

APPLICATION OF AMSTAR2 IN OVERVIEWS OF SYSTEMATIC REVIEWS OF INTERVENTIONS FOR MENTAL AND BEHAVIOURAL DISORDERS: A CROSS-SECTIONAL STUDY

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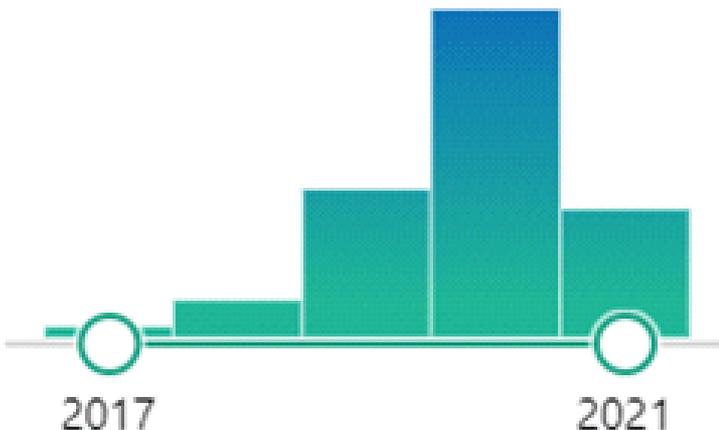
Leibniz Institute for Prevention Research and Epidemiology- BIPS

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- AMSTAR2 = A Measurement Tool to Assess Systematic Reviews
- 16-item scale to appraise confidence in results of systematic reviews (SR) of healthcare interventions (Shea et al., 2017)
- AMSTAR2 is frequently used according to PubMed data:
 - 357 studies in 2017 – April 2021
 - 79 studies in 2021



PubMed search:
AMSTAR2 OR
"AMSTAR 2" [Title/Abstract]

AMSTAR2 confidence appraisal

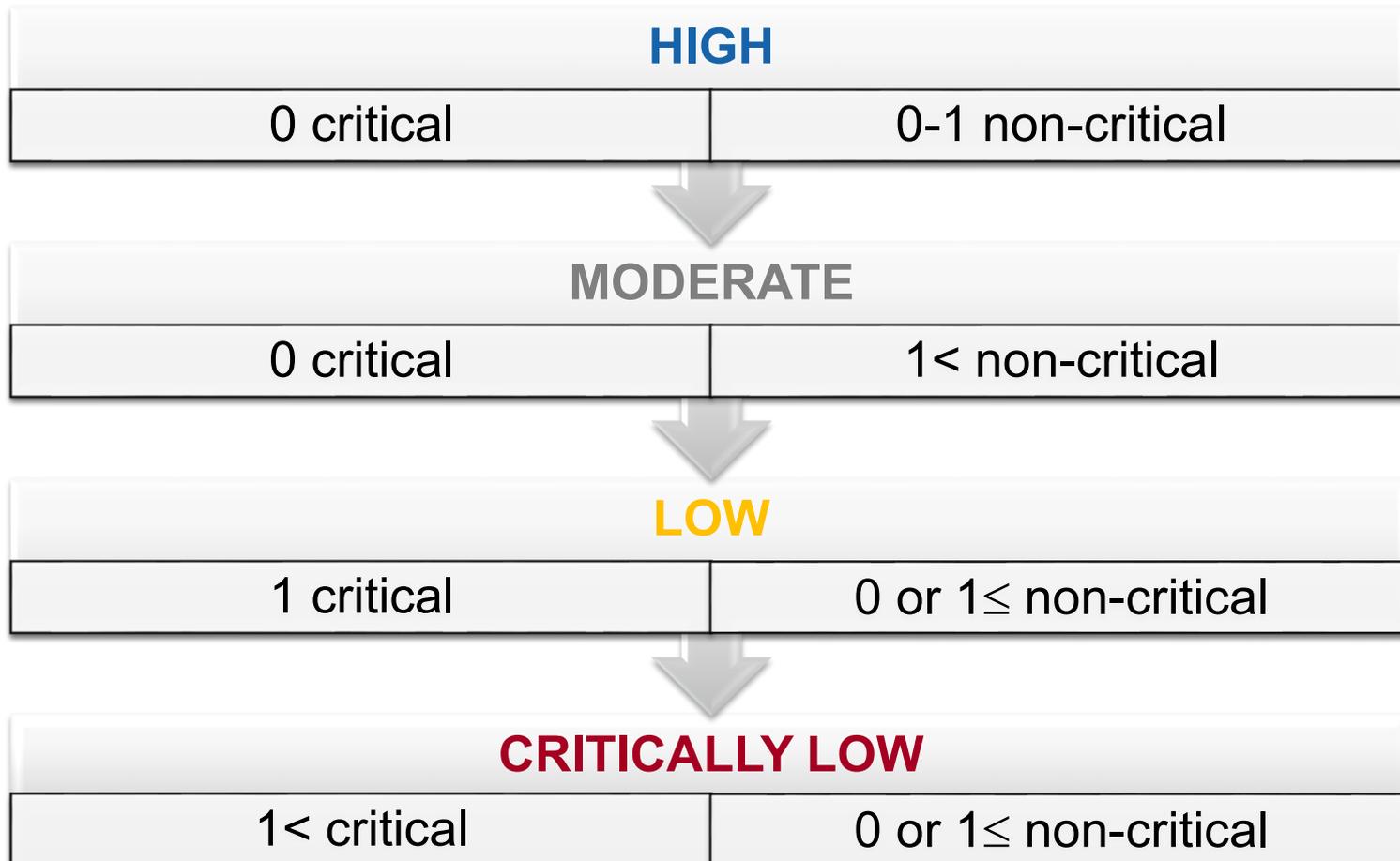
- Confidence appraisals aim to identify weaknesses in SRs based on
 - 7 critical items** and **9 non-critical items**



| | |
|---------|--------------------------------------|
| Item 2 | • Review protocol |
| Item 4 | • Comprehensive literature search |
| Item 7 | • List of excluded studies |
| Item 9 | • Risk of bias assessed |
| Item 11 | • Appropriate data synthesis methods |
| Item 13 | • Risk of bias discussed |
| Item 15 | • Publication bias assessed |

AMSTAR2 confidence ratings

- Confidence ratings are based on weaknesses in SR:



AMSTAR2 potential floor effect

Item 2

- **Review protocol**

Item 4

- Comprehensive literature search

Item 7

- **List of excluded studies**

Item 9

- Risk of bias assessed

Item 11

- Appropriate data synthesis methods

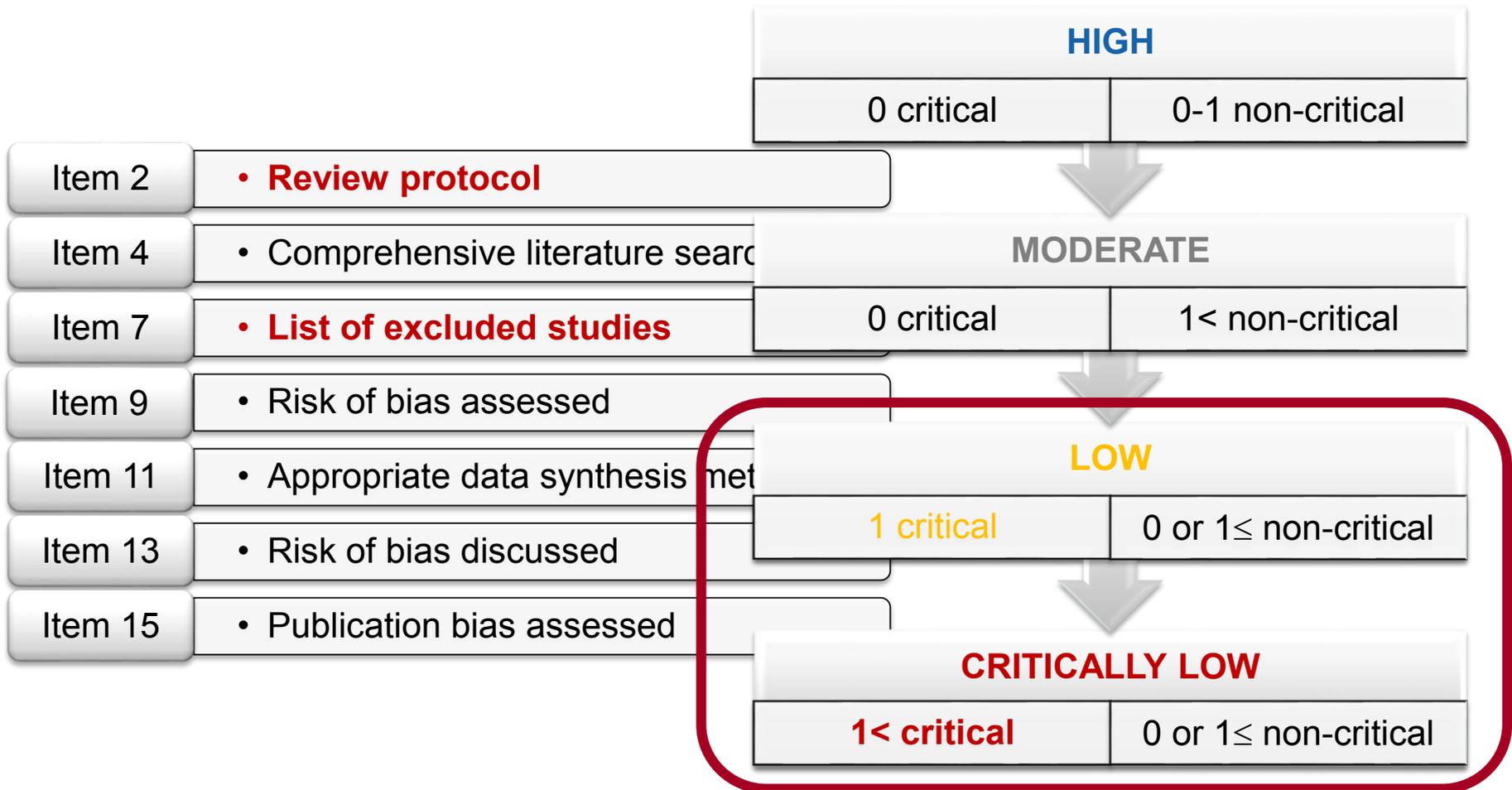
Item 13

- Risk of bias discussed

Item 15

- Publication bias assessed

AMSTAR2 potential floor effect



1. To investigate how researchers apply AMSTAR2 to appraise SRs in one clinical field
 - Use the **7 critical items**?
 - Use **other methods**?

2. To assess the outcomes of such appraisals with AMSTAR2

Design: Cross-sectional study registered in OSF in Dec 2020 (<https://osf.io/g5437/>)

Data type: Overviews of SR of interventions for mental and behavioural disorders

Data source: Studies with 'AMSTAR2' in Ti/Ab in Medline, Epistemonikos, CINAHL in Jan 2021 ($k = 352$ studies)

Sample: Data from **32 overviews** (final sample) selected and coded by 2 authors independently

32 overviews: Characteristics

Publication year / author region

- Published in 2019 – 2021, most in **2020**
- Most from **Asia**

Diagnosis / intervention

- Most **mental** disorders (ICD-10)
- Most **non-pharmacological interventions**

SRs

- Total **513 SRs** appraised in 32 overviews
- Mean **16 SRs / overview**, range: 4 – 64 SRs

513 SRs in 32 overviews: Characteristics

Cochrane status

- Most **non-Cochrane**

RCT status

- Most with **RCTs only**

SR age

- Most **published before 2018**
- (AMSTAR2 release in late 2017)

Aim 1: AMSTAR2 appraisal methods

32 overviews with 513 SRs

Appraisal method

- **Few** overview **protocols, moderate adherence**
- Most conducted **independently** by 2 researchers

Appraisal type

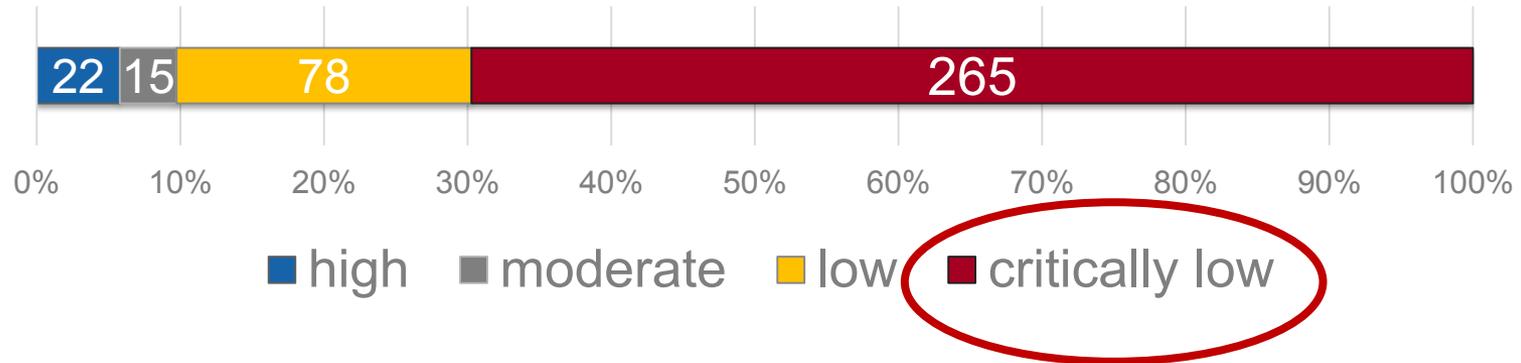
- **78%** confidence rating based on **7 critical items**
- 22% other methods or **no confidence rating**

Other methods

- **75%** discussed scores on **individual items**
- 53% used other methods, e.g. GRADE

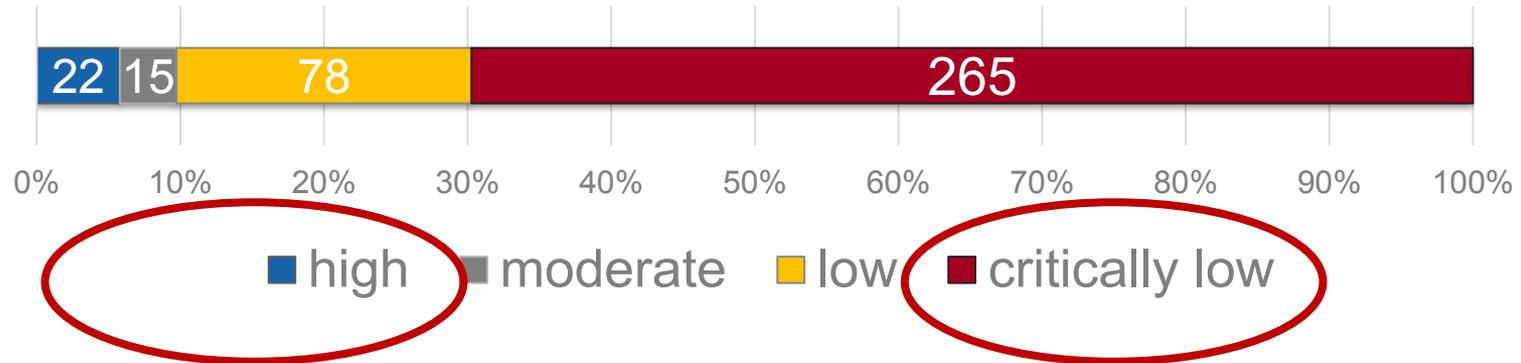
Aim 2: AMSTAR2 appraisal outcomes

25 overviews with 380 SRs / 7 critical items



Aim 2: AMSTAR2 appraisal outcomes

25 overviews with 380 SRs / 7 critical items



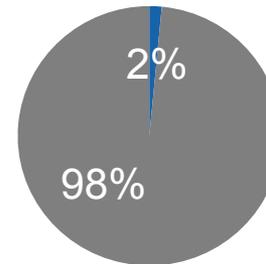
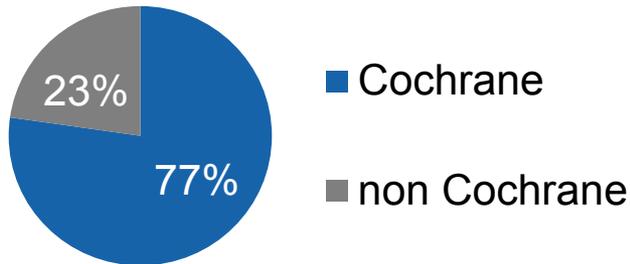
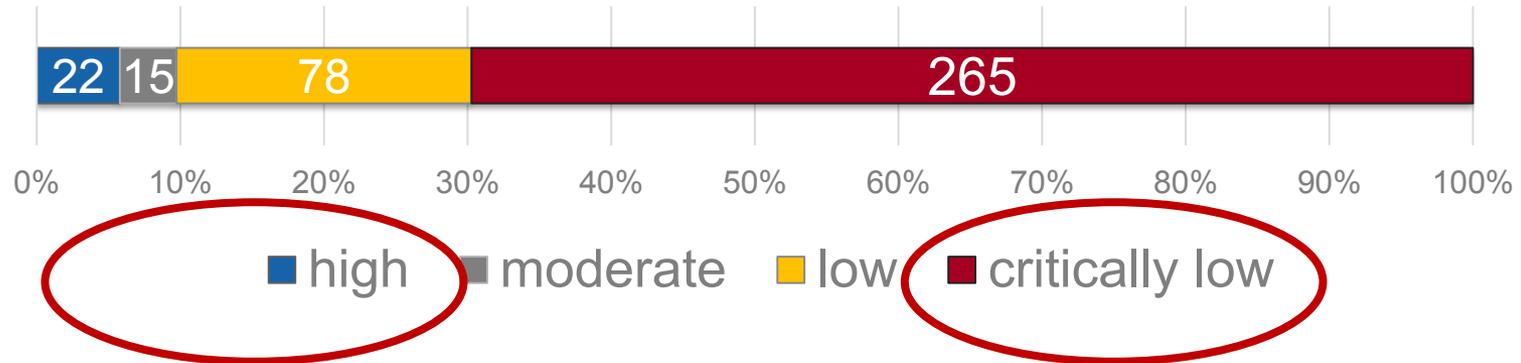
Cochrane status

RCT status

SR age

Aim 2: AMSTAR2 appraisal outcomes

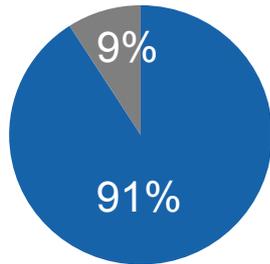
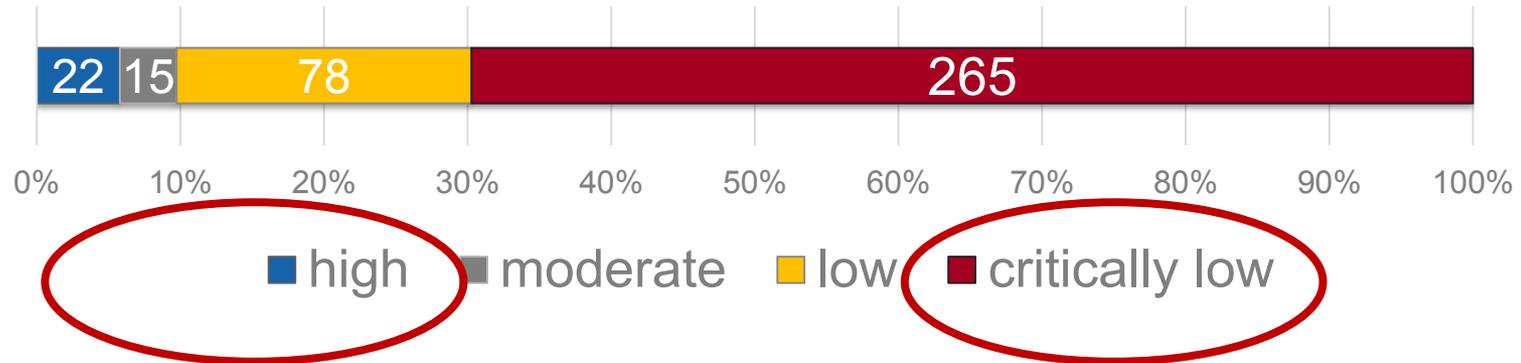
25 overviews with 380 SRs / 7 critical items



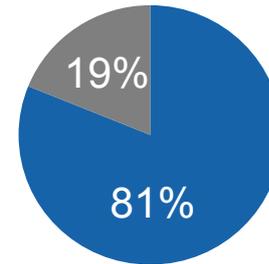
$p < .01^*$

Aim 2: AMSTAR2 appraisal outcomes

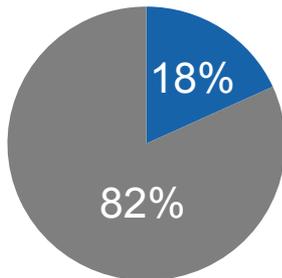
25 overviews with 380 SRs / 7 critical items



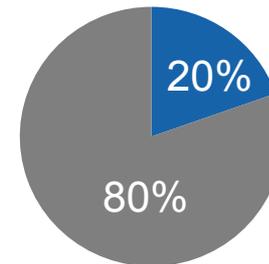
■ RCTs only
■ non RCTs + RCTs



$p = .253$



■ 2018 =<
■ < 2018



$p = .870$

AMSTAR2 appraisal methods in 32 overviews of 513 SRs

- Confidence ratings derived based on 7 critical items
- Individual item scores used to identify common weaknesses

AMSTAR2 does not differentiate among SRs

- Only Cochrane SRs fulfil the criteria for high confidence ratings
- Newer SRs with high quality RCT data still rated critically low

Suggestions to improve discriminatory power of AMSTAR2

- SR authors: Avoid common weaknesses
- Overview authors: Select relevant critical items
- Editors/peer-reviewers: Advise SR authors before publication

Thank you!

Coauthors: Meret Lakeberg, Dr. Robert C. Lorenz & Prof. Dr. Katja Matthias

Collaboration since Research Synthesis Conference 2019 in Dubrovnik



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