RWD311

Exploring the Evaluation of Network Meta-Analysis Assumptions: Current Approaches and Practices

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INTRODUCTION

- Network meta-analysis (NMA) enables the comparison of multiple treatments simultaneously by combining direct and indirect evidence.
- The validity of NMA results relies on key assumptions, i.e. homogeneity, transitivity, and consistency.
- If these assumptions are not consistently evaluated, the reliability of the findings may be affected.

OBJECTIVES

- This study aims to explore how researchers assess these assumptions in published NMA studies

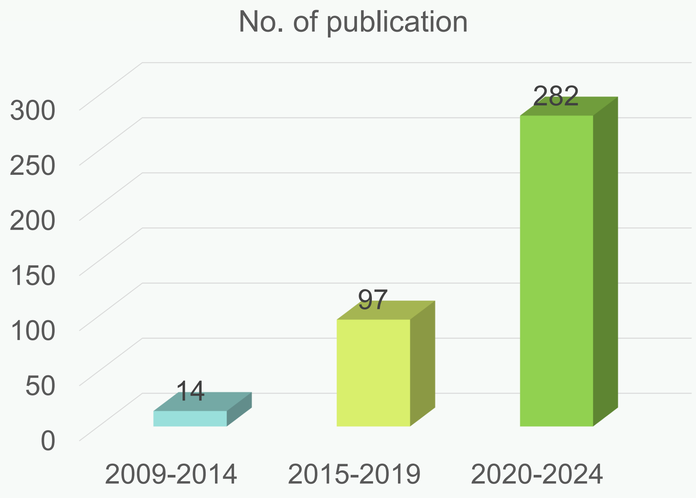
METHODS

- A cross-sectional study was conducted on published NMA articles.
- We searched three databases— PubMed, Embase, and Cochrane CENTRAL —covering the period from January 2010 to August 2024
- Search terms such as "network meta-analysis," "mixed-treatment comparisons," "indirect comparison," "multiple treatment comparisons," and others.
- A total of 22,079 records were identified after removing duplicates.
  - We calculated the sample size needed for the known population, utilizing the following formula:

$$n = \frac{N}{1 + N(d)^2}$$

  - Where N is the total population (22,079) and d is the margin of error or precision (5%).
- The sample size required 393 NMA studies.
- We used systematic random sampling to select 393 NMAs using a random number table.
- Each NMA was independently extracted by two pairs of research assistants, focusing on NMA assumptions.
- We used descriptive statistics to analyze the extracted data.

RESULTS



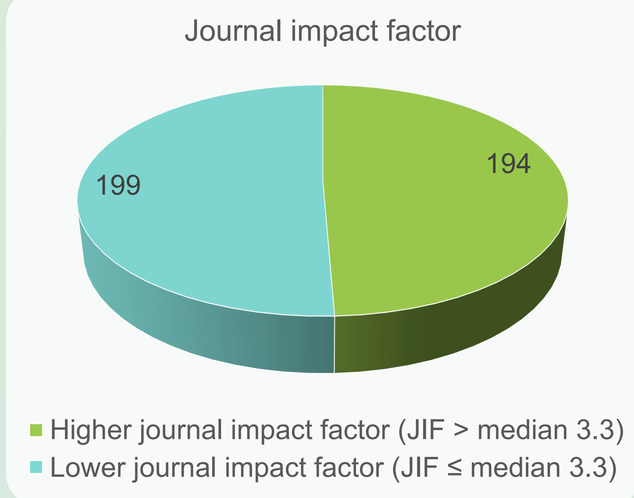
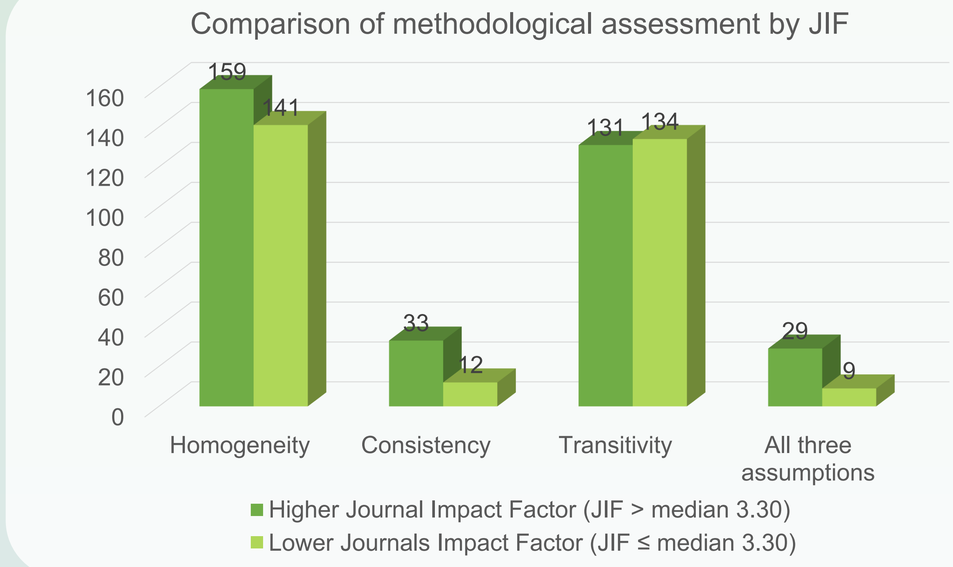
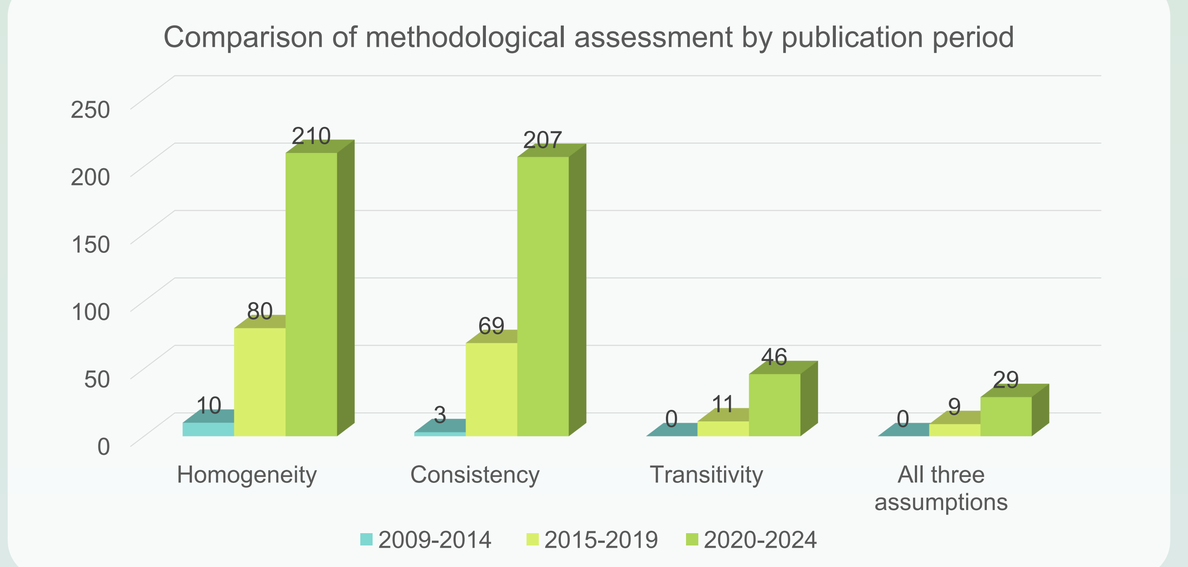


Table 1 General characteristic of included studies

Methodological assessment	Total (n = 393)	%
1.1 Homogeneity assumption assessment	300	76.3
Using statistical test for heterogeneity	300	76.3
Assessing clinical heterogeneity of included studies	32	8.1
1.2 Transitivity assumption assessment	45	11.5
Comparing the distribution of potential effect modifiers	34	8.7
Assessing the similarity of the PICOS of included studies	11	2.8
1.3 Consistency assumption assessment	265	67.4
Node splitting	159	40.5
Global inconsistency model	44	11.2
Design by treatment interaction model	43	10.9
Single loop inconsistencies	43	10.9





CONCLUSION

- The assessment of NMA assumptions, especially transitivity and consistency, varied widely across studies.
- These findings emphasize the importance of standardized protocols or reporting guidelines to ensure proper and transparent assessment.

CONTRACT INFORMATION

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