International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

A Systematic Review of Online Awareness and Everyday Functioning in Adults with Acquired Brain Injury: A Systemic Review Protocol

INPLASY2025100012
doi: 10.37766/inplasy2025.10.0012
Received: 6 October 2025
Published: 6 October 2025

Liang, P; Roth G; Pestell C; Weinborn M.

Corresponding author:
Rong Liang

pat.liang@research.uwa.edu.au

Author Affiliation:
University of Western Australia.

ADMINISTRATIVE INFORMATION

Support - University of Western Australia.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2025100012

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 October 2025 and was last updated on 6 October 2025.

INTRODUCTION

Review question / Objective The objective of this review is to systematically identify, synthesise, and critically evaluate empirical evidence concerning the relationship between online awareness (anticipatory and emergent awareness) and everyday functioning in adults with acquired brain injury (ABI). Specifically, the review will evaluate the extent to which methodological differences in assessing online awareness (e.g., prediction–performance discrepancy tasks, error detection paradigms) influence reported associations with everyday functioning; determine which domains of everyday functioning (e.g., independence in daily activities, community integration, vocational participation, psychosocial adjustment) demonstrate the strongest associations with deficits in online awareness; and identify gaps in the existing literature to inform future research directions and clinical practice in the assessment and rehabilitation of self-awareness following ABI.

Rationale Impaired self-awareness is a common and disabling consequence of acquired brain injury (ABI), affecting up to half of individuals with moderate-to-severe traumatic brain injury (Dromer et al., 2021a). While self-awareness has been widely studied, most research has focused on metacognitive knowledge, with much less attention to online awareness (i.e., anticipatory and emergent awareness) which are critical for predicting difficulties, recognising errors in real time, and regulating behaviour (Toglia & Kirk, 2000; Toglia & Goverover, 2022). Emerging evidence suggests that deficits in these online processes are prevalent after ABI and are closely linked to poorer everyday functioning, including reduced independence, community integration, and vocational participation (O'Keeffe et al., 2007; Robertson & Schmitter-Edgecombe, 2015; Chen & Toglia, 2019). However, findings are fragmented, outcome measures vary widely, and no dedicated systematic review has synthesised the evidence on how anticipatory and emergent awareness relate to everyday functioning after ABI.

This review will therefore systematically evaluate and integrate existing studies on online awareness and everyday functioning in adults with ABI. By clarifying conceptual and methodological inconsistencies, identifying the strength of associations, and highlighting gaps for future research, the review will provide a stronger evidence base to inform assessment and rehabilitation practices targeting self-awareness deficits.

Condition being studied Acquired brain injury (ABI) refers to brain damage occurring after birth from non-degenerative causes such as traumatic brain injury (TBI), stroke, anoxia, or infection (Giustini et al., 2013). ABI is a leading cause of long-term disability worldwide, with approximately 38 million people affected by TBI alone in 2021 (Zhong et al., 2025). Survivors frequently experience persistent difficulties in everyday functioning, including independent living, employment, social relationships, and quality of life (Ponsford et al., 2008; Dams-O'Connor et al., 2023).

A key factor influencing these outcomes is metacognition, defined as the ability to understand, monitor, and regulate one's own thinking (Flavell, 1979; Kennedy & Coelho, 2005). Within Toglia and Kirk's (2000) Dynamic Comprehensive Model of Awareness (DCMA), metacognition includes both metacognitive knowledge (general beliefs about one's abilities and limitations) and online awareness, which is task-specific and activated in real time. Online awareness comprises two components: anticipatory awareness (predicting potential difficulties before they occur) and emergent awareness (recognising errors as they occur).

Deficits in online awareness are highly prevalent after ABI and directly affect daily functioning, such as managing finances, adhering to medication, maintaining relationships, or returning to work. Impaired online awareness is also associated with reduced engagement in rehabilitation and poorer long-term recovery (O'Keeffe et al., 2007; Robertson & Schmitter-Edgecombe, 2015; Chen & Toglia, 2019). Despite its importance, online awareness has received far less research attention than metacognitive knowledge, and its relationship to functional outcomes remains poorly understood.

METHODS

Search strategy A comprehensive literature search will be conducted across six electronic databases: PsycINFO, MEDLINE, Embase, Web of Science, CINAHL, and PubMed. Because the Dynamic Comprehensive Model of Awareness (DCMA) was introduced in 2000, the search will be limited to studies published from 2000 onwards to ensure all included research aligns with the DCMA's conceptualisations of metacognition. Only studies published in English will be considered.

The search strategy will combine keywords and controlled vocabulary (e.g., MeSH or subject headings) across three core domains:

Acquired brain injury: for example, "acquired brain injury," "brain injury," "traumatic brain injury," "stroke," "anoxic brain injury," "encephalitis."

Online awareness: for example, "self-awareness," "metacognitive awareness," "online awareness," "anticipatory awareness," "emergent awareness," "error awareness," "anosognosia."

Everyday functioning: for example, "activities of daily living," "instrumental activities of daily living," "community integration," "functional independence," "rehabilitation outcome," "quality of life," "social participation," "employment."

Boolean operators will be applied to combine terms:

(a) "Acquired brain injury" terms will be combined with OR,

(b) "Online awareness" terms combined with OR,

(c) "Functional outcomes" terms combined with OR, and

The three concept groups combined using AND.

Reference lists of all eligible articles and relevant reviews will also be hand-searched to identify additional studies not captured through database searches.

Participant or population This review will include studies involving adults aged 18 years and older who have sustained an acquired brain injury (ABI) from non-degenerative causes, including but not limited to traumatic brain injury (TBI), stroke, anoxic or hypoxic brain injury, and central nervous system infections (e.g., encephalitis, meningitis). Participants may be in either inpatient, outpatient, or community-based rehabilitation settings, provided that online awareness were measured.

Studies will be excluded if they:

1) Involve paediatric populations (under 18 years),

2) Focus on degenerative neurological conditions (e.g., dementia, Parkinson's disease, multiple sclerosis), or

3) Include healthy controls only without a clinical ABI sample.

No restrictions will be applied based on sex, injury severity, or time since injury, as the review aims to capture a broad understanding of online awareness across ABI populations.

Intervention This review will not evaluate a specific treatment or rehabilitation intervention. Instead, it will examine how online awareness (i.e.,

anticipatory awareness and emergent awareness) is assessed and related to everyday functioning in adults with acquired brain injury (ABI).
Studies may include a range of assessment-based or rehabilitation contexts, such as task-based awareness training, error-monitoring paradigms, or metacognitive rehabilitation programs, provided that they report measures of online awareness and at least one indicator of everyday functioning (e.g., daily living, community integration, or quality of life).

Comparator No comparative intervention will be applied.

Study designs to be included This review will include quantitative, qualitative, and mixed-methods studies that examine the relationship between online awareness (anticipatory and/or emergent awareness) and everyday functioning in adults with acquired brain injury (ABI). Excluded designs will include reviews, commentaries, theoretical papers, conference abstracts, and dissertations that do not present original empirical data.

Eligibility criteria Only peer-reviewed journal articles published in English will be included to ensure methodological quality and accessibility. Studies must provide a direct assessment of online awareness (anticipatory and/or emergent awareness) through self-report, informant-report, or performance-based tasks and include at least one everyday functioning measure (e.g., independence, community participation, or quality of life).
Studies will be excluded if they:
1) Focus exclusively on metacognitive knowledge or general self-awareness without assessing online awareness;
2) Involve paediatric or degenerative neurological populations (e.g., dementia, Parkinson's disease, multiple sclerosis);
3) Are non-empirical publications (e.g., reviews, commentaries, conference abstracts, or theses); or
4) Have no accessible full text.

Information sources The review will draw on six electronic databases to ensure comprehensive coverage of relevant literature, including PsycINFO, MEDLINE, Embase, Web of Science, CINAHL, and PubMed. Reference lists of all eligible studies and relevant reviews will be hand-searched to identify additional publications not captured in the database search.
To supplement the database search, Google Scholar will be screened for potentially relevant non-indexed studies. Where necessary, corresponding authors will be contacted to obtain missing data or clarify methodological details.
The search will be limited to English-language publications from 2000 onwards, aligning with the introduction of the Dynamic Comprehensive Model of Awareness (DCMA).

Main outcome(s) The review will examine how online awareness, including anticipatory and emergent awareness, is measured and how these constructs relate to measures of everyday functioning following acquired brain injury (ABI).
Effect sizes and descriptive statistics reported in eligible studies will be extracted where available. Timing of outcome assessment (e.g., post-acute, chronic phase) will also be recorded to explore whether the strength of associations varies across recovery stages.

Quality assessment / Risk of bias analysis The methodological quality of included studies will be appraised using the Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018), which allows consistent evaluation across quantitative, qualitative, and mixed-methods designs. Each study will be assessed on criteria relevant to its design domain (e.g., clarity of research questions, appropriateness of sampling, validity of measurements, control for confounding variables, and completeness of outcome reporting).
Two reviewers will independently conduct quality assessments, with discrepancies resolved through discussion or consultation with a third reviewer. Each criterion will be rated as "Yes," "No," or "Can't tell," and overall quality ratings will be summarised descriptively.

Strategy of data synthesis Data will be grouped according to key themes such as (a) type of online awareness assessed (anticipatory, emergent, or both), (b) measurement method (self-report, informant-report, or task-based), and (c) type of everyday functioning outcome (e.g., independence, community integration, quality of life).
Where sufficient data are available and studies are methodologically comparable, a meta-analysis will be considered using pooled effect sizes (e.g., r, β, η^2) to quantify the relationship between online awareness and everyday functioning. Subgroup analyses will be performed, if possible, to explore differences by injury type (TBI vs non-TBI), outcome domain, or method of awareness assessment.
If a meta-analysis is not feasible due to heterogeneity in study designs, measures, or outcomes, findings will be summarised narratively following the SWiM (Synthesis Without Meta-

analysis) guidelines (Campbell et al., 2020) to ensure transparent and structured reporting of results.

Subgroup analysis If sufficient data are available, subgroup analyses will be conducted to explore potential moderators of the relationship between online awareness (anticipatory and emergent) and everyday functioning. Subgroups may include:
1) Type of brain injury (e.g., traumatic vs non-traumatic),
2) Awareness component assessed (anticipatory vs emergent),
3) Method of measurement (self-report, informant-report, or task-based),
4) Everyday functioning outcome domain (e.g., daily living, community integration, emotional well-being), and
5) Time since injury (acute vs chronic phase).
These subgroup analyses will help identify whether the strength or direction of associations differs across injury types, awareness components, or recovery stages, thereby clarifying potential sources of heterogeneity in the evidence base.

Sensitivity analysis Analyses will be repeated after excluding studies rated as high risk of bias or of lower methodological quality to assess whether their inclusion significantly influences the overall conclusions.

Country(ies) involved The review team is based at The University of Western Australia of Australia.

Keywords Acquired brain injury; metacognition; self-awareness; online awareness; anticipatory awareness; emergent awareness; everyday functioning; DCMA.

Contributions of each author

Author 1 - Rong Liang.
Email: pat.liang@research.uwa.edu.au
Author 2 - Rong Liang.
Email: gisela.roth@research.uwa.edu.au
Author 3 - Carmela Pestell.
Email: carmela.pestell@uwa.edu.au
Author 4 - Michael Weinborn.
Email: michael.weinborn@uwa.edu.au