

Supplemental material A: Search strategy

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('brain injury'/exp OR 'brain injury assessment'/exp OR 'head injury'/exp OR concussion/exp OR coma/exp OR (((brain OR head OR crani* OR intracrani* OR skull* OR cerebr* OR capitis OR hemisphere*) NEAR/3 (injur* OR trauma* OR posttrauma* OR damag* OR lesion* OR fracture*)) OR concus* OR contus* OR neurotraum* OR tbi OR mtbi OR coma*):ab,ti) AND (injury/exp OR 'posttraumatic stress disorder'/exp OR accident/exp OR emergency/exp OR 'emergency care'/exp OR 'emergency ward'/exp OR violence/exp OR (trauma* OR posttrauma* OR injur* OR tbi OR mtbi OR accident* OR emergen* OR violen*):ab,ti) AND (anxiety/exp OR 'mood disorder'/de OR 'anxiety disorder'/exp OR depression/exp OR 'mental health'/de OR 'psychological well being'/de OR "Diagnostic and Statistical Manual of Mental Disorders" OR (anxi* OR ((mood OR affective) NEAR/3 (disorder* OR disturb*)) OR phobi* OR agoraphobi* OR panic OR ocd OR (obsessi* NEAR/3 compulsi*) OR depress* OR ((posttraumatic OR post-traumatic OR postconcussion* OR post-concussional OR post-concussion) NEAR/3 (stress* OR syndrom*)) OR dysthymi* OR ptsd OR ((psychologic* OR neuropsychologic* OR emotion*) NEAR/3 (outcome* OR develop* OR well-being OR wellbeing OR disabil* OR progres* OR adjust* OR function* OR consequenc* OR sequel*)) OR 'mental health' OR dsm):ab,ti) AND (prevalence/exp OR incidence/exp OR 'prediction and forecasting'/exp OR interview/exp OR epidemiology/de OR 'risk factor'/exp OR (incidenc* OR prevalen* OR predict* OR prognos* OR interview* OR (risk NEAR/3 factor*)) OR epidemiolog* OR ((indicator* OR variable* OR characteristic* OR examination* OR assessment* OR measure* OR association* OR determinant*) NEAR/3 psycholog*) OR psychometric*):ab,ti) NOT ([Conference Abstract]/lim OR [Letter]/lim OR [Note]/lim OR [Conference Paper]/lim OR [Editorial]/lim) AND [english]/lim NOT ([animals]/lim NOT [humans]/lim)

Medline (OvidSP)

(exp Craniocerebral Trauma/ OR Glasgow Coma Scale/ OR coma/ OR (((brain OR head OR crani* OR intracrani* OR skull* OR cerebr* OR capitis OR hemisphere*) ADJ3 (injur* OR trauma* OR posttrauma* OR damag* OR lesion* OR fracture*)) OR concus* OR contus* OR neurotraum* OR tbi OR mtbi OR coma*).ab,ti.) AND (exp Wounds and Injuries/ OR exp Stress Disorders, Traumatic/ OR exp accidents/ OR exp Emergencies/ OR exp Emergency Treatment/ OR exp Emergency Service, Hospital/ OR exp violence/ OR (trauma* OR posttrauma* OR injur* OR tbi OR mtbi OR accident* OR emergen* OR violen*).ab,ti.) AND (exp anxiety/ OR exp mood disorders/ OR exp anxiety disorder/ OR exp depression/ OR exp mental health/ OR Personal Satisfaction/ OR "Diagnostic and Statistical Manual of Mental Disorders" OR (anxi* OR ((mood OR affective) ADJ3 (disorder* OR disturb*)) OR phobi* OR agoraphobi* OR panic OR ocd OR (obsessi* ADJ3 compulsi*) OR depress* OR ((posttraumatic OR post-traumatic OR postconcussion* OR post-concussional OR post-concussion) ADJ3 (stress* OR

syndrom*) OR dysthymi* OR ptsd OR ((psychologic* OR neuropsychologic* OR emotion*) ADJ3 (outcome* OR develop* OR well-being OR wellbeing OR disabil* OR progres* OR adjust* OR function* OR consequenc* OR sequel*)) OR mental health OR dsm).ab,ti.) AND (exp prevalence/ OR exp incidence/ OR Prognosis/ OR exp Interviews as Topic/ OR epidemiology/ OR epidemiology.xs. OR exp risk factors/ OR (incidenc* OR prevalen* OR predict* OR prognos* OR interview* OR (risk ADJ3 factor*) OR epidemiolog* OR ((indicator* OR variable* OR characteristic* OR examination* OR assessment* OR measure* OR association* OR determinant*) ADJ3 psycholog*) OR psychometric*).ab,ti.) NOT (letter OR news OR comment OR editorial OR congresses OR abstracts).pt. AND english.la. NOT (exp animals/ NOT humans/)

PsyclINFO (OvidSP)

(exp Head Injuries/ OR Brain Damage/ OR coma/ OR (((brain OR head OR crani* OR intracrani* OR skull* OR cerebr* OR capitis OR hemisphere*) ADJ3 (injur* OR trauma* OR posttrauma* OR damag* OR lesion* OR fracture*)) OR concus* OR contus* OR neurotraum* OR tbi OR mtbi OR coma*).ab,ti.) AND (exp Injuries/ OR exp Posttraumatic Stress Disorder/ OR exp accidents/ OR exp trauma/ OR exp Emergency Services/ OR exp Emergency Management/ OR exp violence/ OR (trauma* OR posttrauma* OR injur* OR tbi OR mtbi OR accident* OR emergen* OR violen*).ab,ti.) AND (exp anxiety/ OR exp affective disorders/ OR exp anxiety disorders/ OR exp "Depression (Emotion)"/ OR exp mental health/ OR Satisfaction/ OR "Diagnostic and Statistical Manual" OR (anxi* OR ((mood OR affective) ADJ3 (disorder* OR disturb*)) OR phobi* OR agoraphobi* OR panic OR ocd OR (obsessi* ADJ3 compulsi*) OR depress* OR ((posttraumatic OR post-traumatic OR postconcussion* OR post-concussional OR post-concussion) ADJ3 (stress* OR syndrom*)) OR dysthymi* OR ptsd OR ((psychologic* OR neuropsychologic* OR emotion*) ADJ3 (outcome* OR develop* OR well-being OR wellbeing OR disabil* OR progres* OR adjust* OR function* OR consequenc* OR sequel*)) OR mental health OR dsm).ab,ti.) AND (Prognosis/ OR exp Interviews/ OR exp epidemiology/ OR exp risk factors/ OR (incidenc* OR prevalen* OR predict* OR prognos* OR interview* OR (risk ADJ3 factor*) OR epidemiolog* OR ((indicator* OR variable* OR characteristic* OR examination* OR assessment* OR measure* OR association* OR determinant*) ADJ3 psycholog*) OR psychometric*).ab,ti.) NOT book.pt. AND english.la. NOT (exp animals/ NOT humans/)

Cochrane

(((((brain OR head OR crani* OR intracrani* OR skull* OR cerebr* OR capitis OR hemisphere*) NEAR/3 (injur* OR trauma* OR posttrauma* OR damag* OR lesion* OR fracture*)) OR concus* OR contus* OR neurotraum* OR tbi OR mtbi OR coma*):ab,ti) AND ((trauma* OR posttrauma* OR injur* OR tbi OR mtbi OR accident* OR emergen* OR violen*):ab,ti) AND ((anxi* OR ((mood OR affective) NEAR/3 (disorder* OR disturb*)) OR phobi* OR agoraphobi* OR panic OR ocd OR (obsessi* NEAR/3 compulsi*) OR

depress* OR ((posttraumatic OR post-traumatic OR postconcussion* OR post-concussional OR post-concussion) NEAR/3 (stress* OR syndrom*)) OR dysthymi* OR ptsd OR ((psychologic* OR neuropsychologic* OR emotion*) NEAR/3 (outcome* OR develop* OR well-being OR wellbeing OR disabil* OR progres* OR adjust* OR function* OR consequenc* OR sequel*)) OR 'mental health' OR dsm):ab,ti) AND ((incidenc* OR prevalen* OR predict* OR prognos* OR interview* OR (risk NEAR/3 factor*) OR epidemiolog* OR ((indicator* OR variable* OR characteristic* OR examination* OR assessment* OR measure* OR association* OR determinant*) NEAR/3 psycholog*) OR psychometric*):ab,ti)

PubMed publisher

(CranioCerebral Trauma[mh] OR Glasgow Coma Scale[mh] OR coma[mh] OR (((brain OR head OR crani*[tiab] OR intracrani*[tiab] OR skull*[tiab] OR cerebr*[tiab] OR capitis OR hemisphere*[tiab]) AND (injur*[tiab] OR trauma*[tiab] OR posttrauma*[tiab] OR damag*[tiab] OR lesion*[tiab] OR fracture*[tiab])) OR concus*[tiab] OR contus*[tiab] OR neurotraum*[tiab] OR tbi OR mtbi OR coma*[tiab])) AND (Wounds and Injuries[mh] OR Stress Disorders, Traumatic[mh] OR accidents[mh] OR Emergencies[mh] OR Emergency Treatment[mh] OR Emergency Service, Hospital[mh] OR violence[mh] OR (trauma*[tiab] OR posttrauma*[tiab] OR injur*[tiab] OR tbi OR mtbi OR accident*[tiab] OR emergen*[tiab] OR violen*[tiab])) AND (anxiety[mh] OR mood disorders[mh] OR anxiety disorder[mh] OR depression[mh] OR mental health[mh] OR Personal Satisfaction[mh] OR "Diagnostic and Statistical Manual of Mental Disorders" OR (anxi*[tiab] OR ((mood OR affective) AND (disorder*[tiab] OR disturb*[tiab]))) OR phobi*[tiab] OR agoraphobi*[tiab] OR panic OR ocd OR (obsessi*[tiab] AND compulsi*[tiab]) OR depress*[tiab] OR ((posttraumatic OR post-traumatic OR postconcussion*[tiab] OR post-concussional OR post-concussion) AND (stress*[tiab] OR syndrom*[tiab])) OR dysthymi*[tiab] OR ptsd OR ((psychologic*[tiab] OR neuropsychologic*[tiab] OR emotion*[tiab]) AND (outcome*[tiab] OR develop*[tiab] OR well-being OR wellbeing OR disabil*[tiab] OR progres*[tiab] OR adjust*[tiab] OR function*[tiab] OR consequenc*[tiab] OR sequel*[tiab])) OR mental health OR dsm)) AND (prevalence[mh] OR incidence[mh] OR Prognosis[mh] OR Interviews as Topic[mh] OR epidemiology[mh] OR epidemiology[sh] OR risk factors[mh] OR (incidenc*[tiab] OR prevalen*[tiab] OR predict*[tiab] OR prognos*[tiab] OR interview*[tiab] OR (risk AND factor*[tiab]) OR epidemiolog*[tiab] OR ((indicator*[tiab] OR variable*[tiab] OR characteristic*[tiab] OR examination*[tiab] OR assessment*[tiab] OR measure*[tiab] OR association*[tiab] OR determinant*[tiab]) AND psycholog*[tiab] OR psychometric*[tiab]))) NOT (letter[pt] OR news[pt] OR comment[pt] OR editorial[pt] OR congresses[pt] OR abstracts[pt]) AND english[la] NOT (animals[mh] NOT humans[mh]) AND publisher[sb]

Google scholar

"brain|head|cranial|cerebral injury|trauma|fracture"|concussion|contusion|coma

trauma|traumatic|posttraumatic|injury|accident anxiety|"mood disorder"|depression|"mental health"|psychological|dsm

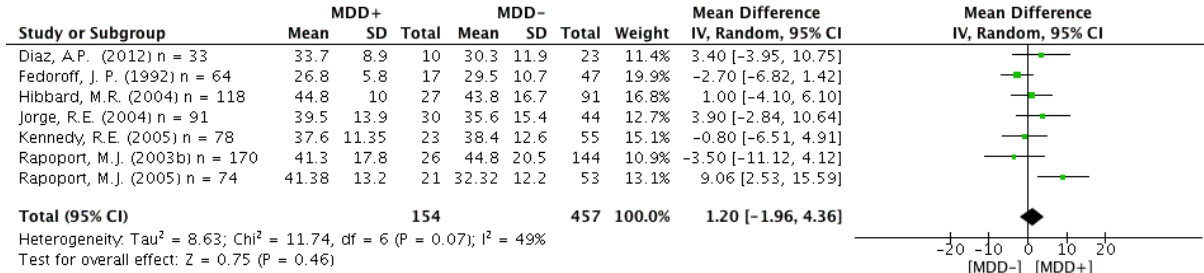
prevalence|incidence|epidemiology|"risk factor"|prognosis

Supplemental material B: meta-analyses of univariable predictors of MDD and PTSD

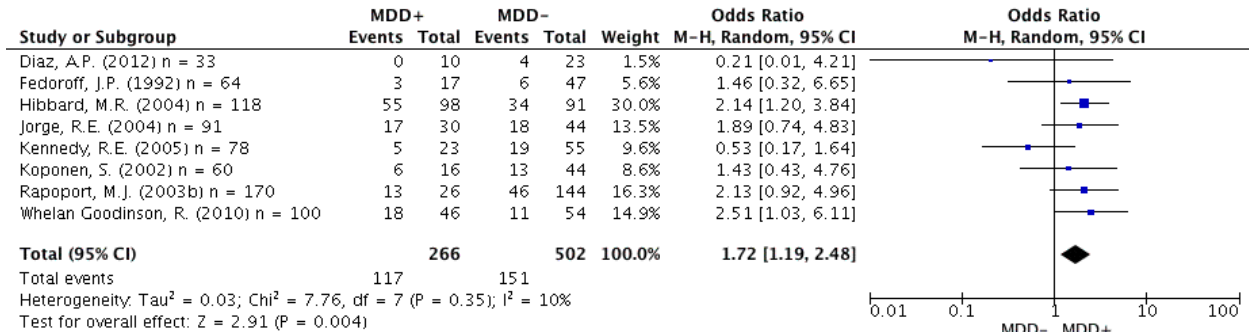
B1. Meta-analyses of univariable predictors of MDD

Demographics

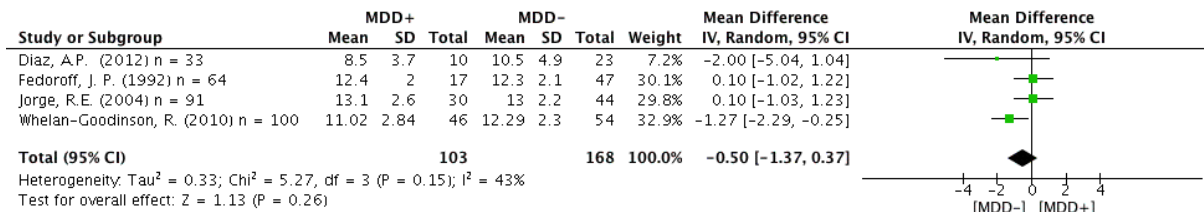
1. Age (continuous, in years) as predictor of MDD



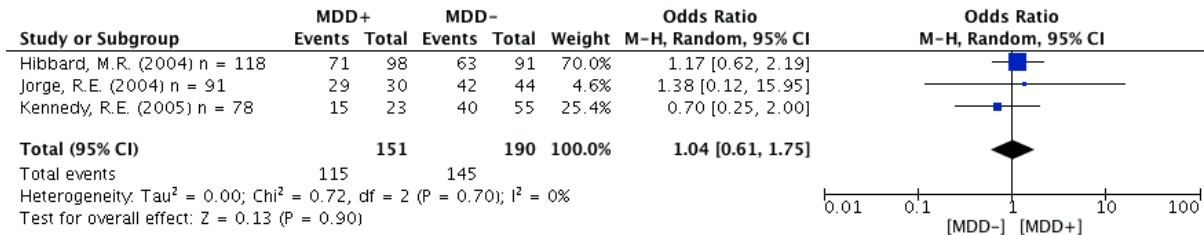
2. Female gender as predictor of MDD



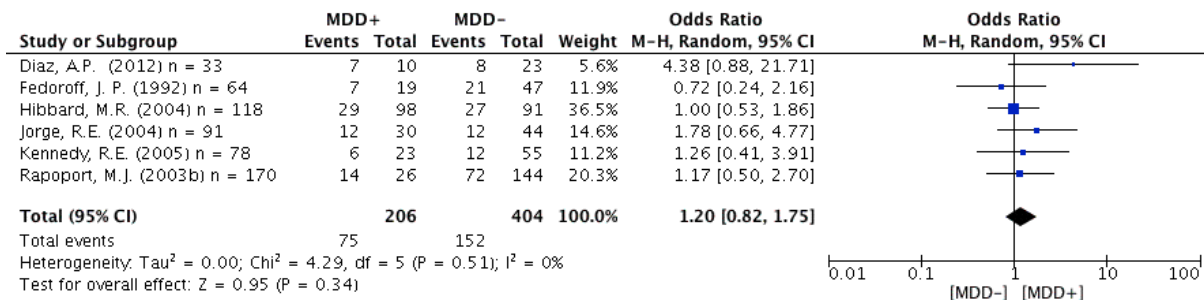
3. Education (continuous, in years) as predictor of MDD



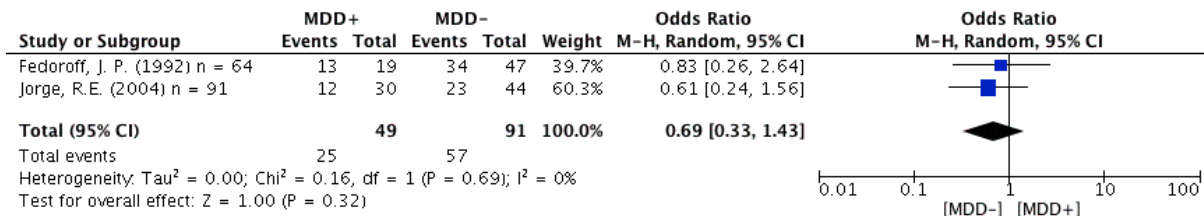
4. Caucasian race as predictor of MDD



5. Marital status (married / relationship vs. unattached) as predictor of MDD

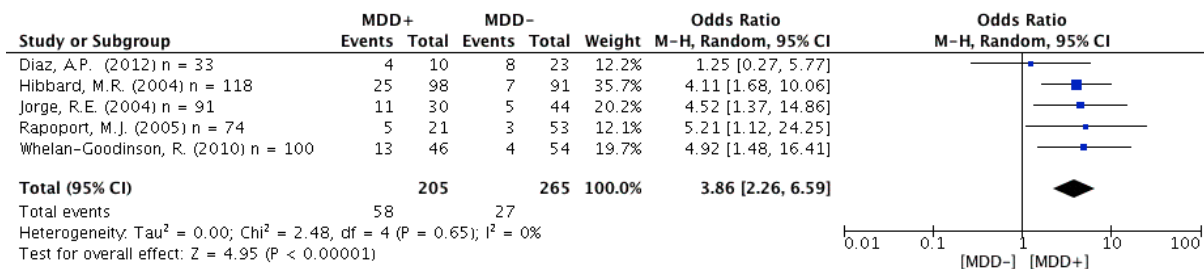


6. Socioeconomic status (Hollingshead classes IV and V vs. lower) as predictor of MDD

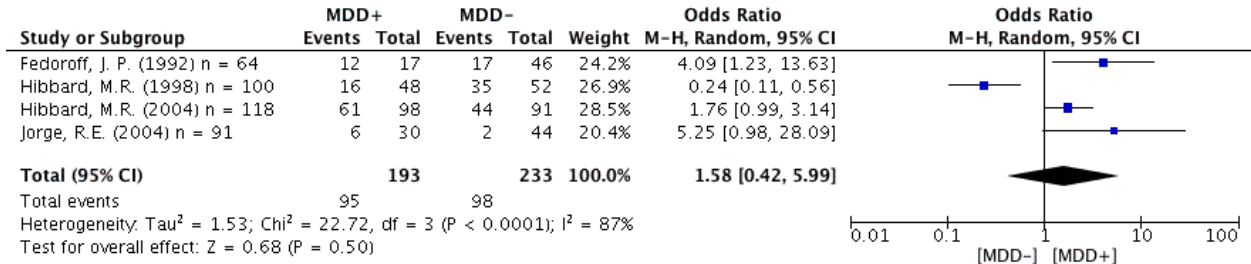


Pre-injury variables

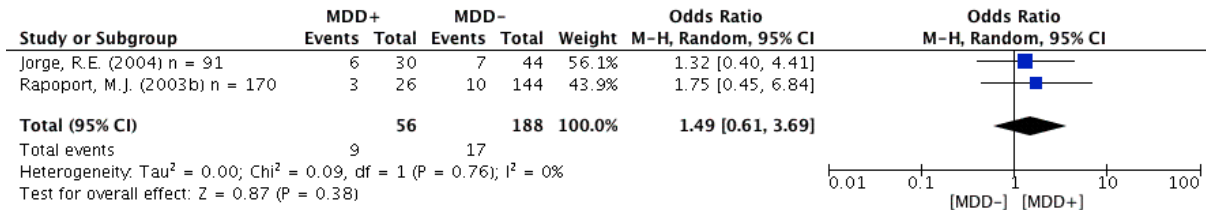
7. Pre-injury depression as predictor of MDD



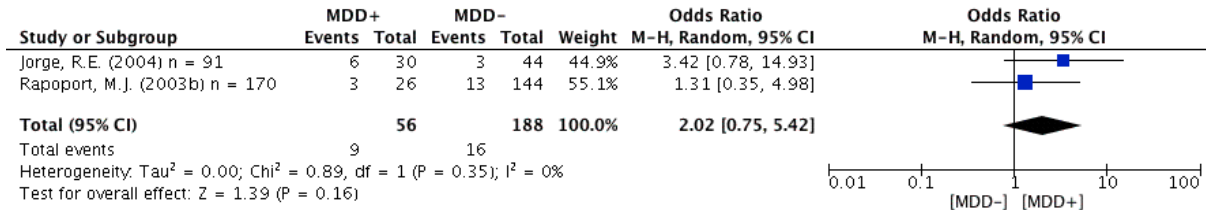
8. Pre-injury psychiatric disorders as predictor of MDD



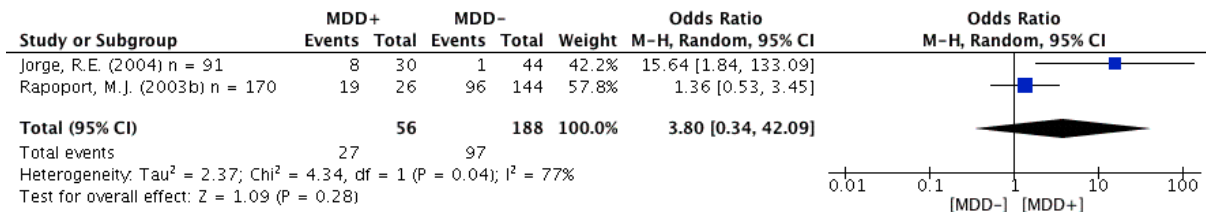
9. Pre-injury alcohol abuse as predictor of MDD



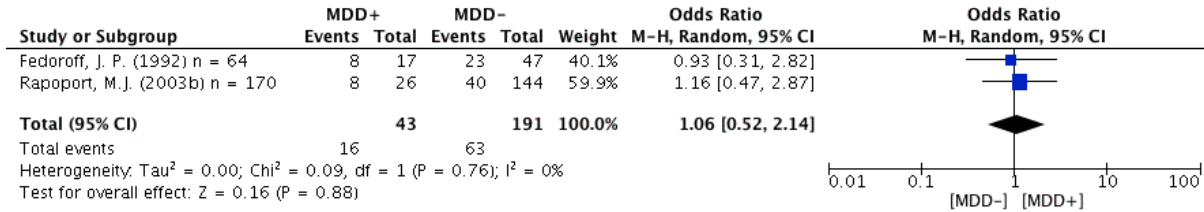
10. Pre-injury substance abuse as predictor of MDD



11. Pre-injury unemployment as predictor of MDD

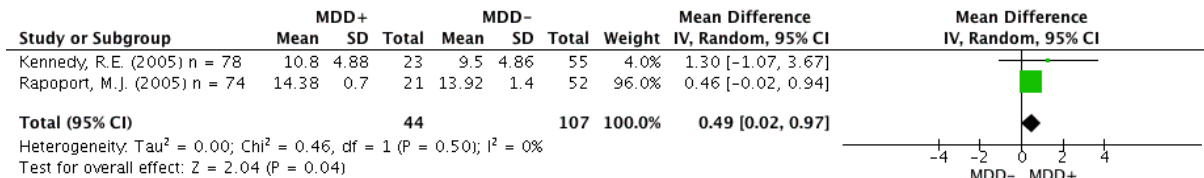


12. Family history of psychiatric disorders as predictor of MDD

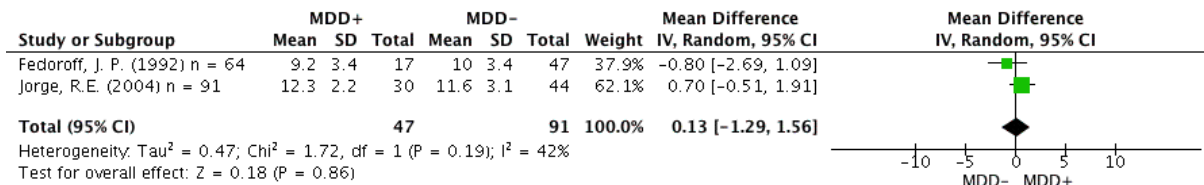


Clinical variables and imaging

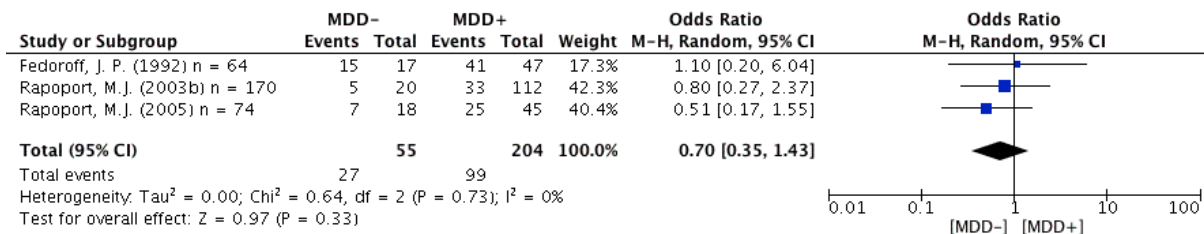
13. Admission GCS as predictor of MDD



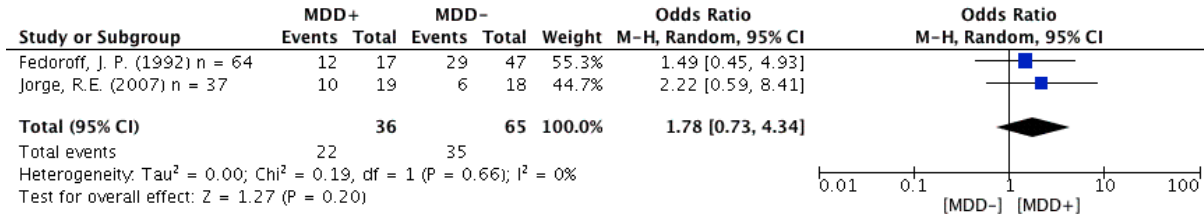
14. GCS after 24h post-injury as predictor of MDD



15. CT abnormalities as predictor of MDD

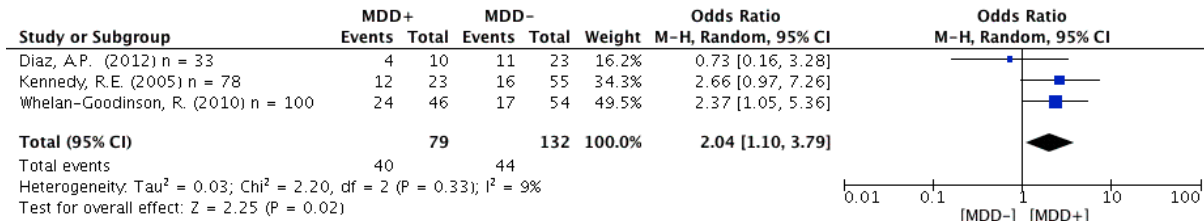


16. Brain Contusion as predictor of MDD

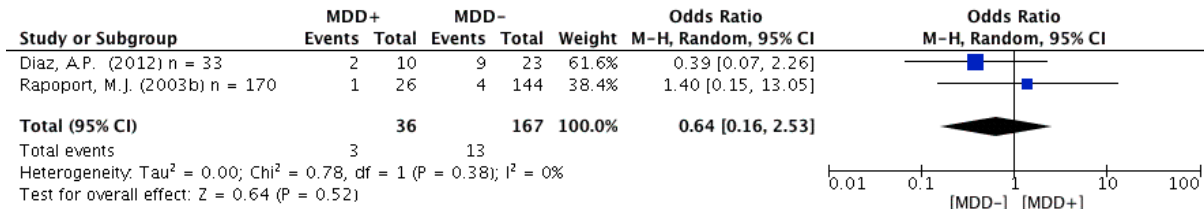


Post-injury variables

17. Post-injury unemployment as predictor of MDD



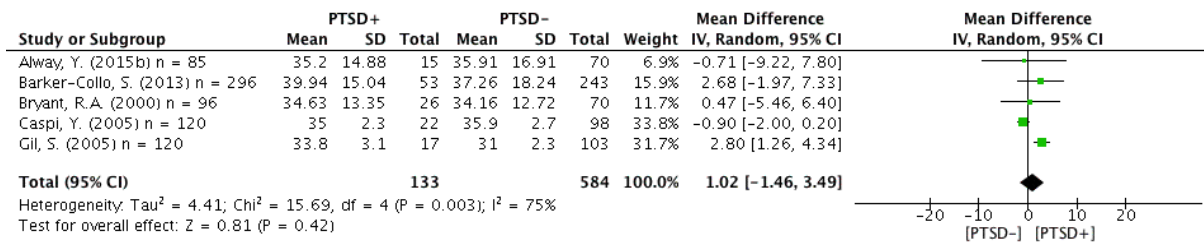
18. Post-injury litigation situation as predictor of MDD



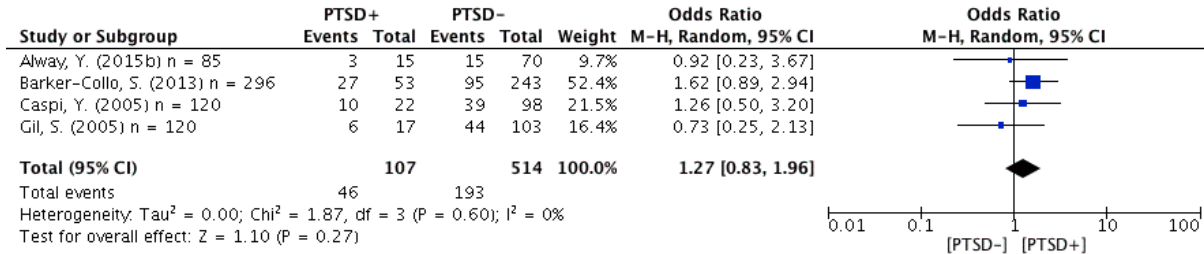
B1. Meta-analyses of univariable predictors of PTSD

Demographics

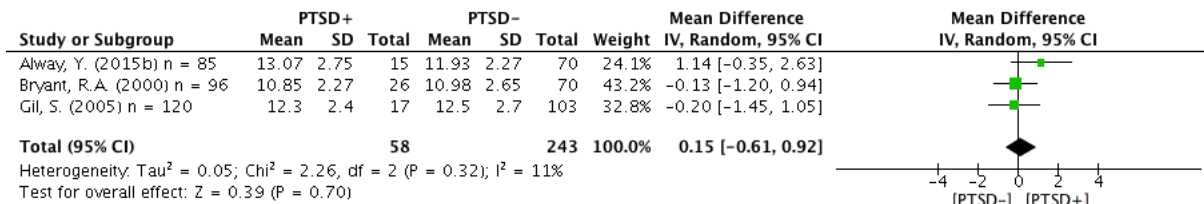
1. Age (continuous) as predictor of PTSD



2. Female gender as predictor of PTSD

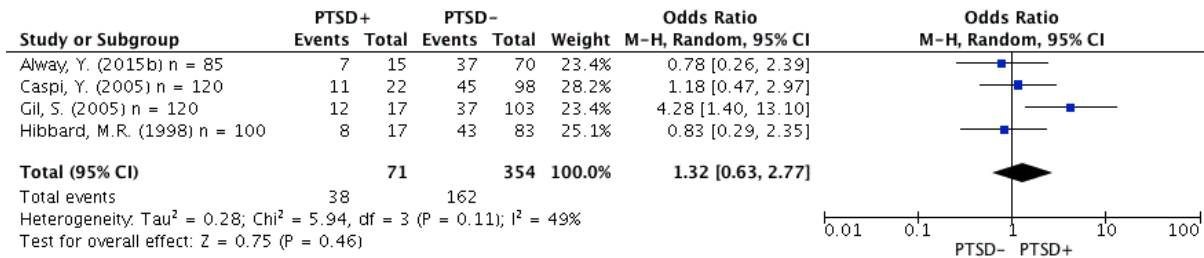


3. Education (continuous) as predictor of PTSD



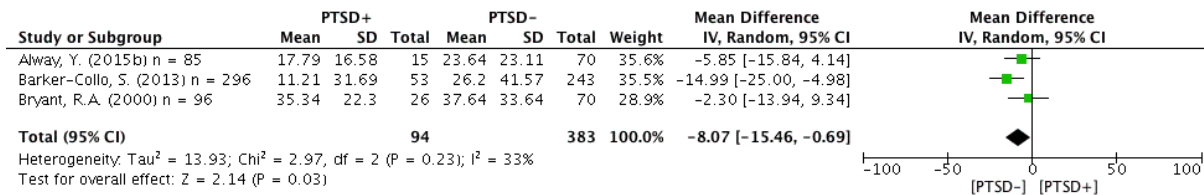
Pre-injury variables

4. Pre-injury psychiatric disorder as predictor of PTSD



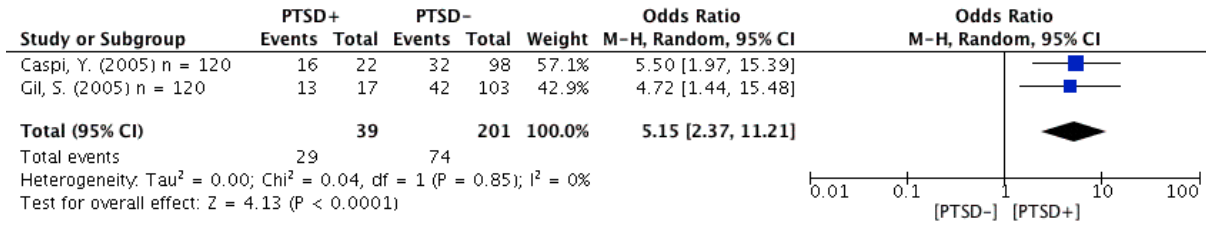
Clinical variables

5. PTA (continuous) as predictor of PTSD



Post-injury variables

6. Memory of the traumatic event as predictor of PTSD



Note. Total number of patients in the study and total number of patients included in the meta-analyses may vary since for some variables, not all patients in the study were assessed (e.g. studies that included both MDD and PTSD)

Supplemental C. Meta-analyses of univariable predictors of MDD and PTSD following Traumatic Brain Injury with only those studies using the DSM-IV criteria

Predictor	No. of participants (No. of studies)	Pooled effect size meta-analysis OR (95% CI)*	Heterogeneity (I ²)
MDD			
Age (/y, MD (95% CI))	547 (6)**	2.16 (-1.15 to 5.47)	38%
Female Gender	644 (6)**	1.70 (1.05 to 2.74)	34%
Education (/y, MD (95%CI))	207 (3)**	-0.78 (-1.91 to 0.36)	47%
Caucasian race	341 (3)	1.04 (0.61 to 1.75)	0%
Marital status †	610 (6)	1.20 (0.82 to 1.75)	0%
Socioeconomic status ‡	140 (2)	0.69 (0.33 to 1.43)	0%
Pre-injury depression	470 (5)	3.86 (2.26 to 6.59)	0%
Pre-injury psychiatric disorders	363 (3)**	1.18 (0.23 to 5.95)	89%
Pre-injury alcohol abuse	244 (2)	1.49 (0.61 to 3.69)	0%
Pre-injury substance abuse	244 (2)	2.02 (0.75 to 5.42)	0%
Pre-injury unemployment	244 (2)	3.80 (0.34 to 42.09)	77%
Family history of psychiatric disorders	170 (1)**	1.16 (0.47 to 2.86)	NA
Admission GCS (MD (95% CI))	151 (2)	0.49 (0.02 to 0.97)	0%
24h GCS (MD (95% CI))	74 (1)**	0.70 (0.51 to 1.91)	NA
CT abnormalities	195 (2)**	0.64 (0.29 to 1.40)	0%

Brain contusion	37 (1)**	2.22 (0.59 to 8.41)	NA
Post-injury unemployment	211 (3)	2.04 (1.10 to 3.79)	9%
Post-injury litigation situation	203 (2)	0.64 (0.16 to 2.53)	0%

PTSD			
Age (/y, MD (95% CI))	621 (4)**	1.10 (-1.69 to 3.88)	81%
Female gender	621 (4)	1.27 (0.83 to 1.96)	0%
Education (/y, MD (95% CI))	205 (2)**	0.41 (-0.90 to 1.71)	45%
Pre-injury psychiatric disorder	425 (4)	1.32 (0.63 to 2.77)	49%
PTA (MD (95% CI))	381 (2)**	-10.41 (-19.37 to -1.46)	33%
Memory of the traumatic event	240 (2)	5.15 (2.37 to 11.21)	0%

*pooled OR (95% CI) unless otherwise specified

** The original meta-analyses (Supplemental material B) contained studies using other criteria than the DSM-IV (e.g. DSM-III, ICD-10). As a consequence, these estimates changed in the sensitivity analyses with only those studies that used the DSM-IV criteria

‡ married/relationship vs. unattached

‡ Hollinghead classes IV and V vs. lower

Abbreviations: MD = mean difference; MDD = major depressive disorder; OR = odds ratio; TBI = traumatic brain injury; GCS = Glasgow Coma Scale; PTA = posttraumatic amnesia; CT = computed tomography; PTSD = posttraumatic stress disorder; LOC = loss of consciousness

Supplemental material D: Narrative synthesis of variables not included in the meta-analysis

MDD:

Variable	Study	Results
Demographics		
Age	Deb, S. (2007)	Percentage patients with young age (18-65y) in MDD+ group: 79%, in MDD- group 72%, $p>.05$
	Hibbard, M. (1998)	No statistically significant differences
	Mauri, M.C. (2014)*	Mean age MDD+: 37.1 (SD = 15), MDD-: 47.5 (SD=13), $p>.05$
	Rao, V. (2010)*	Mean age MDD+ 52.4 (SD = unknown); MDD- 27.3 (SD = unknown), $p<.001$
	Reekum, R. (1996)*	Percentage patients under age 30: MDD+ 56%, MDD- 33%, $p>.05$
	Whelan-Goodinson, R (2010)	No statistically significant differences
Gender	Hibbard, M. (1998)	No statistically significant differences
	Rao, V. (2010)*	No statistically significant differences
	Rapoport, M.J. (2005)	No statistically significant differences
	Reekum, R. (1996)*	MDD+ 7 (78%) females, MDD- 3 (33%) females, $p = .06$
Education	Hibbard, M. (2004)	No statistically significant differences
	Kennedy, R.E. (2005)	In MDD+ group: less than high school 23%, high school graduate or some college 46%, college graduate or higher 32%; in MDD- group: less than high school 16%, high school graduate or some college 56%, college graduate or higher 27%, $p = .67$
	Mauri, M.C. (2014)*	Mean years of education: MDD+ 13 (SD = 2.9), MDD- 13 (SD = 4.2), $p>.05$
Race	Federoff, J.P. (1992)	Percentage of black patients: MDD+ 29%, MDD= 23%, $p>.05$
Marital status	Rapoport, M.J. (2005)	No statistically significant differences

	Whelan-Goodinson, R. (2010)	No statistically significant differences
Income	Hibbard, M. (2004)	Annual salary < 20.000 dollar: MDD+ 36%, MDD- 30%, p>.05
	Jorge, R.E. (2004)	Annual salary < 21.000 dollar: MDD+ 46%, MDD- 24%, p>.05
Location of residence	Whelan-Goodinson, R. (2010)	No statistically significant differences
Pre-injury variables		
Pre-injury depression	Gould, K.R. (2011b)	OR = 5.25 (95% CI: 1.66 to 16.64), p = .005
	Rapoport, M.J. (2003)	Chi square = 1.35 (df = 1), p = .25
Pre-injury anxiety	Jorge, R.E. (2004)	Percentage patients with pre-injury anxiety disorder: MDD+ 20%, MDD- 5%, p = .05
Pre-injury alcohol abuse	Rapoport, M.J. (2005)	No statistically significant differences
Pre-injury substance abuse	Gould, K.R. (2011)	Chi square = 3.10 (df=1, n = 114), p = .78
	Rapoport, M.J. (2005)	No statistically significant differences
Pre-injury substance- or alcohol abuse	Federoff, P.J. (1992)	<i>Percentage pre-injury substance or alcohol abuse: MDD+ 47%, MDD- 24%, p > .05</i>
Pre-injury unemployment	Rapoport, M.J. (2005)	No statistically significant differences
	Whelan-Goodinson, R. (2010)	No statistically significant differences
Family history of psychiatric disorders	Jorge, R.E. (2004)	No statistically significant differences
	Rapoport, M.J. (2005)	No statistically significant differences
Pre-injury counselling	Gould, K.R. (2011)	Higher percentage pre-injury counselling in those with MDD: Chi square = 5.43 (df = 1, n = 118), p = .02
Pre-injury medical problems	Rapoport, M.J. (2003)	No statistically significant differences
Pre-injury TBI	Rapoport, M.J. (2003b)	Percentage pre-injury TBI: MDD+ 23%, MDD- 23%, p>.05
	Rapoport, M.J. (2005)	No statistically significant differences

Peri-injury variables		
Mechanism of injury	Kennedy, R.E. (2005)	Percentage violent injury: MDD+ 22%, MDD- 9%, $p = 0.13$
	Rapoport, M.J. (2003)	No statistically significant differences
	Rapoport, M.J. (2005)	MVA: MDD+ 71%, MDD- 60%, Chi Square = 0.79 (df = 1), $p > .05$
Trauma severity	Mauri, M.C. (2014)	Trauma severity score: MDD+ 2.3 (SD = 0.9), MDD- 1.4 (SD = 0.7), $p > .05$
Clinical variables		
GCS (continuous)	Jorge R.E. (1993)	Mean GCS obtained at 24h post-injury: no statistically significant differences
	Kennedy, R.E. (2005)	Lowest GCS score: MDD+ 10.0 (SD = 4.4), MDD- 9.0 (SD = 5.0), $p > .05$
	Whelan-Goodinson, R. (2010)	No statistically significant differences (measurement = lowest preintubation GCS)
GCS (division into mild, moderate and severe)	Federoff, P.J. (1992)	MDD+: GCS 12-15 35%; GCS 8-11 24%; GCS 3-7 41% MDD-: GCS 12-15 43%; GCS 8-11 26%; GCS 3-7 32%, $p > .05$
	Hibbard, M. (1998)	No statistically significant differences
	Jorge, R.E. (2004)	MDD+: mild: 47%, moderate 40%, severe 13% MDD-: mild 48%, moderate 25%, severe 27%, $p > .05$
	Kennedy, R.E. (2005)	MDD+ GCS 13-15: 38%, GCS 9-12: 31%, GCS <9 31% MDD-: GCS 13-15 33%, GCS 9-12 18%, GCS <9 49%, $p = .67$
	Reekum, R. (1996)*	MDD+: severe TBI 56%, moderate TBI 22%, mild TBI 22% MDD-: severe TBI 56%, moderate TBI 11%, mild TBI 33%, $p > .05$
PTA	Koponen, S. (2002)	No statistically significant differences
	Rapoport, M.J. (2005)	PTA > 24h: MDD+ 43%, MDD- 53%, Chi square = 0.6 (df = 1), $p = .32$
	Whelan-Goodinson, R. (2010)	No statistically significant differences

LOC	Kennedy, R.E. (2005)	MDD+: none 53%, 1-2h 26%, 3-14h 21%, >14h 0% MDD-: none 43%, 1-2h 12%, 3-14h 22%, >14h 22%, p = .10
Bodily injuries	Gould, K. R. (2011)	MDD+ more bodily injuries than MDD- , p = .049
	Rapoport, M.J. (2005)	Fractures or other significant injuries: MDD+ 60%, MDD- 67%, p>.05
	Whelan-Goodinson, R. (2010)	No statistically significant differences
Pain	Whelan-Goodinson, R. (2010)	Percentage with pain: MDD+ 57%; MDD- 28%, OR = 3.38 (95% CI: 1.47 to 7.78), p = .004
AIS score	Jorge, R.E. (2004)	MDD+ 16.7 (SD = 5.7); MDD- 18.0 (SD = 8.1), p>.05
Comorbidities	Rapoport, M.J. (2003b)	MDD+: no comorbidity 15%, soft tissue only 50%, fractures 35% MDD-: no comorbidity 22%, soft tissue 52%, fractures 26%, p>.05
Imaging variables		
Total brain volume	Jorge, R.E.	MDD+ 1206 (SD = 149), MDD- 1311 (SD = 132), p>.05
	Rao, V. (2010)*	MDD+ 1064 (SD = 74), MDD- 1136 (SD = 140), p>.05
MR abnormalities	Jorge, R.E. (2004)	% of gray matter at MR image - L orbitofrontal cortex: MDD+ 2.1 (SD = 0.25), MDD- 2.1 (0.25), p>.05 % of gray matter at MR image - L medial frontal cortex: MDD+ 1.5 (SD = 0.24), MDD- 1.6 (SD = 0.37), p>.05 % of gray matter at MR image - L lateral frontal cortex: MDD+ 5.6 (SD =0.7); MDD-: 4.5 (SD = 0.9), Chi square = 10.5, p = .001 % of gray matter at MR image - L superior frontal gyrus: MDD+ 2.2 (SD = 0.4), MDD- 1.9 (SD = 0.3), p>.05 % of gray matter at MR image - L middle frontal gyrus: MDD+ 2.2 (SD = 0.5), MDD- 1.7 (SD = 0.7), p>.05

		<p>% of gray matter at MR image - L inferior frontal gyrus: MDD+ 1.2 (SD = 0.2); MDD- 0.9 (SD = 0.2), Chi square = 7,1, p = .008</p> <p>% of gray matter at MR image - R orbitofrontal cortex: MDD+ 2.1 (0.20); MDD- 2.1 (SD = 0.46), p>.05</p> <p>% of gray matter at MR image - R medial frontal cortex: MDD+ 1.6 (SD = 0.30), MDD- 1.7 (SD = 0.43), p>.05</p> <p>% of gray matter at MR image - R lateral frontal cortex: MDD+ 5.4 (SD = 0.7), MDD- 4.9 (SD = 1.2), p >.05</p> <p>% of gray matter at MR image - R superior frontal gyrus: MDD+ 2.1 (SD = 0.3); MDD+ 1.9 (0.3), p>.05</p> <p>% of gray matter at MR image - R middle frontal gyrus: MDD+ 2.2 (SD = 0.6); MDD- 2.0 (SD = 0.8), p>.05</p> <p>% of gray matter at MR image - R inferior frontal gyrus: MDD+ 1.1 (SD = 0.2), MDD- 1.0 (SD = 0.3), p>.05</p>
Diffuse injury at CT or MRI scan	Jorge, R.E. (2007)	Percentage diffuse injury: MDD+ 37%, MDD- 67%, p>.05
Intracranial hemorrhages	Jorge, R.E. (2007)	Percentage intracranial hemorrhages: MDD+ 32%, MDD- 22%
Frontal lesions	Jorge, R.E. (2007)	Percentage frontal lesion: MDD+ 42%, MDD- 28%
Brain volume	Rao, V. (2010)*	<p>Total gray brain volume: MDD+ 474.98 (SD = 72.8), MDD- 564.96 (SD = 93.9), p = .07</p> <p>Total white brain volume: MDD+ 588.08 (SD = 31.8); MDD 590.78 (SD = 61.2), p = .91</p> <p>Total left frontal lobe: MDD+ 150.47 (SD = 14.4); MDD- 153.31 (SD = 26.2), p = .79</p> <p>Left frontal lobe white matter: MDD+ 90.63 (SD = 10.2), MDD- 81.1 (SD = 13.1), p = .14</p> <p>Left frontal lobe grey matter: MDD+ 59.84 (SD = 10.3); MDD 72.19 (SD = 14.6), p = .08</p>

		<p>Total right frontal lobe: MDD+ 155.49 (SD = 12.6); MDD- 160.55 (SD = 20.1), $p = .56$</p> <p>Right frontal lobe white matter: MDD+ 95.13 (SD = 11.2); MDD-84.26 (SD = 9.0), $p = .07$</p> <p>Right frontal lobe grey matter: MDD+ 60.4 (SD = 8.9), MDD- 76.3 (SD = 13.6), $p = .02$</p> <p>Total left limbic lobe: MDD+ 54.02 (SD = 3.5), MDD-54.9 (SD = 8.7), $p = .78$</p> <p>White left limbic lobe: MDD+ 26.8 (SD = 3.6), MDD- 25.0 (SD = 4.5), $p = .40$</p> <p>Gray left limbic lobe: MDD+ 27.14 (SD = 2.8); MDD-29.90 (SD = 5.6), $p = .30$</p> <p>Total right limbic lobe: MDD+: 50.0 (SD = 3.8); MDD- 52.03 (SD = 5.9), $p = .43$</p> <p>White right limbic lobe: MDD+ 22.5 (SD = 2.6); MDD- 20.8 (SD = 2.7), $p = .23$</p> <p>Gray right limbic lobe: MDD+ 27.50 (SD = 4.4); MDD- 31.27 (SD = 4.25), $p = .12$</p> <p>Total left occipital lobe: MDD+ 41.99 (SD = 5.2); MDD- 53.48 (SD = 7.31), $p = .004$</p> <p>White left occipital lobe: MDD+ 24.49 (SD = 3.37); MDD- 29.65 (SD = 6.1), $p = .06$</p> <p>Gray left occipital lobe: MDD+ 17.50 (SD = 4.12); MDD- 23.82 (SD = 4.3), $p = .01$</p> <p>Total right occipital lobe: MDD+ 42.57 (SD = 9.06), MDD-50.57 (SD = 8.46), $p = .11$</p> <p>White right occipital lobe: MDD+ 24.63 (SD = 5.07); 27.66 (SD = 6.1), $p = .32$</p>
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		<p>Gray right occipital lobe: MDD+ 17.93 (SD = 5.8), MDD- 22.9 (SD = 4.7), $p = .11$</p> <p>Total left temporal lobe: MDD+ 74.11 (SD = 5.7); MDD- 81.69 (SD = 9.6), $p = .08$</p> <p>White left temporal lobe: MDD+ 33.96 (SD = 2.15), MDD- 35.63 (SD = 4.96), $p = .39$</p> <p>Gray left temporal lobe: MDD+ 40.14 (SD = 5.4); MDD- 46.06 (SD = 5.90), $p = .07$</p> <p>Total right temporal lobe: MDD+ 74.24 (SD = 9.12); MDD- 81.60 (SD = 9.9), $p = .16$</p> <p>White left temporal lobe: MDD+ 33.59 (SD = 4.51); MDD- 34.82 (SD = 5.68), $p = .65$</p> <p>Gray left temporal lobe: MDD+ 40.65 (SD = 6.36); MDD- 46.77 (SD = 5.87), $p = .08$</p> <p>Total left parietal lobe: MDD+ 53.84 (SD = 6.37), MDD- 59.20 (SD = 5.32), $p = .11$</p> <p>White left parietal lobe: MDD+ 29.56 (SD = 3.4), MDD- 29.03 (SD = 5.1), $p = .81$</p> <p>Gray left parietal lobe: MDD+ 24.28 (SD = 6.16), MDD- 30.17 (SD = 4.24), $p = .06$</p> <p>Total right parietal lobe: MDD+ 57.04 (SD = 9.26); MDD- 63.44 (SD = 6.36), $p = .17$</p> <p>White right parietal lobe: MDD+ 31.46 (SD = 2.7), MDD- 31.09 (SD = 6.59), $p = .88$</p> <p>Gray right parietal lobe: MDD+ 25.58 (SD = 6.9), MDD- 32.34 (SD = 5.06), $p = .06$</p>
	Jorge, R.E. (2007)	<p>Left frontal lobe grey matter (% of TIV): MDD+ 8.9 (SD = 0.6), MDD- 9.4 (SD = 0.6), $F = 7.8$, $p = .009$</p>

		Right frontal lobe grey matter (% of TIV): MDD+ 9.4 (SD = 0.9), MDD- 9.7 (SD = 0.6), Hippocampal volume (left): MDD+ group has significantly lower hippocampal volumes, p = .04 Hippocampal volume (right): MDD+ group has significantly lower hippocampal volumes, p = .03
Choline/creatine ratio in the right basal ganglia	Rao, V. (2010)*	MDD+ 1.6 (SD = 2.0), MDD- 2.0 (SD = 0.43), p = .02
N-acetylaspartate/creatine ratio	Rao, V. (2010)*	MDD+ 1.7 (SD = 0.36), MDD- 2.2 (SD = 0.68), p = .06
Post-injury variables		
Post-injury unemployment	Hibbard, M. (1998)	No statistically significant differences
Post-injury rehabilitation	Reekum, R. (1996)*	Inpatient rehabilitation: MDD+ 33%, MDD- 56%
Post-injury depression	Gould, K.R. (2011)	Post-injury depression is related to MDD Measured with SCID: p = .006 Measured with HADS: p = .031
Post-injury anxiety	Gould, K.R. (2011)	No statistically significant differences
Post-injury anxiety or depression	O'Donnell, M.L. (2008)	Area Under the Curve 0.72 (SE = .053, p = .001)
MDD screening instrument (PAS-D)†	O'Donnell, M.L. (2008)	Area Under the Curve 0.77 (SE .07, p <.001), cut-off of 4 results in sensitivity of 0.7, specificity of 0.8.
Alexithymia	Koponen, S. (2005)	Score on TAS-20: MDD+ 69.0 (SD = 13.1); MDD- 52.5 (SD = 12.6), p>.05
Neuropsychological test results	Jorge, R.E. (2004)	Rey auditory verbal learning test: MDD+ 8.33 (SD = 2.77), MDD- 9.93 (SD = 3.14), Cohen's d = 0.52, p >.05 Rey complex figure test score: MDD+ 14.50 (SD = 8.10), MDD- 17.64 (SD = 5.31), Cohen's d = 0.52, p >.05

		<p>Wisconsin card sorting test (perseverative errors): MDD+ 13.92 (SD = 11.09), MDD- 7.95 (SD = 5.17), Cohen's d = 0.82, p = .03</p> <p>Wisconsin card sorting test (categories achieved): MDD+ 2.25 (SD = 1.60), MDD- 3.33 (SD = 1.49), Cohen's d = 0.69, p>.05</p> <p>Trail making test (A): MDD+ 37.08 (SD = 15.18), MDD- 31.90 (SD = 15.24), Cohen's d = 0.34, p >.05</p> <p>Trail making test (B/A ratio): MDD+ 3.44 (SD = 1.60), MDD- 2.49 (SD = .80), Cohen's d = 0.87, p = .02</p> <p>Stroop test: MDD+ 31.83 (SD = 10.30), MDD- 38.05 (SD = 9.92), Cohen's d = 0.61, p >.05</p> <p>Multilingual aphasia examination score: MDD+ 34.08 (SD = 12.06), MDD- 36.29 (SD = 12.73), Cohen's d = 0.18, p>.05</p>
Other		
Intelligence coefficient	Mauri. M.C. (2014)*	Mean IQ MDD+ 104 (SD = 11), MDD- 112 (SD = 15), p>.05
	Rao, V. (2010)*	Mean IQ MDD+ 105 (SD = 15); MDD- 102 (SD = 9), p=.67
	Rapoport, M.J. (2005)	No statistically significant differences
Left handedness	Federoff, J.P. (1992)	Percentage left handedness: MDD+ 6%, MDD- 9%, p>.05

*Study excluded from meta-analysis because high risk of bias or included less than 20 patients

† Screening instrument was based on 3 pre-injury items (professional help in past, previous traumatic events, support) and 2 post-injury items (feeling irritable or angry, difficulty concentrating)

PTSD:

Variable	Study	Results
Demographics		
Age	Li, L. (2016)*	Mean age PTSD+: 35.8 (SD = 7.6), PTSD-: 36.7 (SD=7.1), $p > .05$
Gender	Ashman, T.A.. (2000)	Significantly more women than men fit the criteria for PTSD ($p = .04$)
	Li, L. (2016)*	Female: PTSD+ 12 (57%) , PTSD- 10 (45%), $p > .05$
Education (years)	Caspi, Y. (2005)	No statistically significant differences
	Li, L. (2016)*	Mean years of education PTSD+ 12.71 (SD = 2.8), PTSD- 13.3 (SD = 2.9), $p > .05$
Ethnicity	Barker-Collo, S. (2013)	Percentage European ethnicity: PTSD+ 57%, PTSD- 68%, $p = .38$
Marital Status	Gil, S. (2005)	Percentage married: PTSD+ 52%, PTSD- 49%, $p > .05$
Country of origin	Gil, S. (2005)	Percentage native Israeli: PTSD+ 64%, PTSD- 68%, $p > .05$
Pre-injury variables		
Pre-injury employment	Bryant, R.A. (2000)	Percentage employed: PTSD+ 79%, PTSD- 81%, $p > .05$
Pre-injury physical injury	Gil, S. (2005)	Percentage physical injury: PTSD+ 23%, PTSD- 20%, $p > .05$
Pre-injury PTSD	Barker-Collo, S. (2013)	None of the patients had a pre-injury PTSD
Pre-injury depression	Barker-Collo, S. (2013)	Percentage pre-injury depression: PTSD+ 28%, PTSD- 19%, $p = 0.51$
Pre-injury anxiety	Barker-Collo, S. (2013)	Percentage pre-injury anxiety disorder: PTSD+ 15%, PTSD- 6%, $p = .05$
Peri-injury variables		
Injury mechanism	Barker-Collo, S. (2013)	PTSD+: traffic 21%, fall 26%, assault 30% PTSD-: traffic 17%, fall 31%, assault 20%, $p = .90$
	Caspi, Y. (2005)	No statistically significant differences
	Li, L. (2016)*	PTSD+: traffic 67%, blows to the head 24%, falls 9% PTSD-: traffic 77%, blows to the head 14%, falls 9%)

Place of injury	Barker-Collo, S. (2013)	PTSD+: home 28%, street 32%, work 17% PTSD-: home 33%, street 28%, work 11%
Intentional injury	Barker-Collo, S. (2013)	Percentage intentional injury: PTSD+ 34%, PTSD- 22%, p = .25
Alcohol involved in injury	Barker-Collo, S. (2013)	Percentage alcohol involved: PTSD+ 25%, PTSD- 26%, p = .24
Drugs involved in injury	Barker-Collo, S. (2013)	Percentage drugs involved: PTSD+ 11%, PTSD- 6%, p = .01
Clinical variables and imaging		
GCS	Alway (2015b)	Mean GCS: PTSD+ 13.91 (SD = 2.22), PTSD- 14.13 (SD = 2.32), p = 0.43 PTSD+:GCS 13-15: 53%, GCS 9-12: 13%, GCS 3-8 27% PTSD-: GCS 13-15: 33%, GCS 9-12 13%, GCS 3-8 34%, p>.01
	Barker-Collo, S. (2013)	Mean worst GCS PTSD+: 13.91 (SD = 2.22), PTSD- 14.13 (SD = 2.32), p = 0.43 PTSD+: mild TBI 91%, PTSD-: mild TBI 95%, p = 0.84
	Bryant, R.A. (2000)	Mean GCS: PTSD+ 6.92 (SD = 3.52), PTSD- 2.60 (SD = 1.79), p>.05
LOC	Roitman, P. (2013)	Percentage patients with LOC: PTSD+ 39%, PTSD- 24%, OR = 1.72 (95% CI: 1.22-2.42)
	Barker-Collo, S. (2013)	Mean days LOC: PTSD+ 4.0 (SD = 6.16), PTSD- 9.04 (SD = 28.57), p = .07
	Li, L. (2016)*	Minutes LOC: PTSD+ 5.7 (SD = 5.8); PTSD- 3.72 (SD = 4.1)
PTA	Li, L. (2016)*	Hours PTA: PTSD+ 3.8 (SD = 6.8), PTSD- 2.9 (Sd = 7.3)
ISS	Gil, S. (2005)	Mean ISS: PTSD+ 6.0 (SD = 3.9), PTSD- 5.8 (SD = 3.3), p>.05
CT abnormalities	Barker-Collo, S. (2013)	No lesion: PTSD+ 93%, PTSD- 96%, p = .24
MRI abnormalities	Li, L. (2016)*	PTSD+ increased mean diffusivity in subacute and chronic phase and decreased fractional anisotropy in chronic phase in several white matter regions. Most discriminant regions include corpus callosum, inferior fronto-occipital fasciculus, unicate fasciculus, superior longitudinal fasciculus, inferior

		longitudinal fasciculus, anterior thalamic radiation, and corticospinal tract.
Post-injury variables		
Surgery	Barker-Collo, S. (2013)	PTSD+: neurosurgery 4%, orthopedic surgery 4%, other surgery 6% PTSD-: neurosurgery 0.4%, orthopedic surgery 4%, other surgery 2%, $p = .18$
Memory of the traumatic event	Turnbull, S.J. (2001)*	No statistically significant differences
Acute PTSD symptoms	Gil, S. (2005)	PTSD according to CAPS 1 wk post-injury: PTSD+ 39%, PTSD- 32%, $p > .05$ PTSD according to CAPS 1 month post-injury: PTSD+ 43%, PTSD- 34%, $p < .01$ PTSD according to PSS 1 wk post-injury: PTSD+ 38%, PTSD- 34%, $p > .05$ PTSD according to PSS 1 month post-injury: PTSD+ 39%, PTSD- 30%, $p < .01$
	Li, L. (2016)*	1 month CAPS total score: PTSD+: 34.23 (SD 3.13); PTSD- 13.81 (SD = 3.05); $p < .001$.
ASD	Bryant, R.A. (1998)	Percentage patients with ASD: PTSD+ 60%, PTSD- 4% Percentage patients with fearful response (ASD symptom): PTSD+ 53%, PTSD- 27%, Chi Square = 2.46, $p > .003$ Percentage patients with helplessness (ASD symptom): PTSD+ 40%, PTSD- 38%, Chi Square = 0.02, $p < .003$ Percentage patients with numbing (ASD symptom): PTSD+ 67%, PTSD- 15%, Chi Square = 13.20, $p < .003$ Percentage patients with reduced awareness (ASD symptom): PTSD+ 53%, PTSD- 15%, Chi square = 7.44, $p > .003$

		<p>Percentage patients with derealization (ASD symptom): PTSD+ 67%, PTSD- 21%, Chi square = 9.07, $p > .003$</p> <p>Percentage patients with depersonalization (ASD symptom): PTSD+ 47%, PTSD- 4%, Chi square = 13.57, $p < .003$</p> <p>Percentage patients with dissociative amnesia (ASD symptom): PTSD+ 100%, PTSD- 100%</p> <p>Percentage patients with recurrent images and thoughts (ASD symptom): PTSD+ 47%, PTSD- 6%, Chi square = 11.12, $p < .003$</p> <p>Percentage patients with nightmares (ASD symptom): PTSD+ 40%, PTSD- 8%, Chi square = 6.37, $p > .003$</p> <p>Percentage patients with sense of reliving the trauma (ASD symptom): PTSD+ 20%, PTSD- 2%, Chi square = 3.52, $p > .003$</p> <p>Percentage patients with distress on exposure (ASD symptom): PTSD+ 67%, PTSD- 21%, Chi square = 9.07, $p > .003$</p> <p>Percentage patients with avoidance of thoughts or talk (ASD symptom): PTSD+ 60%, PTSD- 8%, Chi square = 15.61, $p < .003$</p> <p>Percentage patients with avoidance of places of people (ASD symptom): PTSD+ 67%, PTSD- 13%, Chi square = 14.95, $p < .003$</p> <p>Percentage patients with insomnia (ASD symptom): PTSD+ 87%, PTSD- 27%, Chi square = 14.37, $P < .003$</p> <p>Percentage patients with irritability (ASD symptom): PTSD+ 73%, PTSD- 23%, Chi square = 10.66, $p < .003$</p> <p>Percentage patients with poor concentration (ASD symptom): PTSD+ 67%, PTSD- 29%, Chi square = 5.32, $p > .003$</p> <p>Percentage patients with hypervigilance (ASD symptom): PTSD+ 87%, PTSD- 52%, Chi square = 4.36, $p > .003$</p> <p>Percentage patients with exaggerated startle response (ASD symptom): PTSD+ 53%, PTSD- 13%, Chi square = 8.79, $p > .003$</p>
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		Percentage patients with motor restlessness (ASD symptom): PTSD+ 33%, PTSD- 0%, Chi square = 13.12, p < .003
	O'Donnell, M.L. (2008)	ASDI 8d: Sensitivity 0.82, Specificity 0.19, correctly classifies 75% of the participants
Dissociative reactions	Gil, S. (2005)	No statistically significant differences
Post-injury depression	Gil, S. (2005)	More post-injury depression in those with PTSD compared to those without PTSD post-injury
Post-injury anxiety	Gil, S. (2005)	More post-injury anxiety in those with PTSD compared to those without PTSD post-injury
PTSD screening instrument (PAS-P)†	O'Donnell, M.L. (2008)	Area Under the Curve 0.91 (SE .07, p < .001), cut-off of 16 results in sensitivity of 0.8, specificity of 0.8.
Pending compensation	Harvey, A.G. (2000)	No statistically significant differences

*Study excluded from meta-analysis because high risk of bias or included less than 20 patients

† Screening instrument was based on 4 pre-injury items (professional help in past, previous traumatic events, support, talking about own thoughts), 2 peri-injury items (feeling terrified helpless or horrified and thinking about going to die) and 4 post-injury items (feeling irritable or angry, difficulty concentrating, confidence and acceptance)