A Comparison of AMSTAR and ROBIS Tools for Methodological Quality Assessment of Systematic Reviews of Alzheimer’s Disease

Inuganti B, Inuganti A, Von M, Hyderbahi RK, Chakravarthy M, Chidirla SR, Nadimpalli J, Dang A
MarksMan Healthcare Communications, HEOR, Scientific Outsourcing and Research Consulting, India

INTRODUCTION

- Alzheimer’s disease (AD) is a chronic neurodegenerative disease affecting nearly 35 million people globally, and as per the prediction of Alzheimer’s Disease International, this count would rise up to 125 million by 2050.
- With the advancement in medical technologies, a vast literature on the AD is emerging rapidly, which is being collected, summarized and critically analyzed through systematic reviews (SRs).
- SRs are widely used for obtaining the "bottom line" in order to keep up with the literature, clinical guidelines and healthcare decisions.
- SRs are often considered the most reliable source of evidence to guide the decision-makers and evaluate the efficacy of a particular intervention. However, the assessment of the quality of these SRs is very important as a substandard SRs can be misleading and harmful.
- In addition, the emerging evidence-based healthcare warrants the assessment of the quality of these large numbers of SRs to create good quality evidence.
- A Measurement Tool to Assess Systematic Review (AMSTAR) is widely used for the quality assessment of SRs, while the Risk of Bias In Systematic reviews (ROBIS) tool was recently launched to specifically assess the risk of bias (RoB) in SRs.

WHAT IS AMSTAR?

- AMSTAR is one of the most acceptable and recommended tools for the quality assessment of SRs and meta-analysis.
- The other subsidiary tools include National Institute for Health and Care Excellence checklists and the tools developed by Joanna Briggs Institute, Australia and Critical Appraisal Skill Programme, UK.
- AMSTAR is an 11-item questionnaire that asks reviewers to answer ‘yes’, ‘no’, ‘can’t answer’ or ‘not applicable’.

WHAT IS ROBIS?

- ROBIS is the first tool developed using a rigorous methodology that currently aims at four broad categories of reviews mainly within healthcare settings, i.e., interventions, diagnosis, prognosis and anesthesiology.
- The tool can be processed in three different phases I, II and III as shown in Fig. 1.

RESULTS

- AMSTAR and ROBIS tools are frequently used to check for quality of Cochrane reviews, overviews, SRs and reviews that address questions of effectiveness that include randomized controlled trials.
- However, AMSTAR does not cover some quality items, and each item is not weighted the same.
- ROBIS is the first rigorously developed tool to assess the quality of SRs through RoB.
- Generally, ROBIS assessment rates the Cochrane reviews better as the Cochrane reviews have more detailed information on the review methods which makes it easier to apply as ROBIS tool.
- Difficulties in applying ROBIS are due to the limitations in reporting of reviews rather than difficulties in applying the tool itself.

DISCUSSION

- Our research suggests that ROBIS is more rigorous and reliable tool than AMSTAR in assessing the methodological quality of the included SRs.

CONCLUSION

- Our research suggests that ROBIS is more rigorous and reliable tool than AMSTAR in assessing the methodological quality of the included SRs.

OBJECTIVE

Comparing AMSTAR and ROBIS tools meticulously to determine the methodological quality of the included SRs published on the Alzheimer’s Disease.

METHODS

- PubMed was searched for relevant literature from inception until July 2017.
- The reference lists of the included studies were also hand-searched.
- All the reviews included in the SRs on AD patients receiving usual treatments, interventions to compare with placebo, or waitlist controls with cognitive function and behavioral outcomes.

REFERENCES

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Fig. 1 Three different phases in ROBIS and their characteristics

Fig. 2 Phase II domains of ROBIS tool

Fig. 3 PRISMA chart for inclusion of SRs in the current study

Fig. 4 Quality assessment of SRs on the AD using AMSTAR and ROBIS

Fig. 5 Interpretation of responses to questionnaire in ROBIS

Fig. 6 Quality assessment of SRs on the AD using AMSTAR and ROBIS