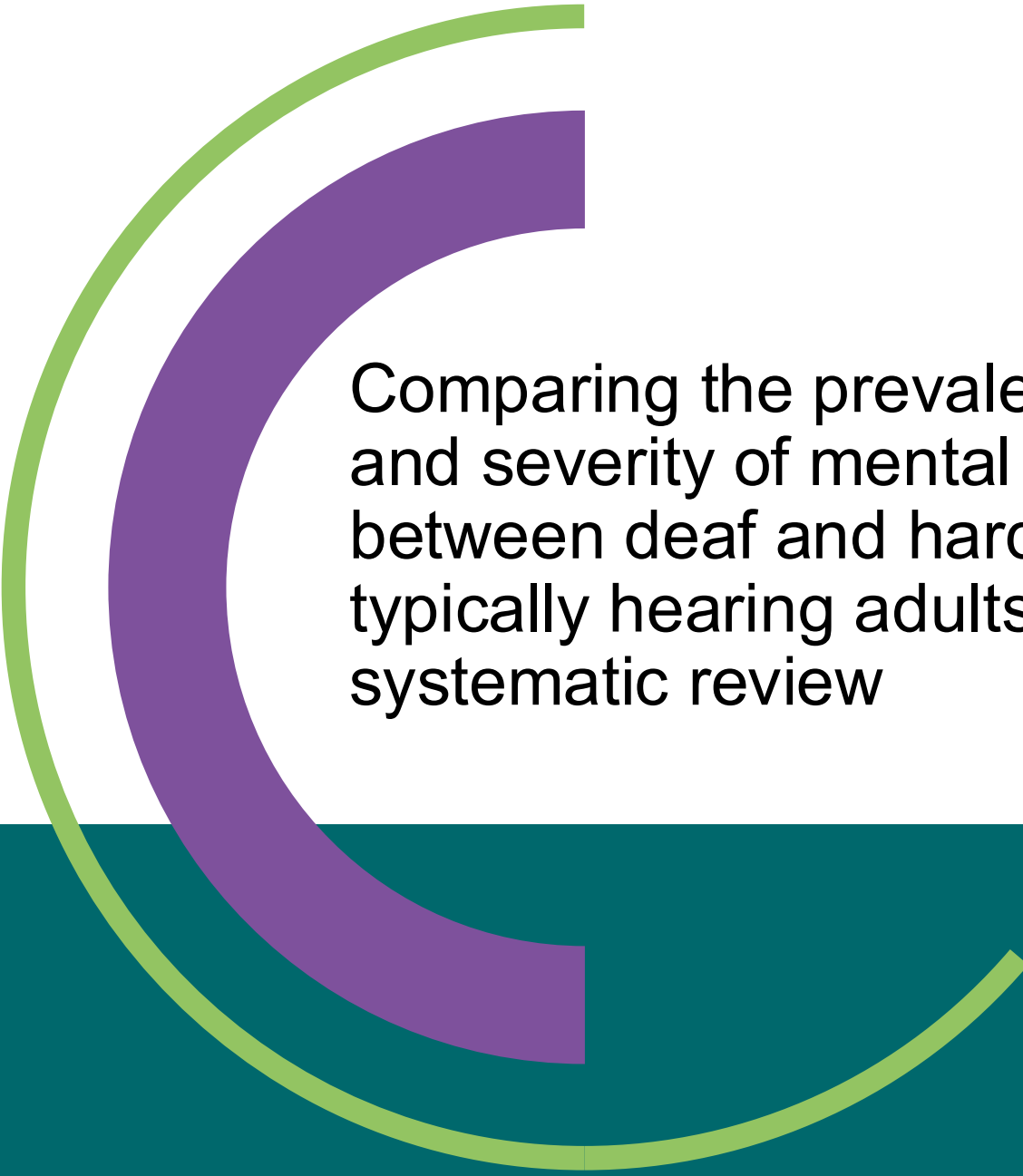




Comparing the prevalence, incidence, and severity of mental disorders between deaf and hard-of-hearing and typically hearing adults aged 18-60: a systematic review

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Introduction

- Mental disorders [1-8]
- DHH specific risk factors and barriers to access care [9-19]
- Previous systematic reviews and meta-analyses [20-25]
- DHH people potentially higher prevalence in some mental disorders than Typically Hearing (TH) people
- Focus on children/adolescents and older adults (60+)
- About one third of all DHH people (hearing loss > 35 dB) are adults aged between 18-60 [26-28]



Inclusion

Is there a difference in the prevalence, incidence, and severity of mental disorders between deaf and hard-of-hearing adults and typically hearing adults aged 18 to 60 years?

Prevalence = percentage of people having a mental disorder at specific time

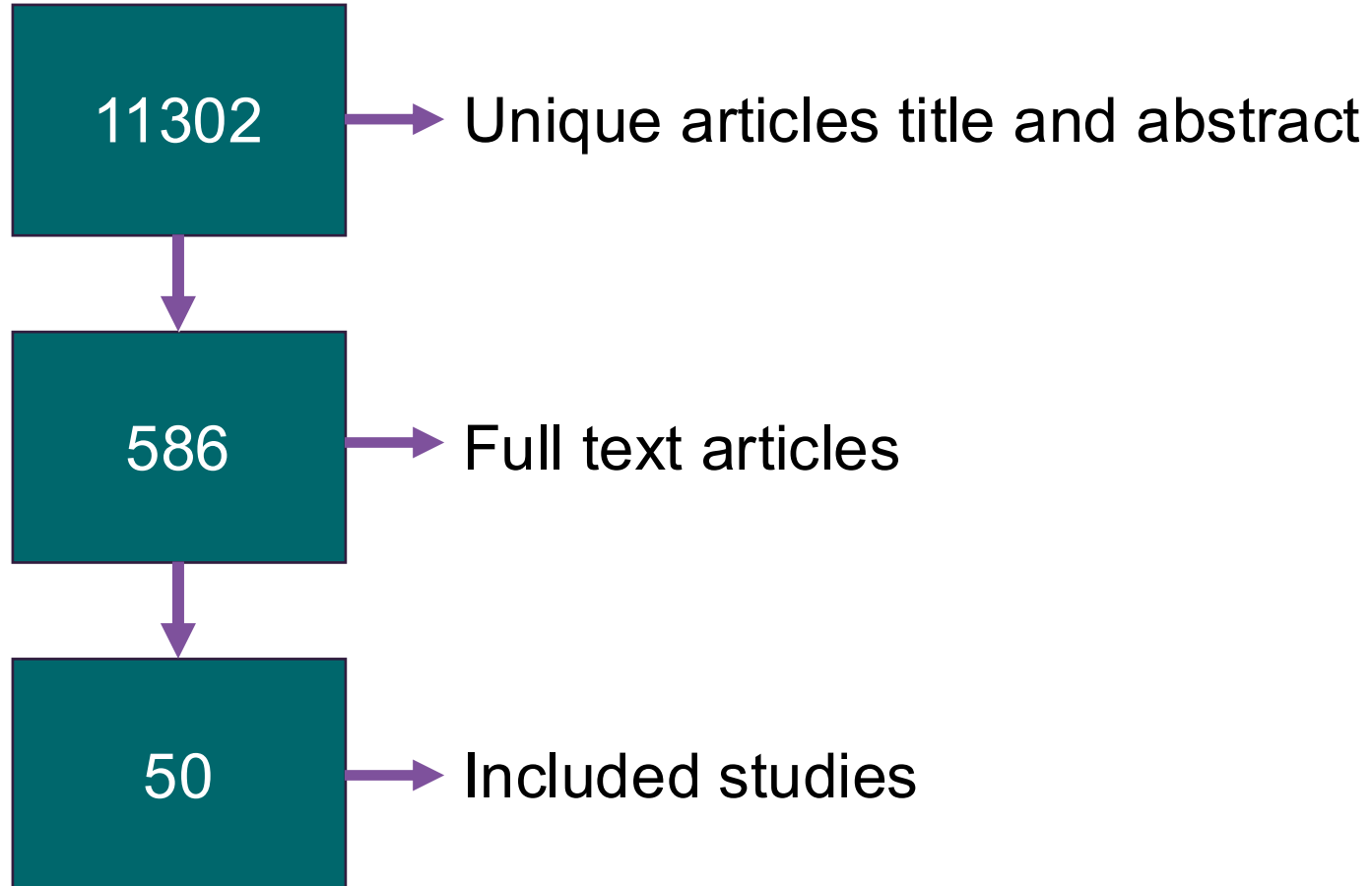
Incidence = percentage of new cases of mental disorders over time

Inclusion of studies

- Cross-sectional, case-control, and cohort studies
- Adults (mean age 18–60)
- DHH (permanent bilateral hearing loss)
- TH adults
- Difference in mental disorder outcomes classified in the DSM or ICD



Inclusion



Results - Characteristics

Study Characteristics

- 250.000 DHH adults and 5.4 million TH adults
- 35% used DHH terminology, and 65% used hearing loss/impairment
- Over 70% of the studies were conducted in North America or Europe
- 15% reported information on age at diagnosis of hearing loss
- More than half of the studies were published after 2019 highlighting the growing interest and recent momentum in this area of research.



Results – Data synthesis

- Direction of the findings for each study
- Mental disorder outcomes per study:

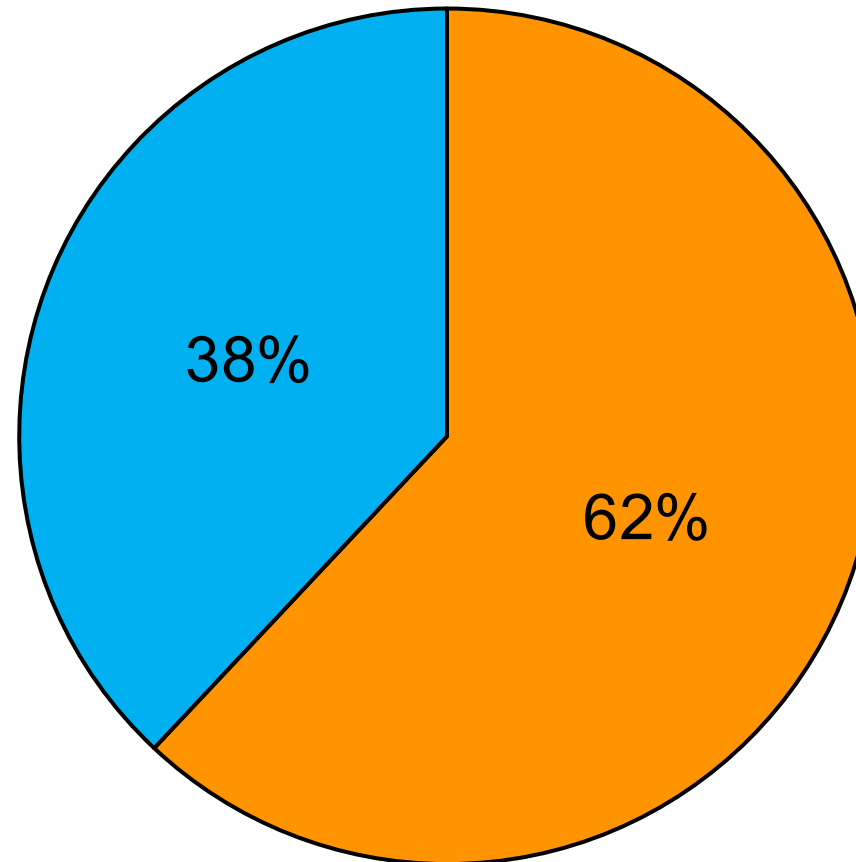


- Majority-direction synthesis



Results – differences in mental disorders outcomes

Total effect (50 studies)



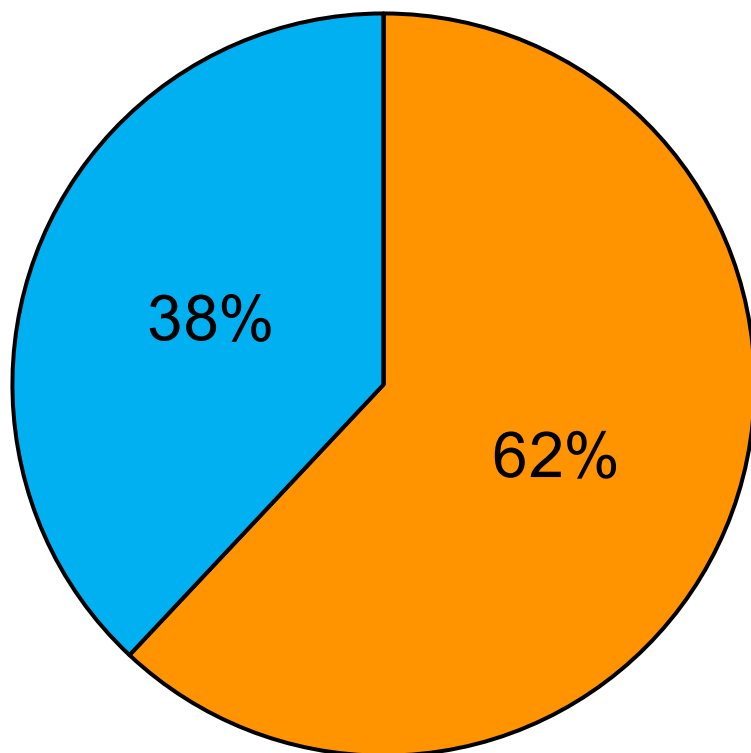
Higher for DHH

Lower for DHH

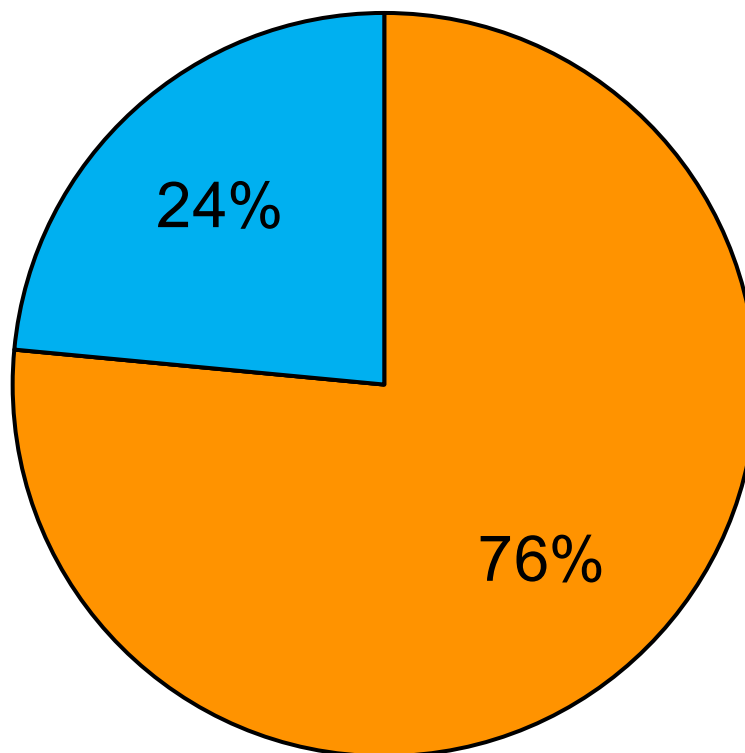
No difference

Results – differences in risk of bias levels

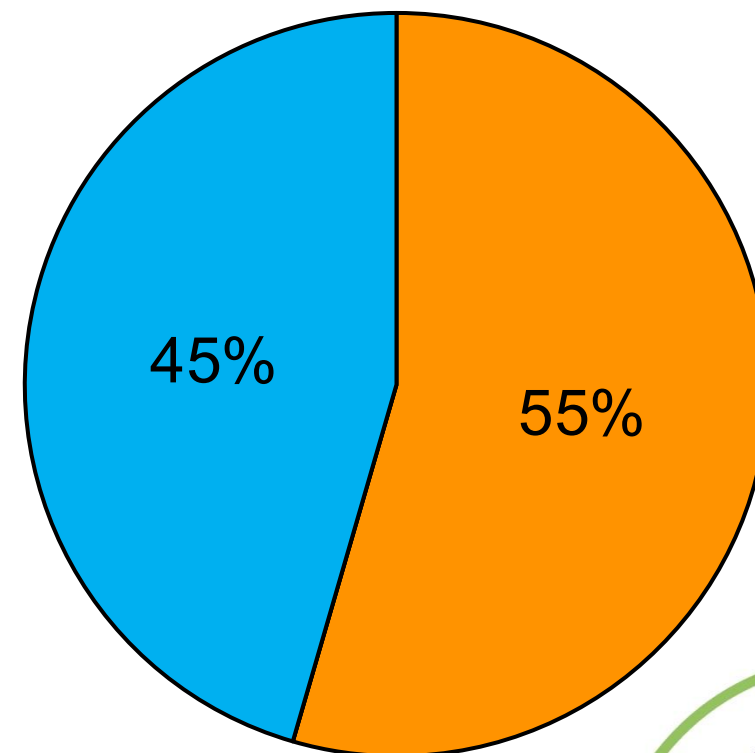
Total effect (50 studies)



Higher risk of bias (17)



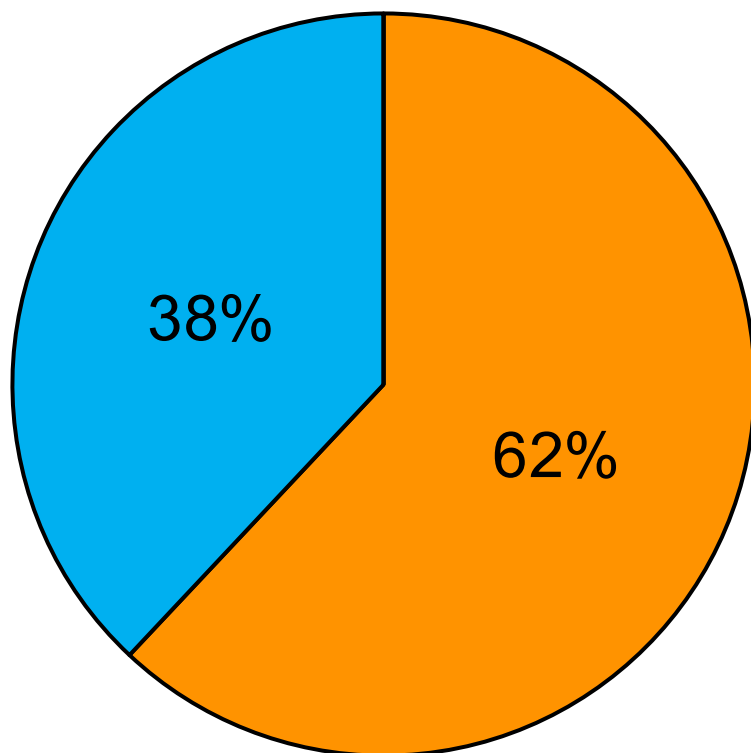
Lower risk of bias (33)



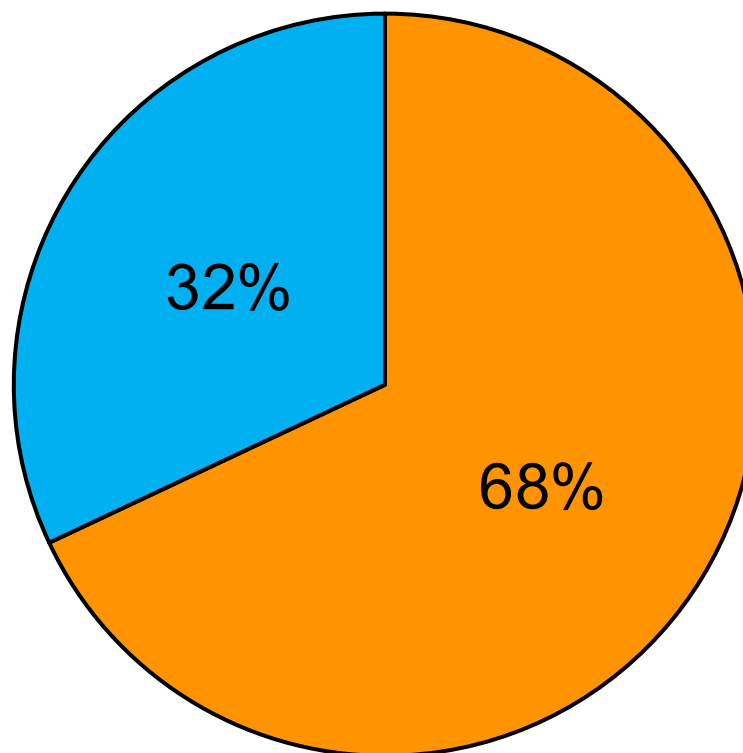
Overall pattern aligns with the total effect synthesis.

Results – differences in outcome types

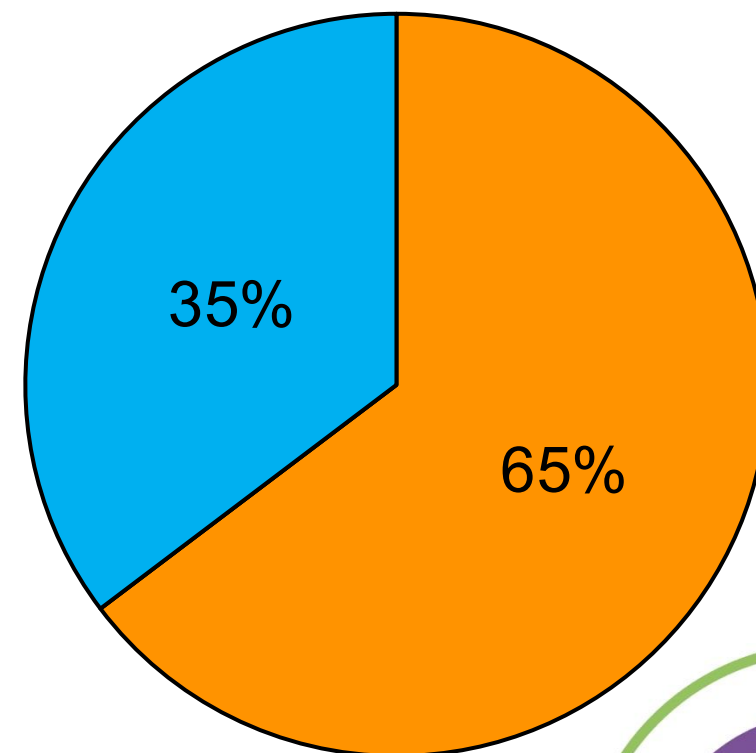
Total effect (50 studies)



Only Prevalence (34)



Only Severity (17)



Higher for DHH

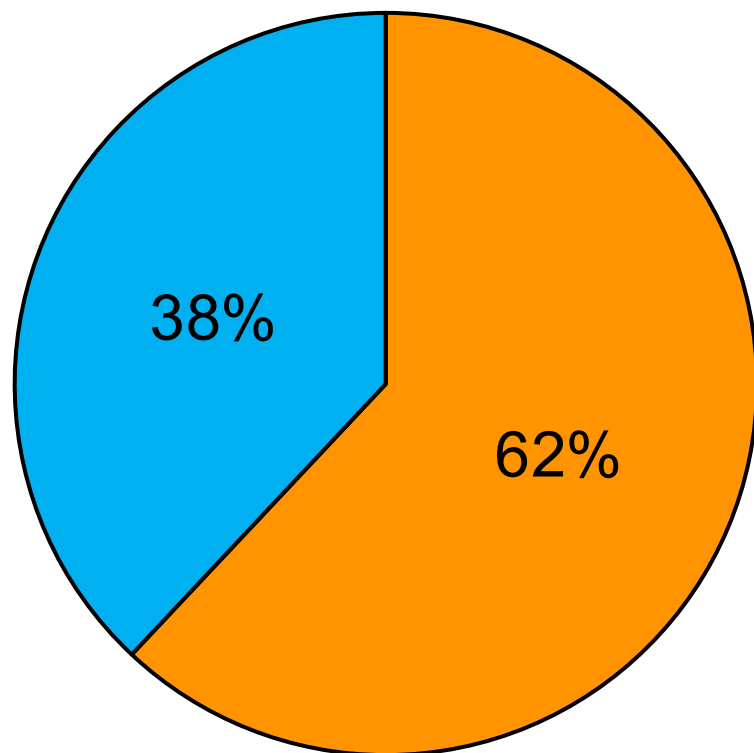
Lower for DHH

No difference

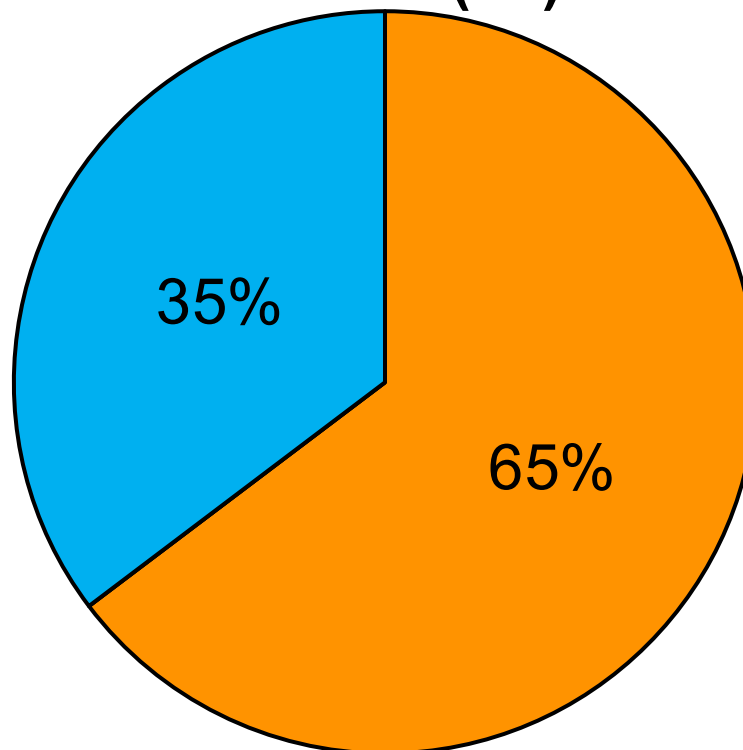
Overall pattern closely aligns with the total effect synthesis.

Results – differences in age groups

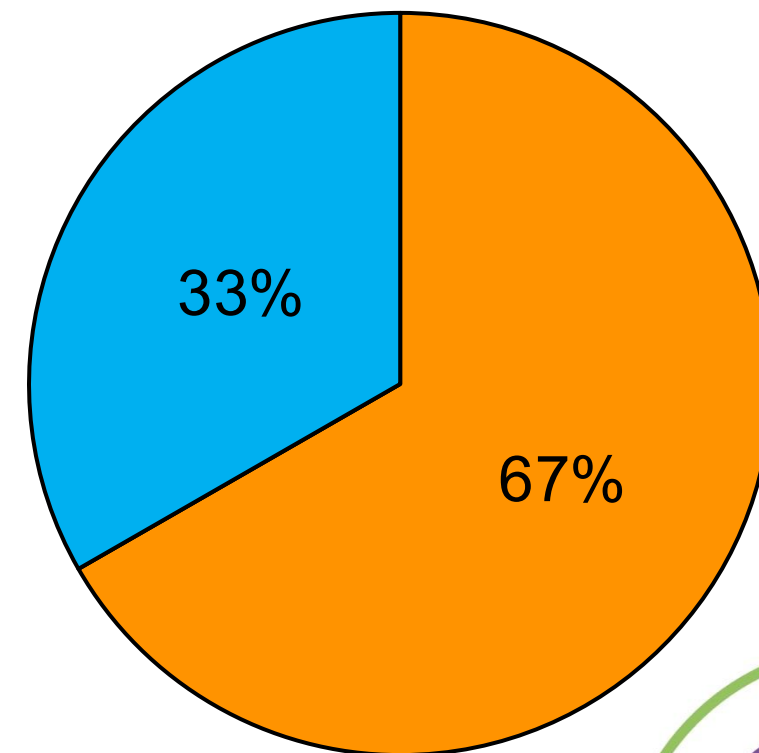
Total effect (50 studies)



Mean age lower than 40 (17)



Mean age higher than 40 (39)



Higher for DHH

Lower for DHH

No difference

Overall pattern closely aligns with the total effect synthesis.

Results – specific disorders

Specific disorders examined in at least 5 studies

Mental disorder	N Studies	Higher for DHH	Lower for DHH	No Difference
Depression	29	45%	0%	55%
Anxiety disorders	13	54%	0%	46%
Mental disorders general	7	57%	0%	43%
Suicidality	6	67%	0%	33%
Psychotic disorders	11	82%	0%	18%



Overall pattern aligns with the total effect synthesis.

Discussion

- Most studies found **higher mental disorder outcomes** for DHH adults.
- This was consistent across outcome types, age groups, risk of bias levels, and specific disorders.
- Evidence still supports a potential **elevated mental health risk** for DHH adults aged 18-60

Recommendations for future research

- Study underexplored disorders
- Use longitudinal, population-based, quasi-experimental designs.
- Improve reporting on DHH-specific characteristics (e.g., age of onset, language use, hearing aid usage).

Policy & Practice:

- Recommend Implement **routine mental health screening**, including in audiology or hearing aid dispenser settings.
- In partnership with the DHH community, invest in, develop, and test interventions that are accessible and culturally appropriate for DHH working-age adults.



Next steps – Big Data



- Data from 10% of Dutch general practitioner practices (Nivel) ^[30]
- Combined with Statistics Netherlands data (all Dutch citizens)
- 18 – 60 years old in 2022
- ± 16.300 DHH adults (DHHa), ± 825.000 TH adults (THa).
- ICPC Diagnostic codes DHH (3), and mental health problems (20)



Prevalence mental health problems adults 18 – 60 years old in the Netherlands

	DHHa (16.300)	THa (825.000)	Odds ratio	Adjusted** Odds ratio
A mental health problem	22.6%	17.6%	1.37*	1.37*
More than 1 mental health problem	6.4%	4.4%	1.48*	1.43*
* = <i>Significant</i> ** = <i>Corrected for Age and Sex</i>				

Sorted on most prevalent MH problem for DHH

ICPC code: Mental health problem	DHHa	THa
P76: Depression	4.9%	3.4%
P06: Insomnia / other sleep disorder	4.0%	2.5%
P74: Anxiety disorder / anxiety condition	3.7%	3.3%
P80: Personality / character disorder	3.1%	2.1%
P01: Feeling anxious / nervous / tense	2.4%	2.0%



Sorted for biggest difference between DHH and TH

ICPC code: Mental health problem	Adjusted Odds ratio for age and sex
P99 Other mental disorders	1.68*
P71 Other organic psychoses	1.65*
P77 Suicide (attempt)	1.64*
P75 Somatization disorder	1.56*
P18 Drug abuse	1.52*
* = <i>Significant</i>	



Updates of the Driven Project



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