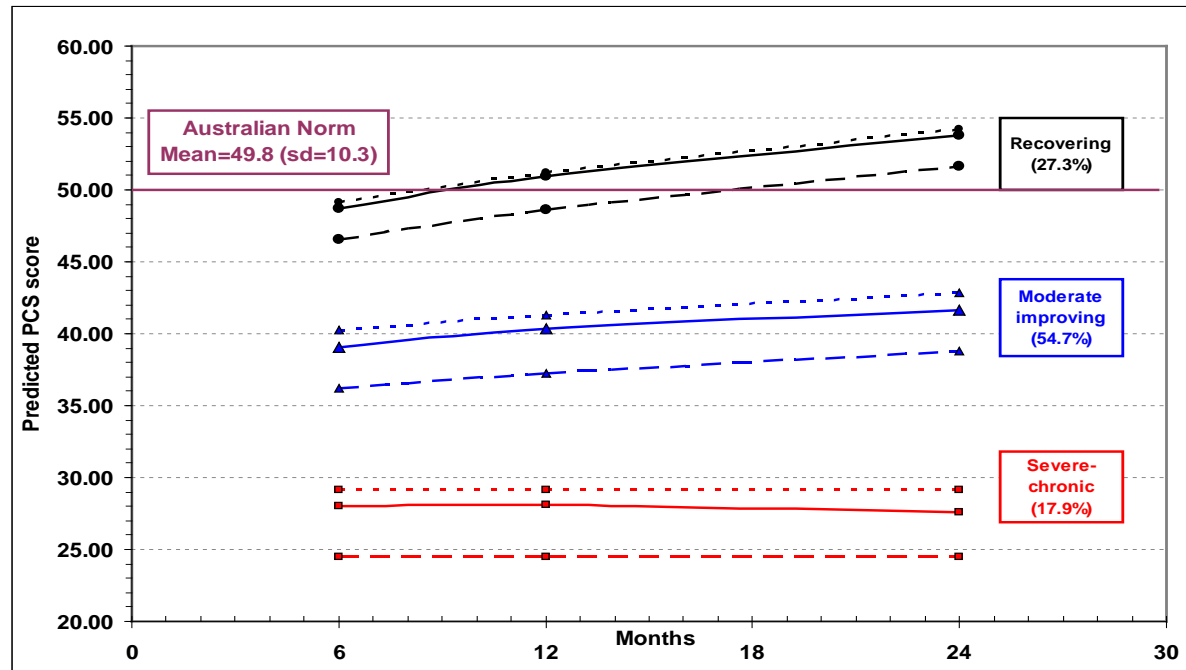# Physical health-related quality of life: Recovery Trajectories
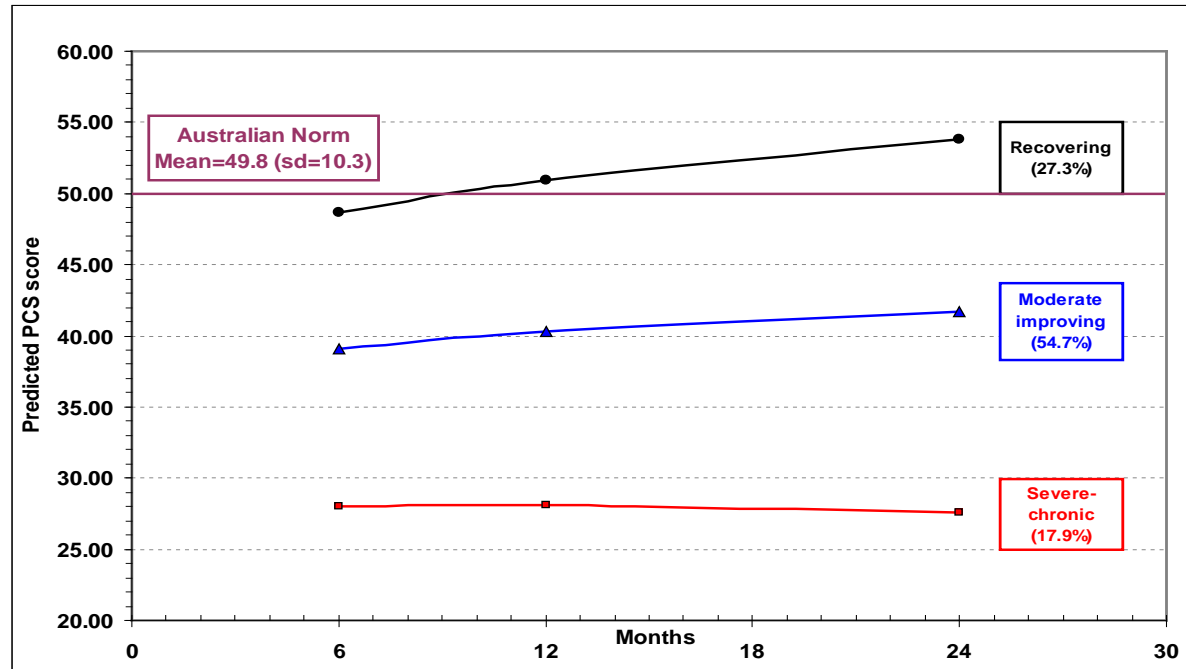
Physical health-related quality of life: Recovery Trajectories

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Physical health-related quality of life: Predictors

- The following were found to significantly **predict lower physical** health-related **quality of life**:

    - ↓ expectation to return to work
    - ↓ expectation to recover
    - ↑ pain
    - ↑ perceived threat to life
    - ↑ age

   - PTSD diagnosis present

Physical Health-related quality of life: Summary

- Claimants show levels of physical health-related quality of life below the average for the Australian population

- Physical health-related quality of life for claimants over 2 years post RTC changed, such that:
    - **27%** showed **gradual recovery** toward a level consistent with the **Australian average**

    - **55%** also showed **gradual recovery**, albeit **towards** a significantly **lower level** of physical health-related quality of life

    - **18%** showed **no recovery** and **very low levels** of physical health-related quality of life, with the presence of PTSD significantly impacting the reduced level of recovery even more.
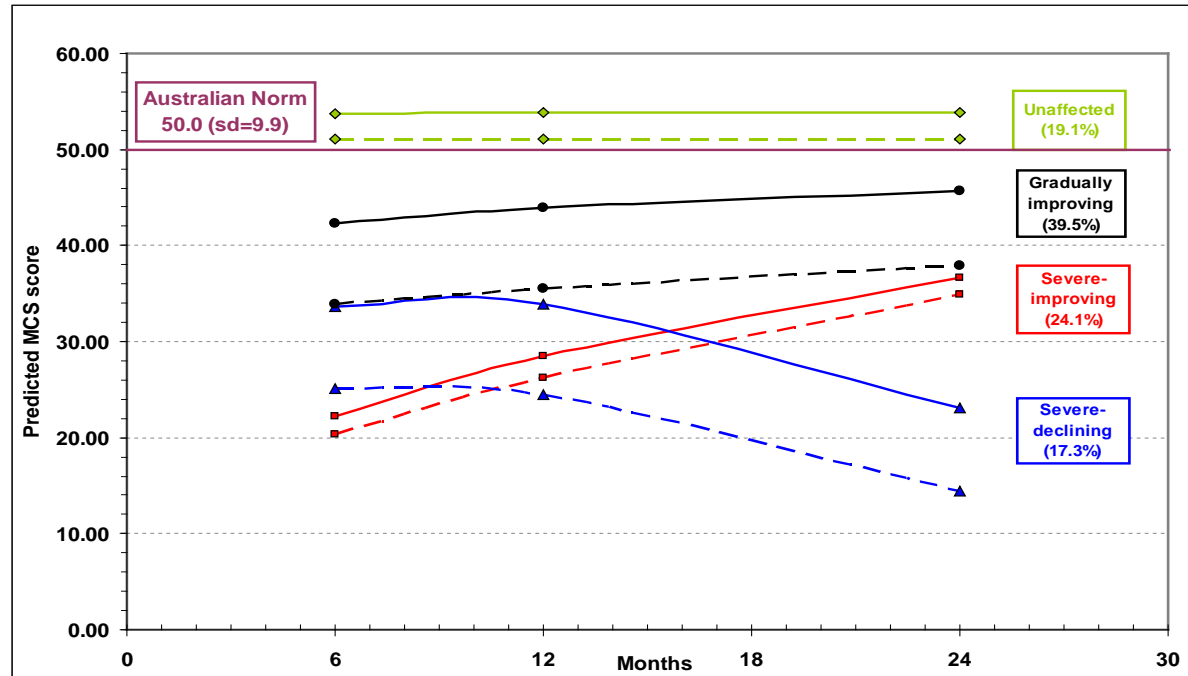
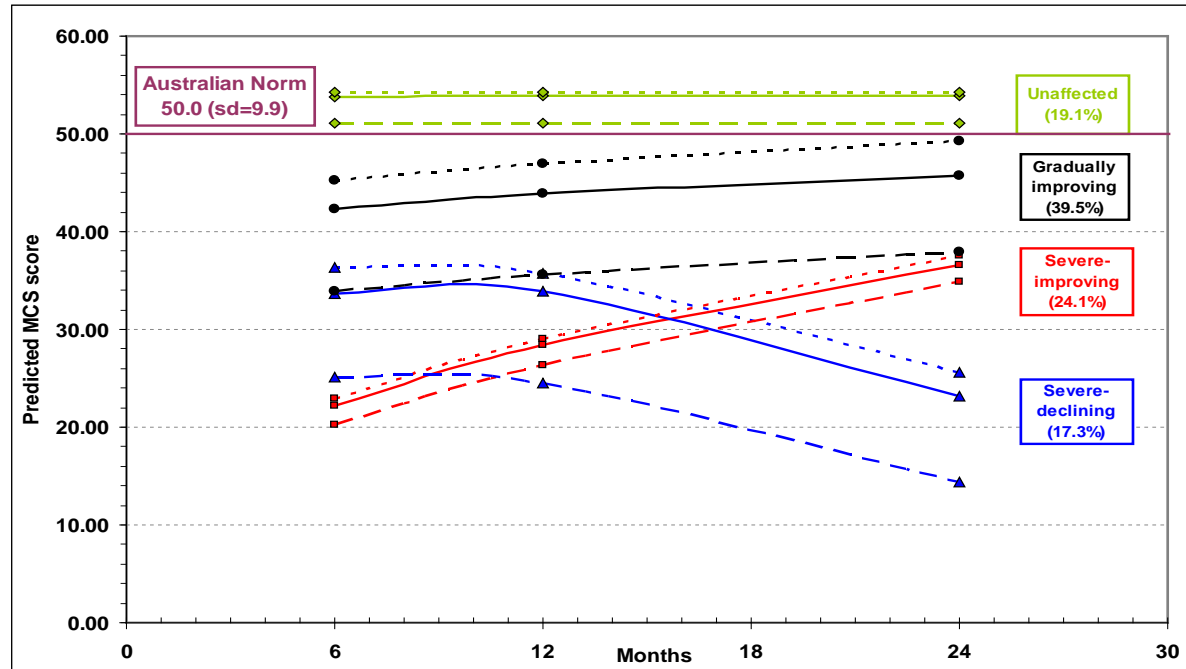# Mental health-related quality of life: Recovery Trajectories
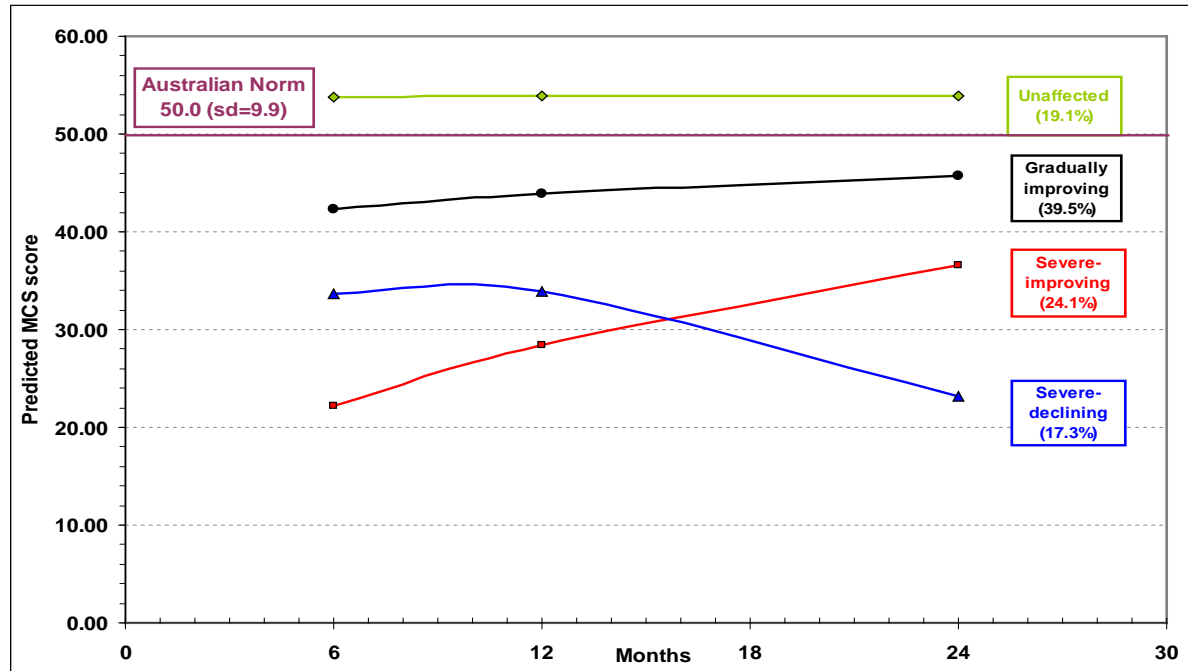
Mental health-related quality of life: Recovery Trajectories

Mental health-related quality of life: Recovery Trajectories

Mental health-related quality of life: declining recovery trajectory

- Those in the blue (deteriorating) recovery trajectory were more likely to have a history of mental illness than unaffected participants (green trajectory)

- At 6 months (Wave 1), they were also more likely to:
  - have a psych diagnosis present
  - report ↓ social support
  - have ↓ recovery expectations
  - report higher disability

- No significant differences were found between those who had a deteriorating trajectory (blue) and those who showed improvement (red) at 6 months or 12 months
  - 'reason' for divergence at 12 months is unclear → future research

Mental health-related quality of life: Predictors

- The following were found to significantly **predict lower mental** health-related **quality of life**:

    - ↓ expectation to return to work
    - ↓ social support
    - ↑ pain (*but no effect if also have PTSD*)
    - Presence of PTSD + GAD
    - Presence of PTSD + MDE

Mental health-related quality of life: Summary

- The majority of claimants experience levels of mental health-related quality of life below the average for the Australian population.

- Mental health-related quality of life for claimants over 2 years post RTC changed, such that :
  - **19%** were **unaffected** and showed levels at the average for the Australian population

  - **24%** had **low levels** at 6 months, but showed **steady recovery**

  - **40%** showed **gradual recovery**, however the presence of **PTSD decreased** the level of **recovery**

  - **17% deteriorated** over time, with the presence of **PTSD** significantly **exacerbating this decline**.
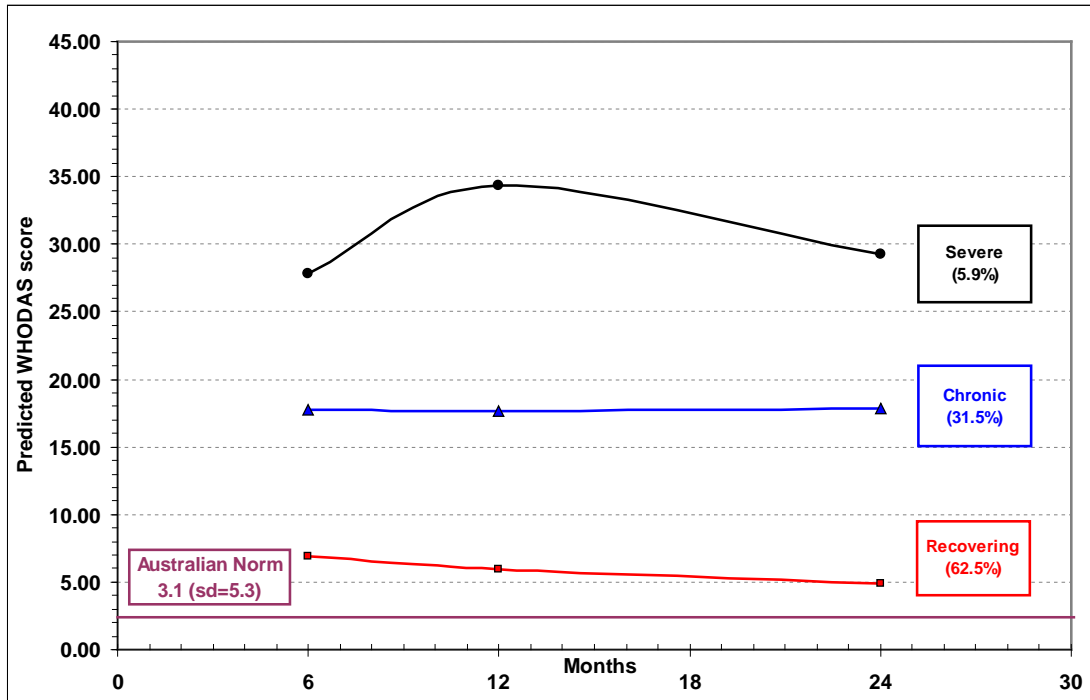
Return to Work

Pre-RTC Work Status	Wave 3 work status		
	Working full time	Working part-time	Not working
Working full time (N = 129)	89 (69%)	14 (11%)	26 (20%)
Working part time (N = 65)	7 (11%)	42 (65%)	16 (24%)
Not working (N = 48)	1 (2%)	2 (4%)	45 (94%)

Return to Work and Disability

Severe Group:
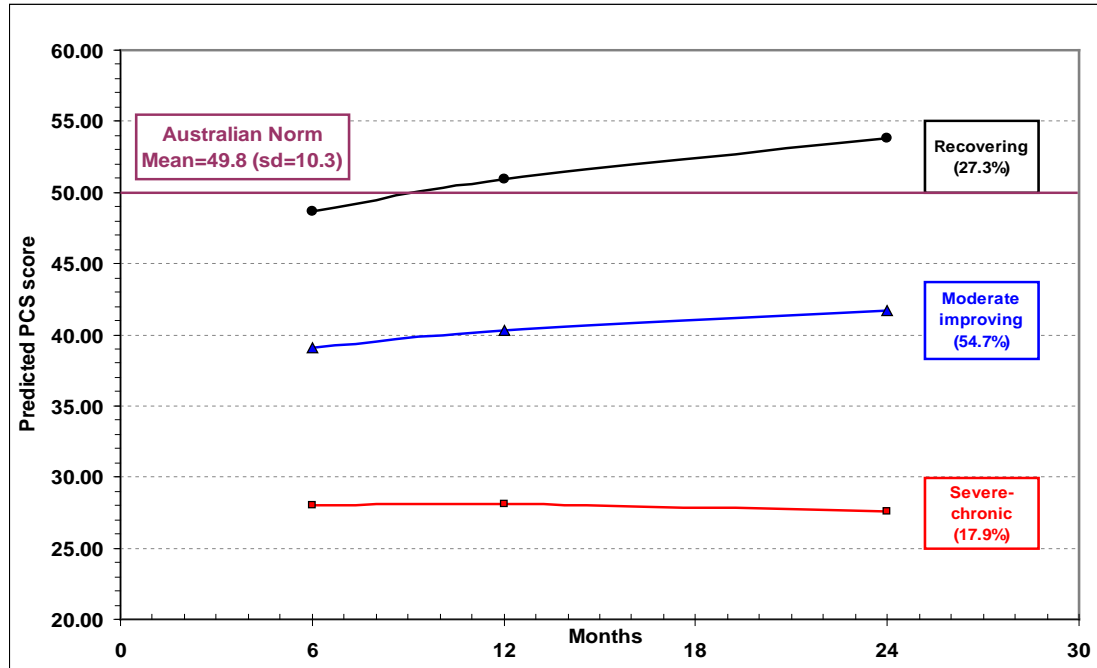Average probability of RTW = **0.25**

Chronic Group:
Average probability of RTW = **0.62**

Gradual recovery Group:
Average probability of RTW = **0.86**

Return to Work and Physical health-related quality of life

Recovering Group:
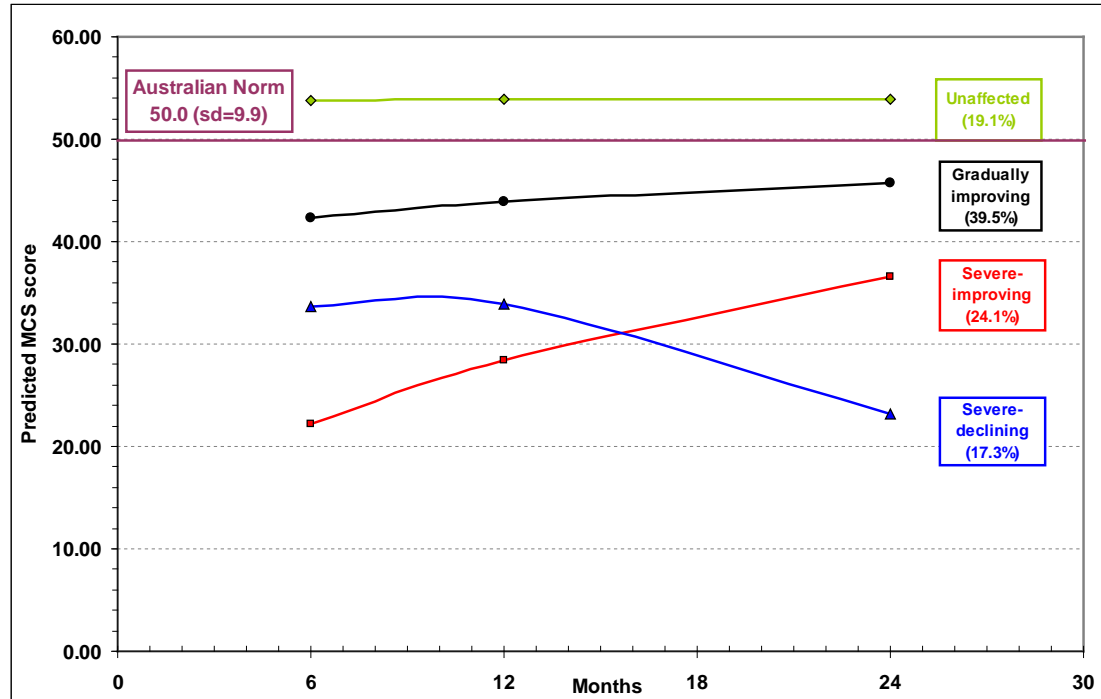Average probability of RTW= **0.90**

Moderate (improving) Group:
Average probability of RTW= **0.79**

Severe (chronic) Group:
Average probability of RTW=**0.48**

Return to Work and Mental health-related Quality of Life

Unaffected Group:
Average probability of RTW = **0.79**

Gradually improving Group:
Average probability of RTW = **0.83**

Severe (improving) Group:
Average probability of RTW = **0.71**

Severe (declining) Group:
Average probability of RTW = **0.73**

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Strength &
Challenges

Strengths

- Longitudinal study design
  - ↑ power/accuracy compared to cross-sectional study designs
- High retention rate of participants over the course of the study (2 years)
  - can be an issue in longitudinal research
- One of few studies focusing on those sustaining predominantly minor injury following an RTC
  - most focus of serious injury

Challenges

- Low participation rate
  - may affect generalizability of the findings
  - Hard to recruit minor injury sample (as opposed to hospitalised patients – face to face recruitment more effective than letter)

- Sample does not represent the entire RTC cohort
  - may not be representative, particularly to other states who have no-fault CTP schemes

- Selection bias
  - the use of opt-in consent may lead to selection bias (do systematic differences arise between those who consent and those who do not?)

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Conclusions

Conclusions (1)

- Claimants report **disability** levels above average for Australian population
    - Disability levels remain relatively stable at 2 years post-injury
    - Low probability of RTW in those with severe disability

- Majority of claimants experience levels of **physical health-related quality of life** below average for Australian population
    - 27% predicted to show average levels
    - Even odds of RTW for those with low physical quality of life

- Majority of claimants experience levels of **mental health-related quality of life** below average for Australian population
    - 17% are predicted to decline over time
    - Similar probabilities of RTW regardless of level of mental quality of life

Conclusions

- The presence of a mental illness predicts poorer physical health

- The proportion of claimants with mental illness reflects the reality of the prevalence in the community

- The outcomes of this study can **provide important indicators and recommendations** that may be used to **influence policy and practice** in injury management and post-injury rehabilitation.

Questions?

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