

# Risk of Dementia among Cerebral Palsy: A Systematic Review And Meta-Analysis

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## Background

Cerebral palsy is a lifelong neurodevelopmental disorder associated with a range of comorbidities, including intellectual disability, epilepsy, and sensory impairments, which may influence long-term neurological outcomes. Recent population-based cohort studies have raised concerns regarding an elevated risk of dementia, including Alzheimer’s disease and related dementias, among adults with cerebral palsy compared to matched controls, although the magnitude and independence of this risk remain uncertain due to potential confounding by comorbid conditions. Given the increasing life expectancy of individuals with cerebral palsy and the clinical implications for early detection and management of cognitive decline, a systematic synthesis of the available evidence is warranted to clarify the risk of dementia in this population.

## Methods

We systematically searched PubMed, Embase, Google Scholar, Scopus, and Web of Science for studies published up to December 2025 that assessed the risk of dementia among patients with CP. Two independent reviewers extracted data and verified accuracy. Between-study heterogeneity was assessed using the I<sup>2</sup> statistic. Pooled hazard ratios (HRs) with 95% confidence intervals (CIs) were calculated using fixed- or random-effects models as appropriate. All analyses were performed using RevMan version 5.4.

## Results

Three eligible studies were included in the meta-analysis. Cerebral palsy was associated with a substantially increased risk of incident dementia, with affected individuals experiencing a 94% higher hazard compared with the non-CP population (HR = 1.94, 95% CI 1.60–2.34; p < 0.00001; I<sup>2</sup> = 0%) (**Figure 1**).

## Conclusion

Meta-analysis of current cohort studies demonstrates that adults with cerebral palsy have an elevated risk of developing dementia compared to matched controls, although this association is substantially influenced by comorbidities such as intellectual disability, epilepsy, and sensory impairment, and may not be directly attributable to cerebral palsy itself.

## References

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**Figure 1:** Hazard ratio (HR) of dementia among patients with cerebral palsy and patients without cerebral palsy

