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Aaron Tierney
Stanford University

Marie Haverfield
Stanford University School of Medicine

Shreyas Bharadwaj
Stanford University School of Medicine

Donna Zulman
Stanford University School of Medicine

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Development and Validation of the Study Quality Assessment of Design (SQUAD) Tool for Systematic Reviews

Aaron Tierney, BA^{1,2}, Marie Haverfield, PhD^{1,2}, Shreyas Bharadwaj, BS¹, Donna Zulman, MD, MS^{1,2}

¹Stanford School of Medicine, Stanford, CA, ²Center for Innovation to Implementation (Ci2i), VA Palo Health Care System, Menlo Park, CA



BACKGROUND

- Despite growing consensus about the need to assess study design quality in systematic reviews, there remains a need for practical tools that can be used for quality assessment across diverse study designs

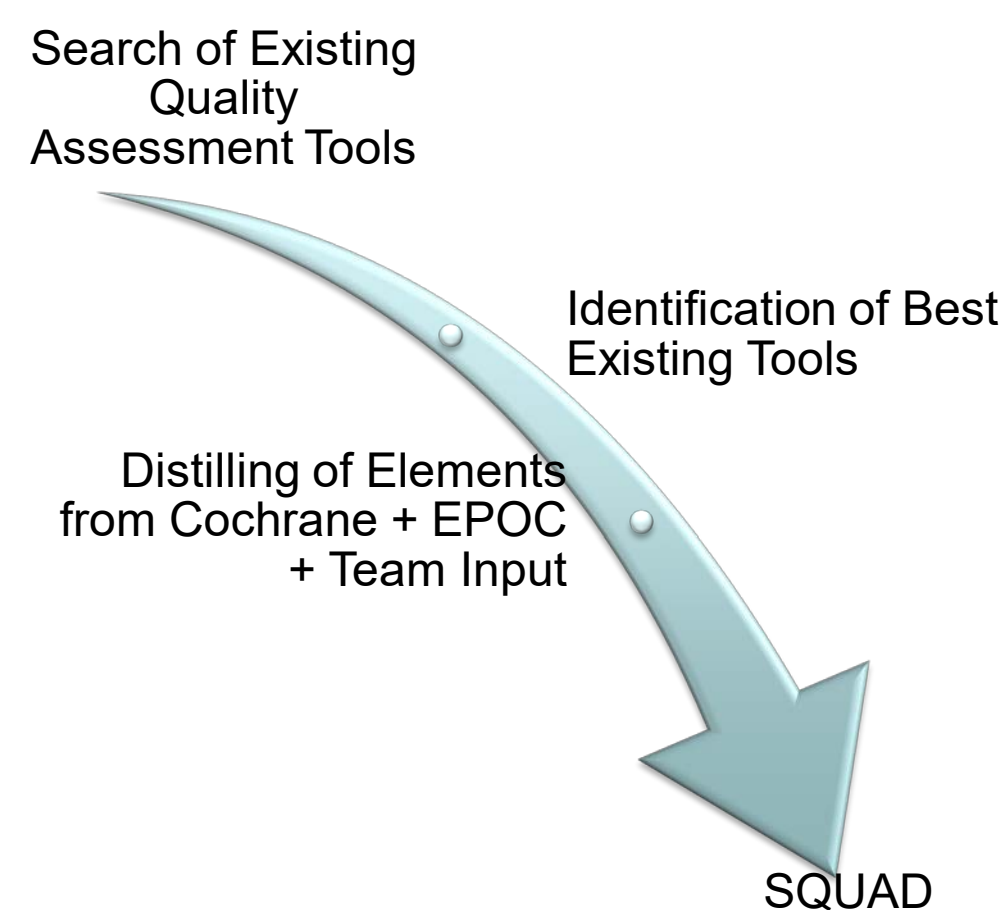
OBJECTIVE

- To create a quality assessment tool that is simple, easy to use, and applicable across multiple study designs, allowing more versatility and inclusiveness of multiple disciplines

DESIGN METHOD

- We developed the Study Quality Assessment of Design (SQUAD) Tool by combining and simplifying the rating tool developed by Cochrane for grading randomized control trials and the risk of bias criteria developed for Effective Practice and Organisation of Care (EPOC) reviews with additional input

- We validated the tool and then piloted it in the Stanford Presence 5 systematic review of interpersonal interventions associated with the Quadruple Aim (population health, cost, patient and provider experience)

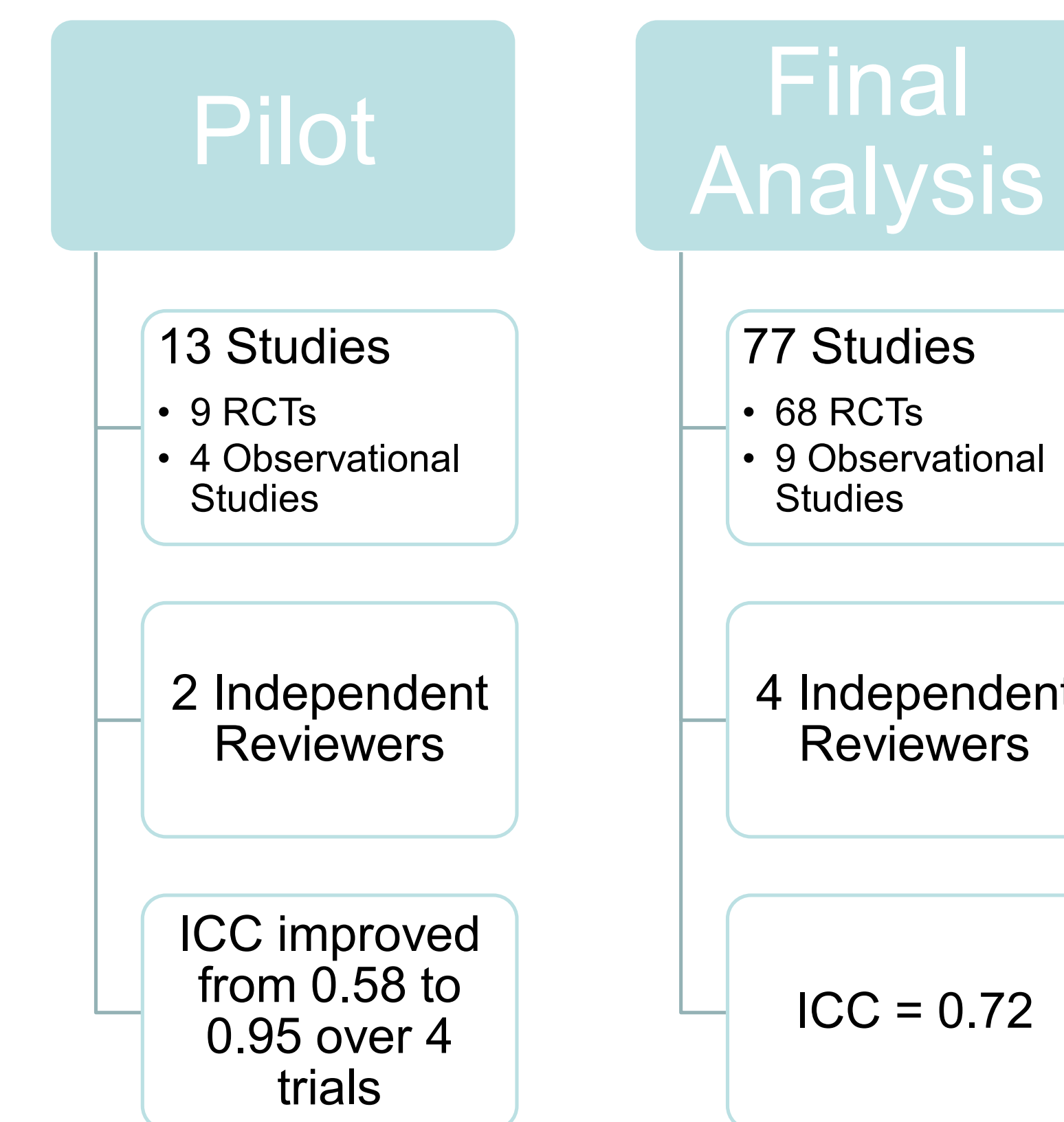


QUALITY ASSESSMENT

Randomization*	A measure of randomization of various control and experimental groups involved in the study
Protection Against Selection Bias*	A measure of the possibility of selection bias in the randomization process
Blinding	A measure of efforts used to blind study participants and personnel and their effectiveness
Protection Against Contamination	A measure of whether reasonable steps were taken towards protecting against contamination
Baseline Measurement	A measure of whether any baseline data was taken before any interventions to any groups
Inclusion of Outcomes	A measure of the completeness of outcome data for each main outcome
Exclusion of Findings	A measure of the possibility of selective outcome reporting
Acknowledgement of Contradictions	A measure of how the review authors examined what was found
Protection Against Detection Bias	A measure of the reliability of all tools and statistical analyses
Reliable Primary Outcome Measure(s)	A measure of reliability between raters
Other Sources of Bias*	Any important concerns about bias not addressed in the other domains in the tool

- Domains marked with an * are domains that may not be relevant to every study
- Each domain is given a score of 1 to 3 based on the level of adherence to the principle measured by it
- An average of scores per study is calculated to determine overall study score
- Low quality studies may be eliminated from final analysis to ensure external validity and only the most rigorous studies are included

VALIDATION



CONCLUSIONS

- The SQUAD tool is a practical and reliable tool for assessing the quality of studies of various designs when synthesizing findings for systematic review
- Standardized practices for quality assessment are critical to the reliability of systematic reviews. This pragmatic tool can facilitate high-quality and efficient study assessments that include a broad range of research