

INPLASY2025100115
doi: 10.37766/inplasy2025.10.0115
Received: 29 October 2025
Published: 29 October 2025

Hu, LL.

Corresponding author:
Lingling Hu

lling_hu0604@163.com

Author Affiliation:
Affiliated Hospital of Jiangnan University.

ADMINISTRATIVE INFORMATION

Support - Not applicable.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2025100115

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 October 2025 and was last updated on 29 October 2025.

INTRODUCTION

Review question / Objective To determine whether adults with vestibular migraine (VM) show measurable cognitive deficits versus healthy controls, quantify executive dysfunction, and estimate the proportion of VM patients meeting study-defined cognitive-impairment thresholds.

Condition being studied Vestibular migraine (VM) in adults.

METHODS

Participant or population Adults (≥18 years) diagnosed with VM or probable VM by ICHD-3/ Bárány Society criteria (or clearly defined clinical criteria).

Intervention Not applicable (observational studies only).

Comparator Healthy controls; where available, non-VM clinical controls.

Study designs to be included Observational comparative studies (case-control, cross-sectional, cohort) and single-arm VM cohorts reporting prevalence of cognitive impairment.

Eligibility criteria Include: adults with VM; observational designs; quantitative behavioral cognitive outcomes (e.g., ACE-R, MoCA, MMSE, Stroop); English; humans.
Exclude: imaging-only papers without behavioral cognition for pooling; case reports/series <10 VM; non-English studies.

Information sources PubMed (Jan 1, 2010 – Sep 6, 2025) plus hand-searching of reference lists.

Main outcome(s) Primary: global cognition (e.g., ACE-R, MoCA, MMSE), synthesized as standardized mean differences (Hedges g).

Secondary: executive function (Stroop performance) as SMD; prevalence of study-defined cognitive impairment (proportions).

Quality assessment / Risk of bias analysis

ROBINS-I for non-randomized studies, independently by two reviewers with consensus resolution.

Strategy of data synthesis Random-effects (REML). Continuous outcomes pooled as Hedges g with 95% CIs, I^2 and τ^2 ; prediction interval reported for the primary analysis. Proportions pooled using Freeman–Tukey double-arcsine transformation (REML). When needed, medians/IQR or ranges converted to means/SDs via Luo/Wan and Hozo methods; scales harmonized so higher values correspond to consistent directions.

Subgroup analysis Planned if ≥ 3 studies per subgroup: cognitive instrument (ACE-R vs MoCA vs MMSE), testing state (ictal vs interictal), diagnostic criteria (ICHD-3 vs clinical), and age strata.

Sensitivity analysis Leave-one-out; excluding studies requiring median-to-mean conversions; excluding studies judged “Serious” risk in any ROBINS-I domain.

Language restriction English only.

Country(ies) involved China.

Keywords vestibular migraine; cognition; executive function; Stroop; MoCA; ACE-R; meta-analysis; systematic review.

Contributions of each author

Author 1 - Lingling Hu.

Email: lling_hu0604@163.com