

Can neurodevelopmental disorders influence the course of neurodegenerative diseases?

Preliminary results of a scoping review

Siguié Perrine ^{1, 2}, Jucla Mélanie ², Pariente Jérémie ^{1, 3}

¹ Toulouse Neuroimaging Center, UMR1214, Université Toulouse III, Inserm, UPS, Toulouse, France

² Laboratoire de Neuropsycholinguistique, EA4156, Université Toulouse II, Toulouse, France

³ Neurology Department, Hôpital Pierre-Paul Riquet, Centre Hospitalier Universitaire de Toulouse, Toulouse, France

Introduction

→ The reason why **neurodegenerative diseases** (NDgD) sometimes start with **atypical symptoms** remains unresolved.

→ An emerging hypothesis proposes that **neurodevelopmental disorders** (NDvD) could constitute a cerebral vulnerability influencing the manifestation of NDgD¹.

→ This study **aims** at exhaustively compiling findings on interactions between NDvD and NDgD.

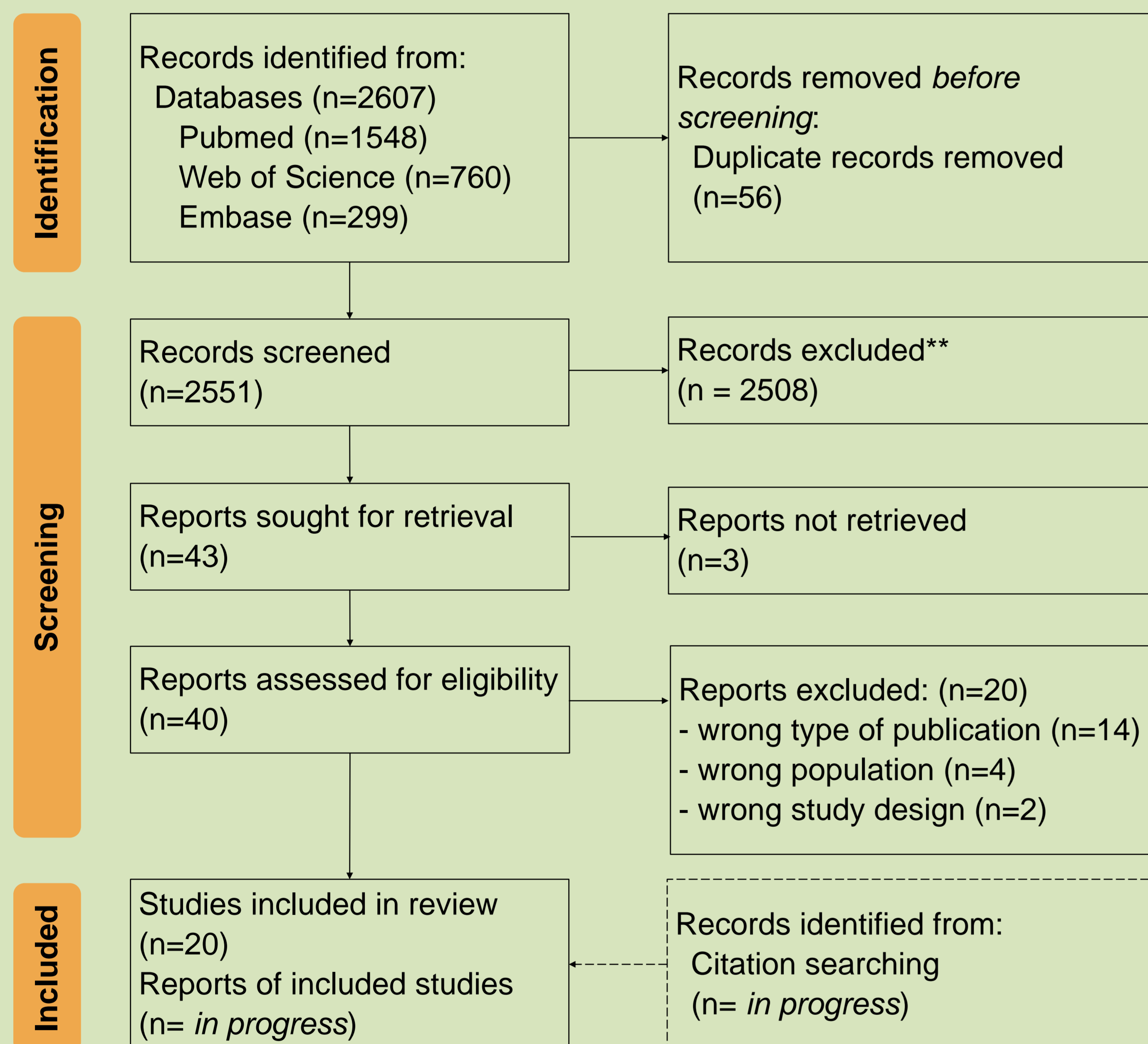
Method

→ **PRISMA-ScR** checklist

→ Peer reviewed primary studies in english

→ Exploring the influence of NDvD on the course of cognitive and behavioral NDgD in human.

Identification of studies via databases and registers



Flowchart in progress

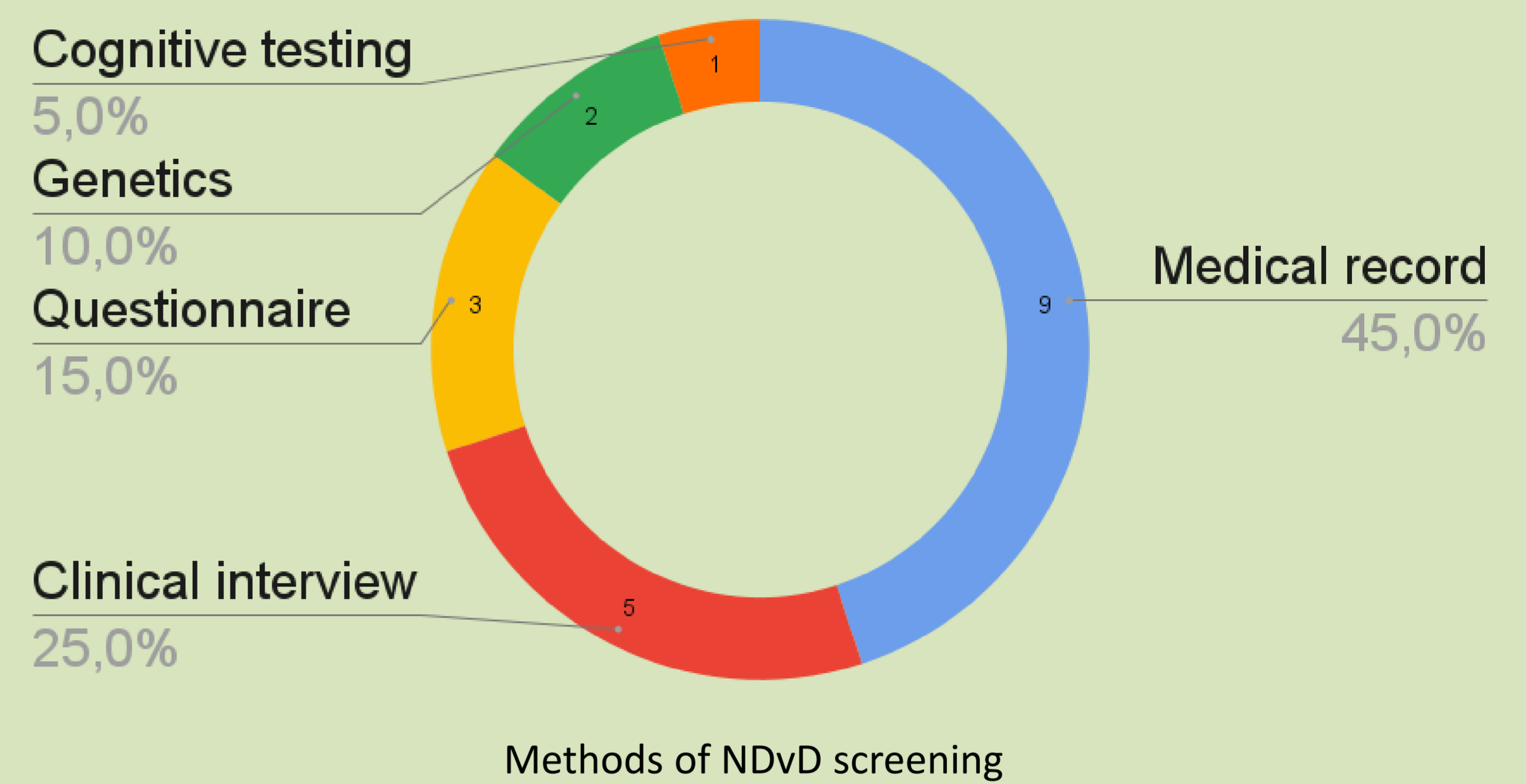
Take home message

- There might exist a **significant association** between NDvD & NDgD.
- NDvD might **influence the course** of NDgD².
- However, methods are **flawed** & results are **scarce and heterogeneous**.
- Towards a **personalized medicine**: tools are required to help screening NDvD in memory clinics.

Results

→ **N = 20 studies** (17 group studies, 2 case reports, 1 cohort study)

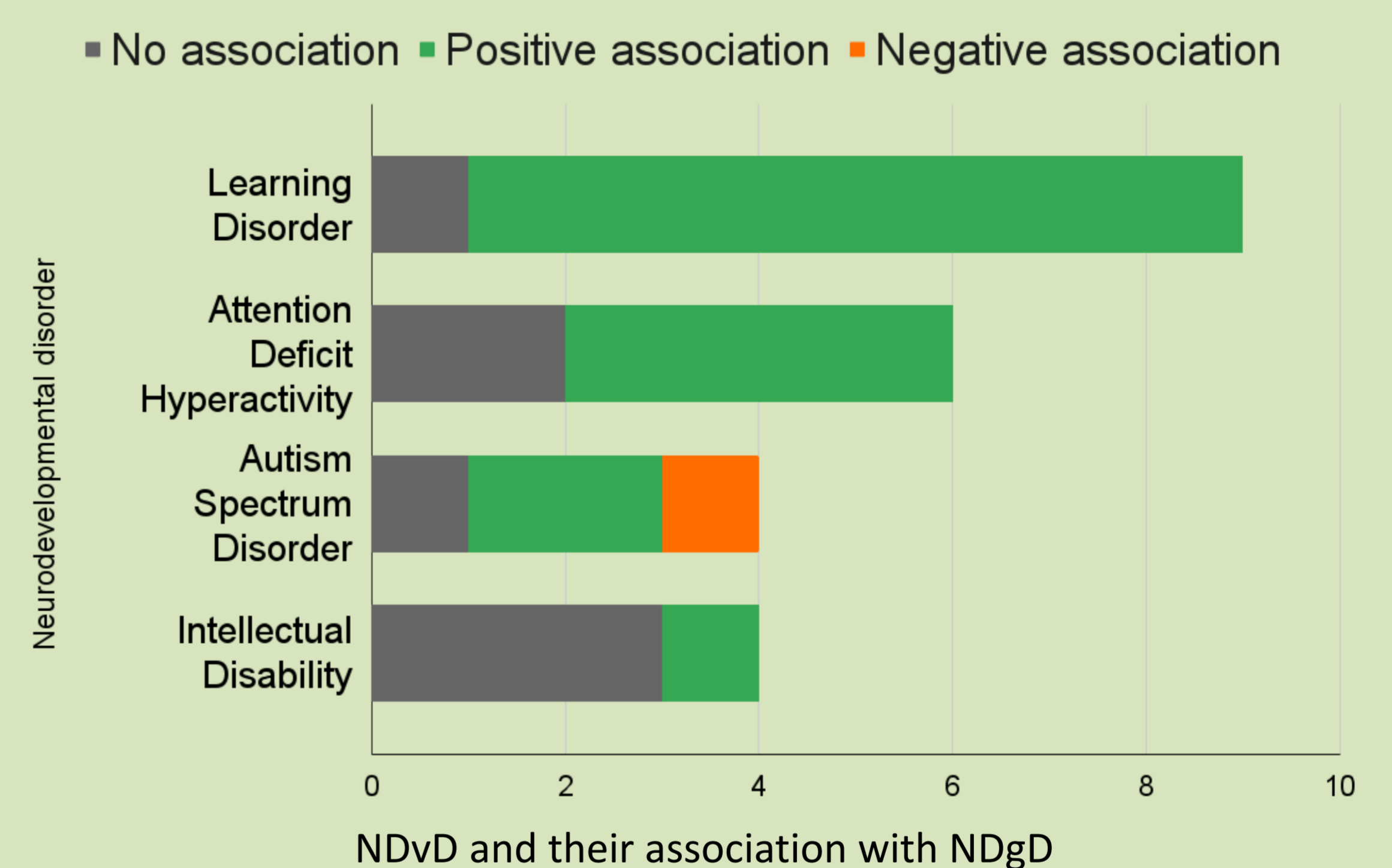
1. How is the history of NDvD determined?



→ **No method is perfectly reliable.**

Flaws include recall bias, incomplete medical records, variability in diagnosis criteria over time, genetic pleiotropy...

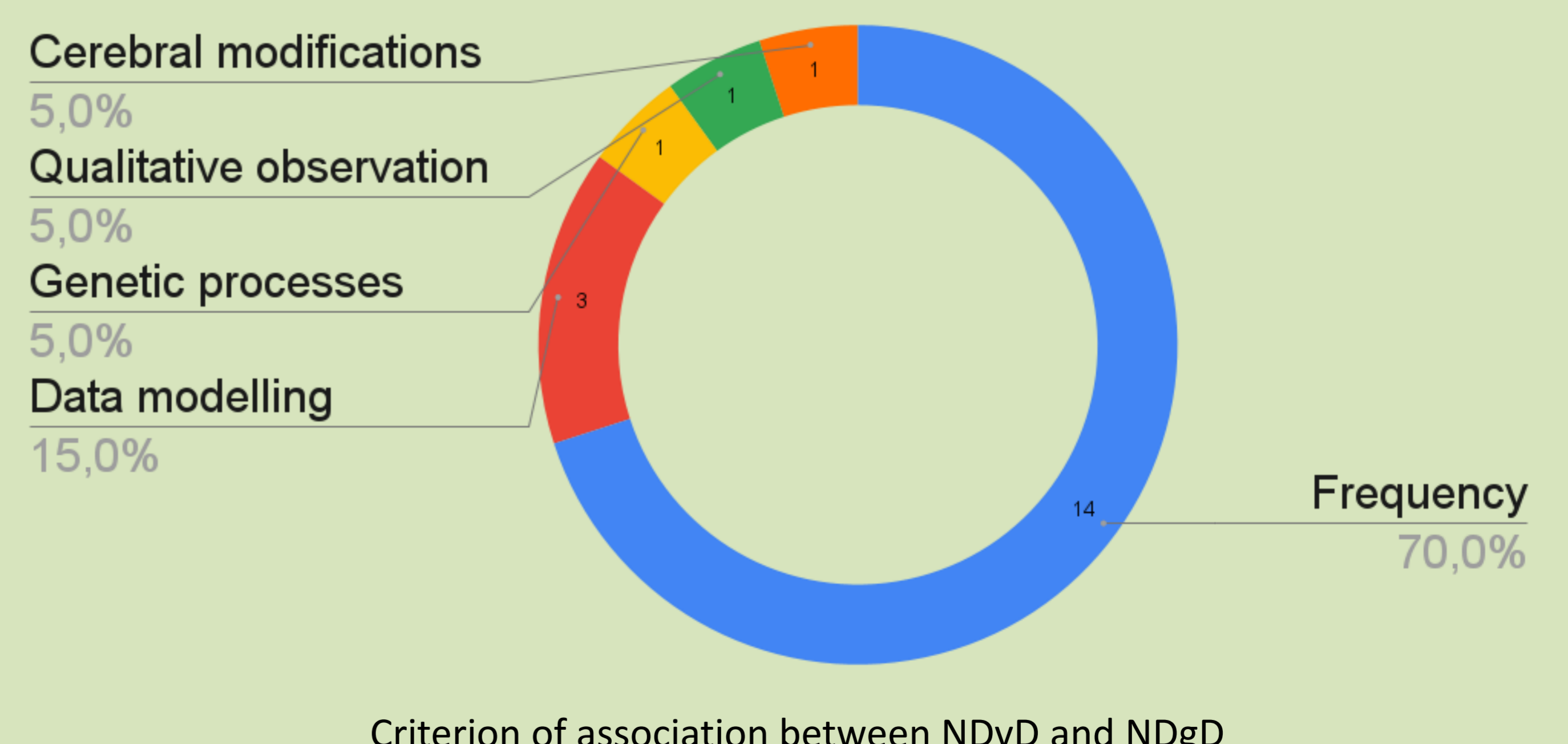
2. Are NDvD associated with NDgD?



→ **Alzheimer's disease** (AD) was positively associated with a NDvD in 71% of the studies (12/17).

→ **Learning disorders** might influence the course of AD and frontotemporal dementia.

3. What is the criterion of association?



Criterion of association between NDvD and NDgD

→ **Cohort studies** assessing the prevalence of NDgD in patients with NDvD could be the gold standard. To our knowledge, no such study has been conducted to date.

