

Characterizing the Risk of Depression Following Mild Traumatic Brain Injury: A Meta-Analysis of the Literature Comparing Chronic mTBI to Non-mTBI Populations

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Take Home Message:

Those experiencing mTBI are more than three times more likely to experience depression compared to those without a history of mTBI, and this risk remains decades beyond the mTBI event.

Background:

Mild traumatic brain injury (mTBI) is associated with depressed mood acutely post-injury, but there is little evidence regarding long-term depression. The aim of this meta-analysis was to determine the odds ratio (OR) of depression chronically following mTBI.

Methods:

Medline (PubMed), ProQuest, and Web of Science were searched for eligible studies examining depression at least 6 months post-injury in adult subjects with mTBI of any etiology.

Data were extracted and collated by two investigators. Risk of bias was assessed with the SIGN methodology.

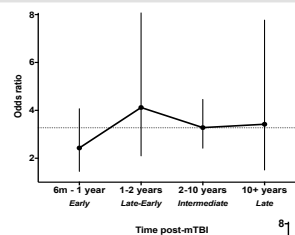
Study data were pooled using random-effects meta-analysis.

The primary exposure was mTBI, and the primary outcome was depression.

Secondary exploratory variables were time of assessment, age at injury, age at assessment, sex, and injury cause.

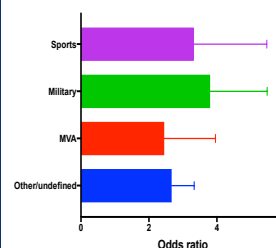
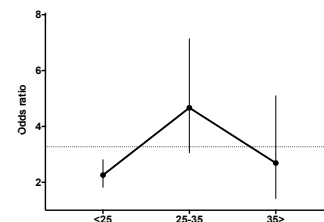
Results:

- We included 82 studies with 96,688 mTBI & 296,117 control participants.
- mTBI was associated with a **3.29-fold increased risk of depression** (OR 3.29, 95% CI 2.68–4.03, I² = 96%).
- The OR for depression did not change when subjects were assessed at **6–12 months** (OR 2.43, 1.45–4.07), **years 1–2** (OR 4.12, 2.10–8.07); **2–10** (OR 3.28, 2.42–4.46), or **10+** (OR 3.42, 1.51–7.77).
- The risk of depression was sustained across age at injury (<25: OR 2.26, 1.82–2.81; 25–35: OR 4.67, 3.06–7.14; >35: OR 2.69, 1.42–5.10).
- The risk of depression was sustained across age at assessment (<40 years: OR 3.14, 2.48–3.99; >40 years: OR 4.57, 2.54–8.24).
- 4 studies with >70% female participants had a non-significant increase in OR (OR 19.97, 2.39–166.93) compared to male (OR 3.0, 2.33–3.86).
- mTBI etiology had no impact on depression.

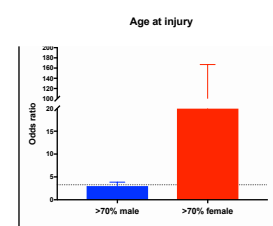


The OR for depression did not change when assessed at different times post-mTBI

The OR was stable across age ranges.



There were no differences between military and civilian injuries



Females may be more prone to depression than males

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