

Determinants of asthma inhaler use in adults: systematic review of observational studies

Supplementary material 2: Quality assessment observational studies (after STROBE guidelines)

Overview: The 6 quality criteria below follow STROBE guidelines for assessment of quality of reporting of observational studies (von Elm *et al.*, 2007; Vanderbrouke *et al.*, 2007). They focus on 6 methodological issues that have been selected based on their applicability to a wide range of research designs and on their relevance for the methodological accuracy of observational studies. They are however not a comprehensive list of methodological issues with potential impact on the validity of study results, and their assessment is somewhat subjective. More detailed explanations of these methodological considerations are provided by Vanderbrouke *et al.*, (2007) in sections 6-12.

While STROBE guidelines focus on quality of study reporting, the present assessment aims to also identify the quality of methodology. Therefore, scoring is performed on 4-level response format, from lack of details relevant to the specific issue, to adequate reporting of appropriately used methodology.

Coding instructions: Please consult Vanderbrouke *et al.*, (2007), sections 6-12 for a more detailed description of study quality criteria, and select the score that best represents the overall quality of methodology regarding each of the following 6 issues. Please record briefly the reason for your selection.

| | | | |
|--|--|---|---|
| 1. Selection of participants: (for detailed explanation see Vanderbrouke et al 2007, section 6) - sampling strategy - eligibility criteria & method for assessing eligibility - participation rate - matching criteria (for case control studies) - follow-up procedures and drop-out rates (for longitudinal studies) | | | |
| 0 - unknown | 1 - low | 2 - medium | 3 - high |
| No description of selection methods | Selection methods are not clearly described and/or not appropriate for the research question | Most selection methods are clearly described and appropriate, with few omissions/errors | Selection methods are clearly described and appropriate for the research question |
| Reason: | | | |
| 2. Definition of variables: (for detailed explanation see Vanderbrouke et al 2007, section 7) - outcomes (e.g. adherence) - determinants/predictors/correlates - confounders | | | |
| 0 - unknown | 1 - low | 2 - medium | 3 - high |
| No definition of variables provided | Variables are not clearly defined and/or many definitions are missing/ not appropriate for the research question | Most variables are clearly and appropriately defined, with few omissions/errors | All variables are clearly and appropriately described |
| Reason: | | | |
| 3. Measurement of variables: (for detailed explanation see Vanderbrouke et al 2007, section 8) - outcomes (e.g. adherence) | | | |

| | | | |
|--|--|---|--|
| - determinants/predictors/correlates - confounders | | | |
| 0 - unknown | 1 - low | 2 - medium | 3 - high |
| No description of variable measurement | Measurement of variables is not clearly described and/or not appropriate for the research question. No discussion of validity. | Measurement of variables is clearly described and appropriate, with few omissions/errors. Some proof of measurement validity is provided. | Measurement of variables is clearly described and appropriate for the research question. Detailed proof of measurement validity is provided. |
| Reason: | | | |
| 4. Addressing sources of bias: (for detailed explanation see Vanderbrouke et al 2007, section 9) - medical surveillance bias - recall bias - response bias | | | |
| 0 - unknown | 1 - low | 2 - medium | 3 - high |
| No description of potential sources of bias and how they were addressed | Some description of potential sources of bias and methods for addressing them, but very limited and/or not appropriate for the research question | Most potential sources of bias are clearly described and methods of addressing them are mostly appropriate, with some omissions/errors | Comprehensive and clear description of potential sources of bias; methods of addressing them are appropriate for the research question. |
| Reason: | | | |
| 5. Study size: (for detailed explanation see Vanderbrouke et al 2007, section 10) - <i>a priori</i> power analysis/sample size calculations - other considerations for determining sample size - correcting for multiple comparisons (if applicable) | | | |
| 0 - unknown | 1 - low | 2 - medium | 3 - high |
| No description of study size determination | Study size determination is not clearly described and/or not appropriate for the study design and data analysis | Study size determination is clearly described and appropriate, with some omissions/errors | Study size determination is clearly described and appropriate for the study design and data analysis |
| Reason: | | | |
| 6. Data analysis: (for detailed explanation see Vanderbrouke et al 2007, section 11, 12) - data preparation (missing data analysis, handling quantitative variables) - controlling for confounding - controlling for data collection methods (sampling, loss to follow-up) - sensitivity analyses | | | |
| 0 - unknown | 1 - low | 2 - medium | 3 - high |
| No description of data analysis methods (the Results section is not accompanied by a justification of the methods applied) | Data analysis methods are not clearly described and/or not appropriate for the research question | Most data analysis methods are clearly described and appropriate, with some omissions/errors | Data analysis methods are clearly described and appropriate for the research question |
| Reason: | | | |