Title: PASS: A Checklist for Assessing the Quality of Systematic Reviews of Prevalence Studies

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The huge number of journal articles published each year has made clinicians and clinical decision-makers increasingly reliant on literature reviews for up-to-date evidence relevant to their areas of practice. Systematic literature reviews are especially useful for this purpose as they aim to summarize all the relevant evidence in an objective, unbiased manner by using transparent and standardized procedures [1, 2]. An increasing number of systematic reviews are of studies of the prevalence of medical conditions.

Systematic reviews of the prevalence of medical conditions are especially important in informing service planning. However, despite often being regarded as definitive summaries of evidence, they may be subject to bias and consequently report potentially misleading conclusions [3]. Common shortcomings in the methodological quality of such systematic reviews are: a lack of clarity about how the authors have searched for and selected the primary studies included in the review, a failure to consider the quality and limitations of these primary studies, and poor justification of the methods used to combine data from primary studies [3-5].

It is therefore essential that, when using systematic reviews of prevalence, clinicians and clinical decision-makers are able to judge their quality and consequently decide how much credence to give to their findings. Although a number of tools and questionnaires exist for assessing the quality of systematic reviews, including AMSTAR (A MeaSurement Tool to Assess systematic Reviews), OQAQ (Overview Quality Assessment Questionnaire) and ROBIS (Risk of Bias in Systematic Reviews), none of these are ideal for rapidly assessing the quality of systematic reviews of prevalence studies [6-8]. This is because: (a) they were designed primarily to assess the quality of systematic reviews of studies of the effectiveness of interventions and (b) they are time-consuming to apply, reducing their usability by busy clinicians and clinical decision-makers [9].

We have therefore designed a new, simple checklist specifically designed to help clinicians and clinical decision-makers rapidly judge the quality of systematic reviews of the prevalence of medical conditions. The design of the checklist was informed by the tools described above and by our own experience conducting systematic reviews and umbrella reviews (systematic reviews of systematic reviews). In the interests of maximising its usability, our checklist focuses on what we believe to be the basic quality criteria for a systematic review of prevalence, organized in four domains. These four domains are denoted by the acronym PASS to remind readers that to pass the test of quality a review should: be **Planned** with a clearly stated aim; consider **All** the relevant

literature; use methods for **Selection** of included studies that are unbiased and transparent; and conduct **Synthesis** of data from included studies in a way that is unbiased and informative. We have listed a small number of specific questions for the reader to ask within each of these domains. The answer to these questions can be scored as either 'yes' or 'no/unclear'.

In order to pass a basic quality assessment, a review should score 'yes' on all the checklist items. The highest quality reviews are likely to also have additional quality markers, such as a published or registered protocol and searches that were recent and conducted without language restrictions. The findings of reviews that score 'no/unclear' on any of the questions should be regarded with caution.

The full PASS quality assessment checklist is shown in the Table, together with notes about where the relevant information can usually be found in a review article.

We used PASS when conducting a recent umbrella review that aims to summarize the published systematic reviews of the prevalence of psychiatric disorders in general hospital inpatients. We found that it allowed us to rapidly assess a systematic review's quality and that it was easy for multiple raters to achieve agreement for each of the questions. We hope that readers of the journal will also find the PASS checklist useful.

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The PASS checklist. To pass a basic quality assessment, the answers to all questions should be 'yes'

Domain		Question	Notes	Answer
P	**Planned** **with a clearly stated aim**	Does the review aim specify the patient population and the condition being studied and include the word 'prevalence'?[1]	*e.g. 'we aimed to summarize studies of the prevalence of panic disorder in patients with asthma'.*	Yes □ No / Unclear □
A	**All** **the relevant literature was considered**	Is there a detailed, replicable search strategy?[2]	*The search strategy should include the databases searched, dates of searches and search terms used.*	Yes □ No / Unclear □
S	**Selection** **of included studies was unbiased and transparent**	Did the criteria for including studies clearly define the patient population, setting and condition?[3]	*e.g. 'we included studies of interview-diagnosed panic disorder in patients aged ≥ 16 years admitted to acute hospitals with asthma'*	Yes □ No / Unclear □
		Was study selection done by ≥ 2 reviewers independently with a procedure for dealing with disagreements?[3]	*Disagreements may be resolved by consensus or referral to a third reviewer*	Yes □ No / Unclear □
		Is there a clear description of how the included studies were selected from all those found by the searches?[4]	*e.g. a flowchart showing the number of studies excluded at each stage*	Yes □ No / Unclear □
S	**Synthesis** **of data from included studies was unbiased and informative**	Was data extraction done by ≥ 2 reviewers independently with a procedure for dealing with disagreements?[3]	*Disagreements may be resolved by consensus or referral to a third reviewer*	Yes □ No / Unclear □
		Was a quality assessment done for each included study?[3]	*Quality assessments should include the appropriateness of the study design for estimating prevalence and should be done by ≥ 2 reviewers (see above) if they affect whether studies are included in the review.*	Yes □ No / Unclear □
		For each included study, is there a description of the sample characteristics, how the presence of the condition was assessed and the prevalence estimate?[5]	*It should be clear which diagnostic criteria or measure (and cut-off) were used in each study*	Yes □ No / Unclear □
		Is the method for synthesizing data from the included studies clear, with acknowledgement of the possible effects of heterogeneity and study quality on prevalence?[6]	*The synthesis method (narrative summary or meta-analysis) should be justified. Possible effects of clinical and statistical heterogeneity and of low-quality studies on the findings should be noted.*	Yes □ No / Unclear □

[1] The aim can usually be found at the end of the Introduction. [2] A summary of the searches done should be in the Methods (details of searches are usually given in an Appendix). [3] The selection criteria for studies and how these were applied, together with the procedures for data extraction and quality assessment, should be described in the Methods. [4] A flowchart would usually be provided at the start of the Results. [5] A description of the included studies may be given in the text of the Results or in a table. [6] The Methods should include a section on analysis and an examination of the effects of heterogeneity may be found in the Results and/or Discussion.