

Development of a Quality Appraisal Tool for Systematic Literature Reviews of Studies Eliciting Health State Utility Values (HSUVs): A Modified-Delphi Consensus Approach

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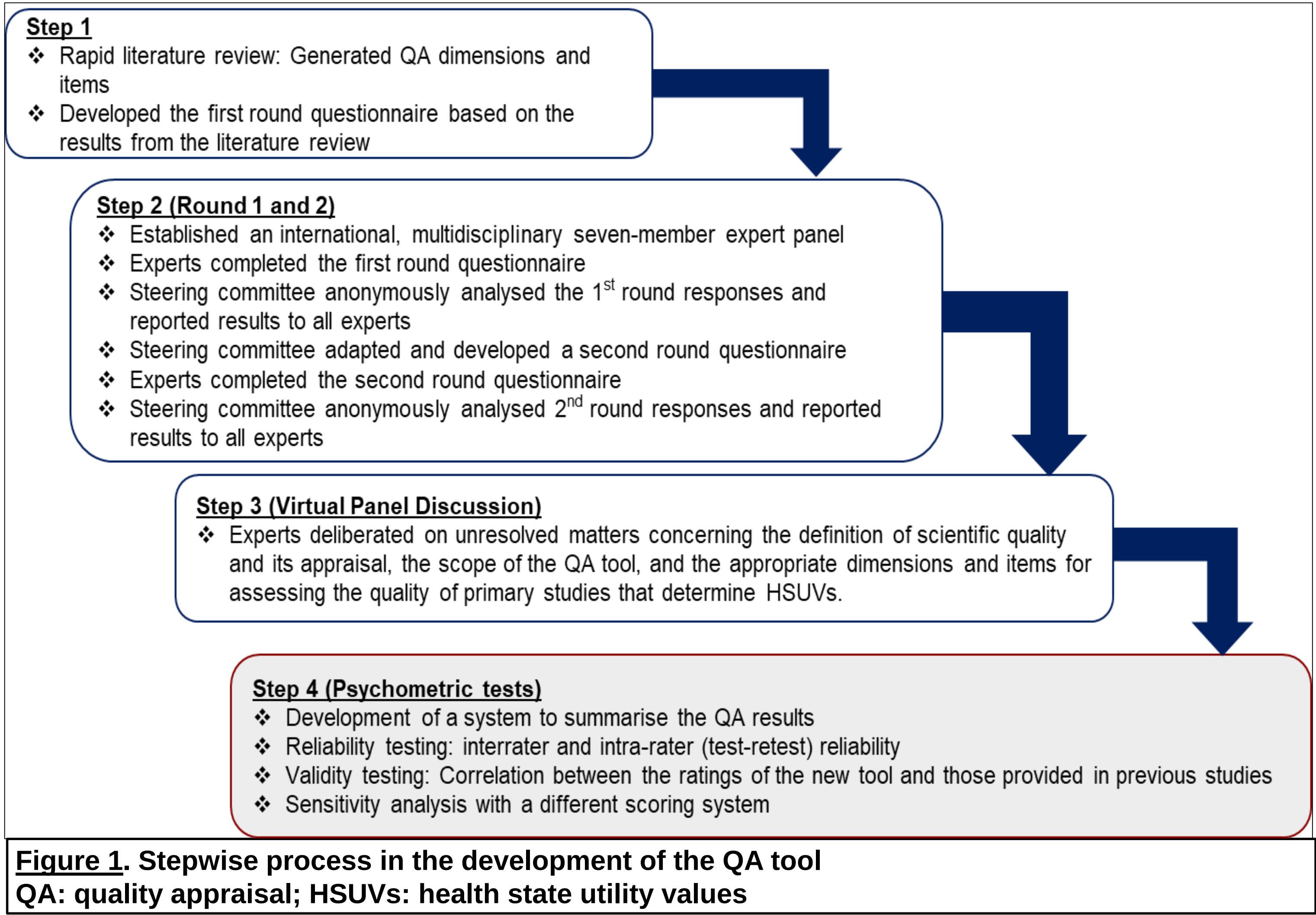
Research for a Life without Cancer

BACKGROUND AND OBJECTIVES

- Cost-effectiveness analyses have proven to be highly sensitive to health state utility value (HSUV) selection. With an uptick in studies eliciting HSUVs, systematic literature reviews (SLRs) and meta-analyses have become essential tools to synthesize these studies in various decision contexts.
- While quality appraisals (QA) in SLRs are crucial, a widely accepted QA tool for studies eliciting HSUVs is warranted.
- We aimed to develop a QA tool specific to HSUV elicitation studies**, defining its quality criteria, scope, and key assessment dimensions.

METHODS

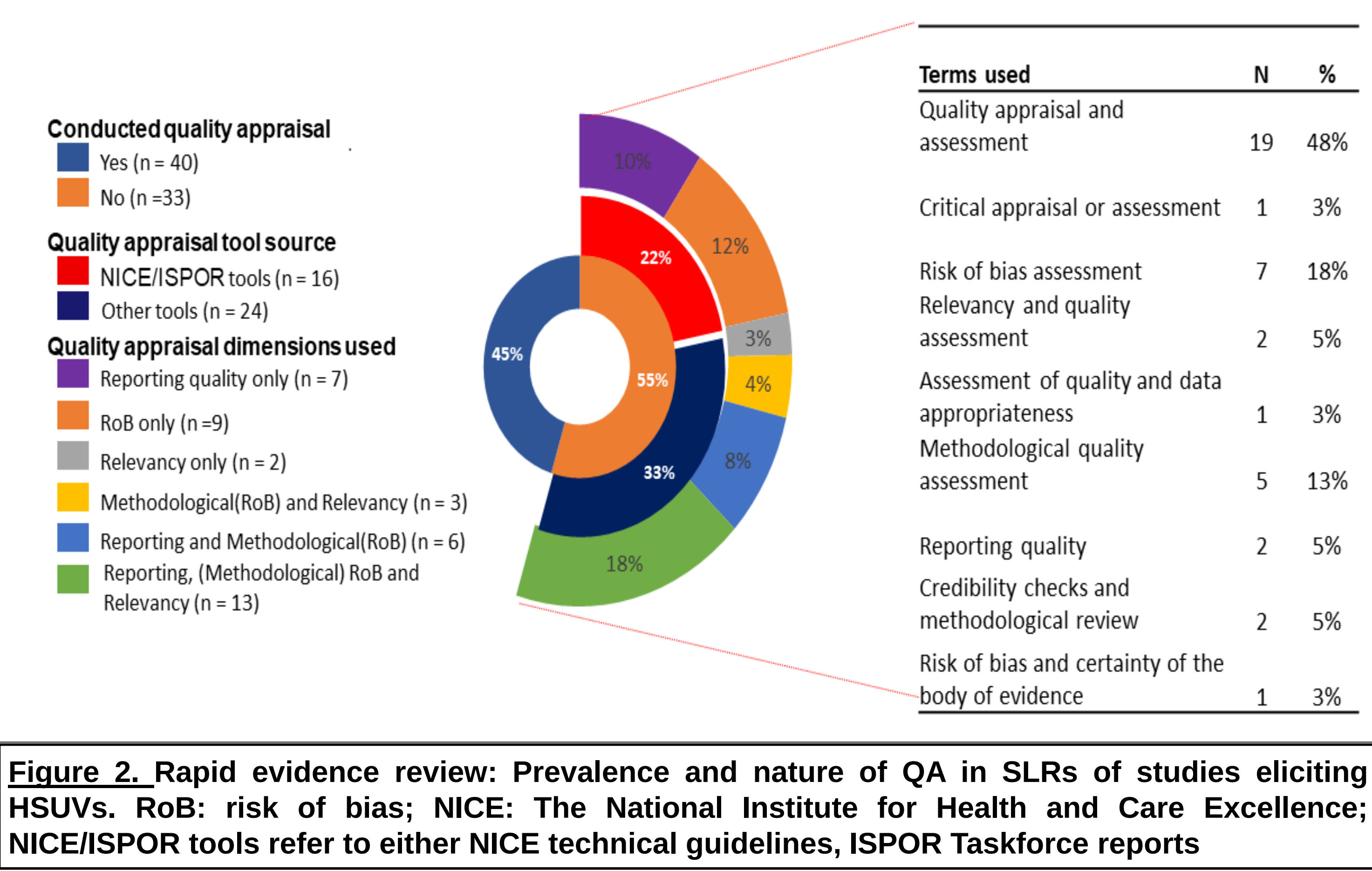
- Figure 1** illustrates the mixed-method approach employed.
- We conducted a **rapid review** of SLRs of HSUV elicitation studies in PubMed and EMBASE, focusing on QA dimensions and items.
- A panel of **seven** international, multidisciplinary experts was **purposively assembled** for a **modified-Delphi study**.
- Expert inclusion criteria:** Health economists with experience in SLRs of HSUV studies and/or knowledge in Health Technology Assessment (HTA), mapping studies, and health-related quality of life (HRQoL).
- Throughout the two questionnaire rounds, **expert anonymity** was maintained by using individual emails for invitations and responses.
- Controlled feedback** was provided as identifier-free detailed reports between rounds.
- Consensus** was predetermined as agreement by 5/6 or 4/5 experts during the second-round questionnaire and virtual meeting.



RESULTS

Rapid evidence review

- 73 SLRs were selected from 3,253, which yielded 35 QA tools, checklists, good practice recommendations, and 93 QA items.
- Figure 2** illustrates the prevalence and the nature of QA in 40 of the 73 SLRs that appraised the quality of individual studies.
- Dominant QA items in SLRs were response rates (27/40), statistical analysis (22/40), sample size (21/40), and loss of follow-up (21/40).



Modified-Delphi study

- Response rates to the first and second round questionnaires and the virtual consensus meeting were 100%, 86%, and 71%, respectively.
- The experts unanimously agreed (100%) on definitions for "scientific quality" and "QA" in SLRs of HSUVs, distinguishing among three key QA dimensions: **reporting, methodology, and relevance**.
- The experts concurred that the QA tool **should apply to multiple HSUV elicitation study designs**, including randomised controlled trials, cohort, case-control or cross-sectional studies.
- Table 1** depicts QA items with consensus for inclusion into first version of the Quality Appraisal Tool - Health Sates Utility Values (QAT-HSUV).

QA item	Reporting	Methodological limitation (RoB)	Relevance
Research question	Included		Included
Study design	Included	Included	
Study population or participants	Included	Included	Included
Study setting	Included	Included	Included
Sample size	Included	Included	
Choice of measurement instrument	Included	Included	Included
Health state descriptions	Included	Included	
Health states valuation	Included	Included	
Instrument administration	Included	Included	
Response rates	Included		
Missing (incomplete) data	Included	Included	
Statistical (data) analysis	Included	Included	
Results	Included		
Discussion and conclusions	Included	Included	

Table 1. Summary of QA items relevant to each of the 3 QA dimensions. QA = quality appraisal; RoB = Risk of bias

DISCUSSION & CONCLUSIONS

- QA prevalence:** The use of QA in SLRs of studies eliciting HSUVs remains low, underscoring the necessity for robust QA tools.
- Quality appraisal:** We define quality appraisal as the **systematic** and use of **explicit, transparent and reproducible** methods to thoroughly assess a set of key features, characteristics or attributes in the **design, conduct, analysis and reporting** of studies eliciting HSUVs.
- Validity and reliability:** QA is an essential step in systematic reviews to ensure the validity and reliability of the review outcomes.
- Three QA dimensions:** To ensure comprehensive and in-depth QA of studies eliciting HSUVs, we emphasize the need to **differentiate** among the quality of **reporting, methodology and relevance**.

KEY REFERENCE

1. Muchadeyi M, Hernandez-Villafuerte K et al.. Quality appraisal for systematic literature reviews of health state utility values: a descriptive analysis. BMC Med Res Methodol. 2022 Nov 25;22(1):303.