

**PREDICTION OF RETURN TO PRODUCTIVITY THREE MONTHS FOLLOWING
HOSPITALISATION FOR TRAUMA**

By

Samantha Meeth

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Department of Psychology, Faculty of Human Sciences
Macquarie University, Sydney Australia

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Table of Contents

Abstract	1
Chapter 1: Traumatic Brain Injury and Mild Traumatic Brain Injury	3
Definition	3
Epidemiology	5
Neuropathology of mTBI	7
The centripetal theory of injury severity.	7
The neurometabolic cascade.	8
Sequelae	10
Cognitive issues.....	10
Acute effects.....	11
Long-term (>3mths) effects.	12
Uncomplicated versus complicated mTBI severity.	13
Psychological/psychiatric issues.	14
Depression.....	15
Anxiety.....	15
Post-Traumatic Stress Disorder (PTSD).	16
Postconcussion Syndrome (PCS).....	17
Headache and PCS.	19
Pain.....	20
Chapter 2: Litigation in TBI and mTBI	22
Incidence of Litigation and Compensation-Seeking in TBI.....	23
Demographic and Injury Variables Related to Litigation and Compensation-Seeking	24

Effect of Litigation and Compensation-Seeking on Return to Work.....	25
Pain, Litigation and Return to Work	27
Effect of Litigation and Compensation-Seeking on Cognitive Functioning.....	28
Litigation and compensation-seeking and tests of effort.	28
Litigation and compensation-seeking and neuropsychological tests.	30
Effect of Litigation and Compensation-Seeking on Subjective Report of Symptoms.....	32
Effect of Litigation and Compensation-Seeking on Emotional State	33
Conclusion.....	34
Chapter 3: Occupation and mTBI	36
Why Study Occupation?.....	36
Importance of employment for the non-injured population.	36
Additional reasons to study employment after TBI.	37
What is Required for Successful Employment?.....	40
Chapter 4: Return to Work Following Mild TBI: A Systematic Review.....	44
Introduction	44
Method	47
Search strategy.	47
Results	52
Pre-injury variables.	62
Peri-injury variables.	64
Post-injury variables.....	67
Discussion	70
Chapter 5: Overview, Aims and Hypotheses of the Current Study	73

Aims of the Study.....	73
Hypotheses	73
Chapter 6: Methods	76
Participants	76
Inclusion and exclusion criteria.....	77
Selection of the final sample.	80
Demographic and injury-related information of the mTBI sample.....	84
Demographic and injury-related information of the trauma control sample.....	86
Occupational status of the sample.....	86
Litigation status of the sample.	87
Procedure.....	87
Measures.....	88
Outcome variable – return to productivity.	89
Pre-injury productivity.	89
Post-injury productivity.....	89
Pre-injury and injury measures.	91
Neuropsychological measures.....	93
Chapter 7: Results	99
Univariate Data Analysis	99
Demographic and Injury Characteristics of Mild TBI and Trauma Control Groups	100
Productivity Status Before and After Trauma.....	102
Effect of PTA on Return to Productivity	104
Unadjusted Bivariable Prediction of Return to Productivity	105

Multivariable Analysis of Return to Productivity	108
Chapter 8: Discussion.....	113
Changes in Productivity	113
Paid employment.....	113
Study hours.....	114
Home duty hours.	114
PTA Duration and Return to Productivity.....	115
Demographic Variables and Return to Productivity	115
Injury-Related Variables and Return to Productivity.....	117
Relationship between pain and return to productivity.	117
Length of hospital stay and return to productivity.	119
Neuropsychological Performance and Return to Productivity.....	120
Litigation and Return to Productivity.....	121
Understanding Return to Productivity.....	123
Limitations and Future Directions.....	123
References	126
APPENDIX A: Level of support for each pre-injury, peri-injury and post-injury variables examined	169
APPENDIX B: Study Interview Sheets	176
APPENDIX C: Preliminary Data Analysis	190
APPENDIX D: Unpaired t-test for WSRT List A and List B.....	192
APPENDIX E: Univariate Description of Sample and Normality Test Output	193

APPENDIX F: Results of the Chi-squared analysis of the relationship between PTA duration and return to productivity for mTBI group.	201
APPENDIX G: Macquarie University final ethics approval letter.....	202

List of Tables

Table 1: Summary of the Employability Skills Profile (McLaughlin, 1995).....	42
Table 2: Scores for each study regarding methodological quality	53
Table 3: Variables studied and results of individual studies rated as either “commendable” or “acceptable” (n = 12)	54
Table 4: Variables studied and results of individual studies rated as “marginal” (n = 8).....	59
Table 5: Duration of PTA.....	85
Table 6: Demographic and injury characteristics of mTBI (n=56) and Control (n=57) groups	101
Table 7: Comparison of average employment, study, home duty hours and overall productivity hours for mTBI and trauma controls pre-injury and post-injury.....	104
Table 8: Bivariate associations of mTBI (n= 56) and trauma controls (n= 57) participants with full return to productivity at 3 months following hospitalisation.	107
Table 9: Final multivariable model with the predictor of full return to productivity (n=55) for mTBI and trauma patients at 3 months post-injury.....	110

List of Figures

Figure 1: Schematic Representation of the Process of Article Selection for Inclusion in Review ..	49
Figure 2: Flowchart depicting patients who did and did not meet criteria for current study.	81
Figure 3: Flowchart depicting final participant sample.	82
Figure 4: ROC curve analysis of the final multivariable model.	111

List of Abbreviations

AAMI:	Advancement of Automotive Medicine
ABS:	Australian Bureau of Statistics
ACRM:	American Congress of Rehabilitation Medicine
AIS:	Abbreviated Injury Scale
ANOVA:	Analysis of Variance
BADS:	Behavioural Assessment of the Dysexecutive Syndrome
CAVLT:	California Auditory Verbal Learning Test
CDC:	Centre for Disease Control
COWAT:	Controlled Oral Word Association Test
CI:	Confidence Interval
CT:	Computerised Tomography
DFA:	Discriminate Function Analysis
DSM-IV:	Diagnostic and Statistical Manual of Mental Disorders, fourth edition
ED:	Emergency Department
FLoPS:	Frontal Lobe Personality Survey
fMRI:	Functional Magnetic Resonance Imaging
FT:	Full Time
F/U:	Follow up
GCS:	Glasgow Coma Scale
HI:	Head Injury
ICD 10:	International Classification of Diseases, tenth revision
IQ:	Intelligence Quotient

ISS:	Injury Severity Scale
LOC:	Loss of Consciousness
MHI:	Mild Head Injury
MMPI-2:	Minnesota Multiphasic Personality Inventory, second edition
mTBI:	Mild Traumatic Brain Injury
MVA:	Motor Vehicle Accident
NBRs:	Neurobehavioural Rating Scale
NINDS:	National Institute of Neurological Disorders and Stroke
NS:	Non Significant
OR:	Odds Ratio
PASAT:	Paced Auditory Serial Attention Test
PCS:	Post Concussion Syndrome
PTA:	Post Traumatic Amnesia
PTSD:	Post Traumatic Stress Disorder
Q-Q plot:	Quantile-quantile plot
ROC curve:	Receiver Operating Characteristic Curve
RTW:	Return to Work
SD:	Standard Deviation
SES:	Socioeconomic Status
TAFE:	Technical and Further Education
TBI:	Traumatic Brain Injury
TC:	Trauma Control
US:	United States

WCST:	Wisconsin Card Sorting Test
WHO:	World Health Organization
WMS-R:	Wechsler Memory Scale Revised
WTAR:	Wechsler Test of Adult Reading

Abstract

Objective: The aim of the current study was to identify variables that could accurately predict return to full productivity three months post mild traumatic brain injury (mTBI). Return to productivity was defined as a full return to pre-injury employment, home duties and/or study.

Participants and Methods: Participants comprised 56 mTBI patients and 57 trauma controls (TC). Assessments were conducted at a mean of 5 days (SD 2.8) and again at 102 days (SD 14.2) post-injury. Logistic regression analyses were conducted to determine whether pre-injury, injury-related, post-injury and neuropsychological variables (including verbal learning, attention and information processing) were predictive of return to productivity.

Results: At three months post-injury, both groups reported a significant reduction in paid employment hours relative to pre-injury, with the TC group reducing their hours significantly more than the mTBI group ($p = .026$). Hours spent performing home duties were significantly reduced for both groups, with the TC group again reducing their hours significantly more than the mTBI group ($p = .011$). Neither group reported a significant reduction in the number of hours devoted to study post-injury. Multivariable analysis revealed that participants who reported higher levels of subjective pain were less likely to have returned to their pre-injury productivity by three months post-injury (OR: .75, 95% CI: .58-.98, $p = .034$). MTBI patients with a shorter length of hospital stay were more likely to report full productivity (OR: .57, 95% CI: .58-.98, $p = .012$), whereas for TC there was no significant relationship between length of hospital stay and productivity (OR: 1.69, 95% CI: 1.07-2.68, $p = .607$). With each unit increase in verbal learning, individuals with mTBI were 1.10 times more likely to report full productivity (95% CI: 1.02-1.19).

whereas for TC there was no significant relationship between verbal learning and return to productivity (OR: 1.01, 95% CI: .98-1.04). Participants involved in litigation or who were seeking compensation were significantly less likely to have returned to their pre-injury productivity levels by three months post-injury (OR: .14, 95% CI: .047-.435, $p = .001$).

Conclusion: Post-injury pain may preclude both mTBI and trauma patients from returning to full productivity. Within an mTBI sample length of hospital stay and verbal learning (as measured prior to discharge) may help predict return to early productivity. Involvement in litigation or compensation-seeking has a strong, negative relationship with return to pre-injury productivity level at three months post-injury.