Appendix B. Table 3. Risk of Bias Assessment Form for Observational Studies

Author _____ ***Year*** _____ **PMID** _____ **Reviewer** _____

Question	Response	Criteria	Justification
		Internal Validity	
1. Is the study design prospective, retrospective, or mixed?	Prospective ☐	Outcome has not occurred at the time the study is initiated and information is collected over time to assess relationships with the outcome.	
	Mixed ☐	Case-control or cohort studies in which one group is studied prospectively and the other retrospectively.	
	Retrospective ☐	Analyzes data from past records.	
2a. Are inclusion/exclusion criteria clearly stated (i.e., severity, time since injury, pre-existing conditions, comorbidities, prior tbi)	Yes ☐		
	Partially ☐	Some, but not all, criteria stated or some not clearly stated.	
	No ☐		
2b. TBI severity inclusion criteria measured using valid and reliable measures and appropriate cut points for mod/sev TBI?	Yes ☐	e.g., GCS<13; LOC> 30 minutes; AOC >24 hours; PTA>1 day; AISS>2; positive imaging	
	No ☐		
	Uncertain ☐	Could not be ascertained.	
2c. Did the study apply inclusion/exclusion criteria uniformly to all comparison groups of the study?	Yes ☐		
	Partially ☐	Some criteria applied to all arms	
	No ☐		
2d. Is the selection of the comparison group appropriate, after taking into consideration feasibility and ethical considerations?	Yes ☐	Groups selected from same source (e.g., community or hospital) to reduce baseline differences between groups. For case-control studies, cases should have met case definition if they had the outcome.	
	No ☐		
	Uncertain ☐	Could not be ascertained.	

3. Were outcome assessors blinded?	Yes	☐	Yes	
	No	☐	No	
	Uncertain	☐	Could not be ascertained.	
4a. Is the level of detail in describing the treatment intervention adequate?	Yes	☐	Treatment intervention described based upon model or theory, specific intervention components adequately described, interventions documented in manuals or other documentation.	
	Partially	☐	Some of the above features.	
	No	☐	None of the above features.	
4b. Is the level of detail in describing the control intervention adequate?	Yes	☐	Intervention described based upon model or theory, specific intervention components adequately described, interventions documented in manuals or other documentation.	
	Partially	☐	Some of the above features.	
	No	☐	None of the above features.	
5. Are interventions assessed using valid and reliable measures, implemented consistently across all study participants?	Yes	☐	Implementation accompanied by staff training and supervision, checks of adherence/fidelity; consistency across groups in treatment features not studied.	
	Partially	☐	Implementation accompanied by some of above features.	
	No	☐	Implementation accompanied by none of above features.	
6. Are outcomes assessed using valid and reliable measures, implemented consistently across all study participants?	Yes	☐	Measure valid and reliable (i.e. objective measures, well validated scale, provider report); consistent implementation across groups.	
	Partially	☐	Some of the above features (partially validated scale)	
	No	☐	None of the above features. (self-report, scales with lower validity, reliability); in consistent implementation across groups	
	Uncertain	☐	Could not be ascertained.	

7a. Was attrition from all groups less than 20 percent?	Yes ☐		
	No ☐		
	Uncertain ☐	Could not be ascertained (i.e. retrospective designs where eligible at baseline could not be determined)	
7b. Did attrition differ between groups by less than 20 percent?	Yes ☐		
	No ☐		
	Uncertain ☐	Could not be ascertained (i.e. retrospective designs where eligible at baseline could not be determined)	
7c. In cases of high attrition or differential attrition, is the impact assessed (e.g. through sensitivity analysis or other adjustment method)?	Yes ☐		
	No ☐		
	Uncertain ☐	Could not be ascertained (i.e. retrospective designs where eligible at baseline could not be determined)	
	NA ☐	Not considered high or case-control study	
8. Were the important confounding and effect modifying variables taken into account in the design and/or analysis (e.g. through matching, stratification, interaction terms, multivariate analysis, or other statistical adjustment)?	Yes ☐		
	Partially ☐	Some variables taken into account or adjustment achieved to some extent	
	No ☐	Not accounted for or not identified.	
	Uncertain ☐	Could not be ascertained	
9. Are the statistical methods used to assess the primary outcomes appropriate to the data?	Yes ☐	Statistical techniques used must be appropriate to the data and take into account issues such as controlling for dose-response, small sample size, clustering, rare outcomes, and multiple comparisons. In normally distributed data the standard error, standard deviation, or confidence intervals should be reported. In non-normally distributed data, inter-quartile range should be reported.	

	Partially ☐		
	No ☐		
	Uncertain ☐	Could not be ascertained	
10. Are reports of the study free of suggestion of selective outcome reporting?	Yes ☐		
	No ☐	Not all prespecified outcomes reported, subscales not prespecified reported, outcomes reported incompletely.	
	Uncertain ☐	Could not be ascertained.	
11. Is the study free from additional sources of bias?	Yes ☐		
	No ☐		
	Uncertain ☐		
	Overall Assessment		
Overall Risk of Bias assessment	Low ☐	Results are believable taking study limitations into consideration	
	Moderate ☐	Results are probably believable taking study limitations into consideration	
	High ☐	Results are uncertain taking study limitations into consideration	