Effectiveness of non-pharmacological interventions for agitation during PTA following TBI: A systematic review

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Epworth Research

Introduction

- Agitation is a **frequent and disruptive** sequelae observed during **post-traumatic amnesia** (PTA), the early recovery period after **traumatic brain injury** (TBI).
- Agitation is associated with **poorer patient outcomes** and increased **burden of care** for families and healthcare staff.
- Evidence for effective intervention for managing agitation is **lacking**.
- **Non-pharmacological interventions** are recommended as the first-line approach for reducing agitation.

Review Objective

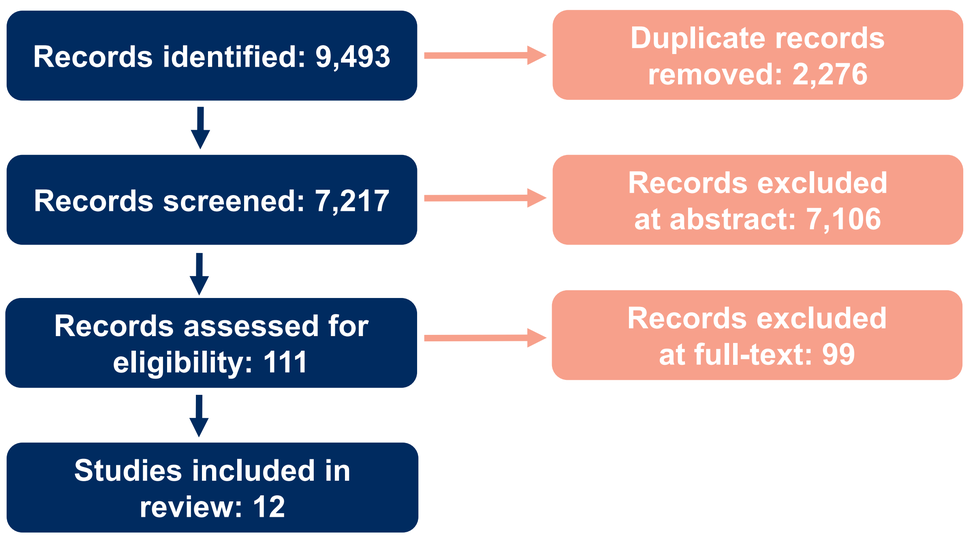
- To evaluate the **effectiveness** of **non-pharmacological** interventions for managing **agitation during PTA** in adults (aged 16 years and older) who have sustained a **TBI**.

Methods

- A search strategy was used for **databases** and **clinical trial registries**.
- Hand-searching was used for **key journals** and **reference lists**.

Inclusion Criteria

- **Studies:** Most quantitative study types.
- **Participants:** Aged ≥ 16 years, with agitated behaviours during PTA.
- **Interventions:** Any non-pharmacological interventions used primarily for reducing agitation.
- **Comparators:** Any.
- **Primary outcomes:** Change in agitation levels and any reported harms.
- **Secondary outcomes:** Changes in cognition, mood and fatigue, length of stay, duration of PTA, functional outcomes, and family and staff burden.



Summary of Included Studies

2 RCTs
- Music intervention

3 quasi-experimental
- Music intervention
- Behavioural strategies

4 case series
- Music intervention
- Behavioural strategies
- Environmental strategies
- Electroconvulsive therapy

3 case reports
- Behavioural strategies
- Electroconvulsive therapy
- Physical restraint

Results: Music Intervention

- Music therapy had the **highest quality of evidence**.
- **Preferred music** in taped or live format may reduce agitation.

Study details	Effect	Type	Quality
Patient-preferred music Baker, 2001	↓ agitation	RCT n = 22	✓ ✓ Moderate
Patient-preferred music Park et al., 2016	↓ agitation	RCT n = 14	✓ ✓ Moderate
Music improvisation therapy Formisano et al., 2001	↓ agitation	Quasi-exp n = 7	✓ ✓ Moderate
Live familiar music Magee et al., 2011	↓ agitation	Case series n = 6	✓ Low

Results: Behavioural and Environmental Strategies

- Behavioural and environmental strategies (e.g. **antecedent modification, distraction and positive reinforcement**) may reduce agitation, particularly when approach is **flexible and tailored**.

Study details	Effect	Type	Quality
Behavioural strategies Slifer et al., 1996	↓ agitation	Quasi-exp n = 6	✓ ✓ Moderate
Behavioural strategies Slifer et al., 1997	↓ agitation	Quasi-exp n = 3	✓ ✓ Moderate
Environmental modification Fluharty & Wallat, 1997	↓ agitation	Case series n = 2	✓ Low
Behavioural strategies Wilson, 2019	↓ agitation	Case series n = 2	✓ Low
Behavioural strategies Fluharty, 2001	↓ agitation	Case report n = 1	✓ ✓ Moderate

Results: Physical Restraint

- The **harms** of physical restraints were highlighted, which support current recommendations to **avoid restraint use** where possible.

Study details	Effect	Type	Quality
Vest and soft restraints Berrol, 1988	**Harm** via asphyxiation	Case report n = 1	✓ Low

Results: Electroconvulsive Therapy

- ECT may have therapeutic value for patients who are **refractory to other interventions**, although caution is advised given the **significant risks**.

Study details	Effect	Type	Quality
6 ECT treatments Nielsen, 2014	↓ agitation	Case series n = 5	✓ ✓ Moderate
6 ECT treatments Kant et al., 1995	↓ agitation	Case report n = 1	✓ ✓ Moderate

Conclusions

- There was a **lack of evidence** for effective non-pharmacological interventions for managing agitation during PTA after TBI.
- **Music therapy had the highest level of evidence**, although study quality was generally **moderate to low**.
- **Common study limitations:** lack of validated tools, not controlling for concomitant treatment and natural recovery and no follow-up.
- RCTs with a control group and formal measurement tool are a **critical next step** in developing guidelines for managing agitation after TBI.