Quality assessment criteria for survey research reports

Category	Item	Reported on Page Number/Line Number	Reported on Section/Paragraph
Title and abstract			
	Is the design of the study stated in the title and/or abstract?		
Introduction			
	a) Is there an explanation of why the research is necessary, placing the study in context of previous work in relevant fields?		
	b) Is the purpose or aim of the paper explained?		
Methods			
Research tool	a) Is the questionnaire described?		
	b) If an existing tool was used, are its psychometric properties presented?		
	c) If an existing tool was used, are references to the original work provided?		
	d) If a new tool was used, are the procedures used to develop and pre-test provided?		
	e) If a new tool was used, have its reliability and validity been reported?		
	f) Is a description of the scoring procedures provided?		
Sample selection	a) Is there a description of the survey population and the sample frame used to identify this population?		
	b) Do the authors provide a description of how representative the sample is of the underlying population?		
	c) Is a sample size calculation or rationale/justification for the sample size presented?		
Survey administration	a) Mode of administration?		
	b) Do the authors provide information on the type of contact and how many attempts were made to contact subjects (i.e., prenotification by letter or telephone, reminder postcard, duplicate questionnaire with reminder)?		
	c) Do the authors report whether incentives were provided (financial or other)?		
	d) Is there a description of who approached potential participants (e.g., identification of who signed the covering letter)?		

Analysis	a) Is the method of data analysis described?		
	b) Do the authors provide methods for analysis of nonresponse error?		
	c) Is the method for calculating response rate provided?		
	d) Are definitions provided for complete versus partial completions?		
	e) Are the methods for handling item missing data provided?		
Results			
	a) Is the response rate reported?		
	b) Are all respondents accounted for?		
	c) Is information given on how nonrespondents differ from respondents?		
	d) Are the results clearly presented?		
	e) Do the results address the objective(s)?		
Discussion			
	a) Are the results summarized with reference to the study objectives?		
	b) Are the strengths of the study stated?		
	c) Are the limitations of the study (taking into account potential sources of bias or imprecision) stated?		
	d) Is there explicit discussion of the generalizability (external validity) of the results?		
Ethical quality indicators			
	a) Study funding reported?		
	b) Research Ethics Board (REB) review reported?		
	c) Reporting of subject consent procedures?		

STROBE Statement—checklist of items that should be included in reports of observational studies

Section/item	Item No	Recommendation	Reported on Page Number/Line Number	Reported on Section/Paragraph
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract		
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found		
Introduction				
Background/ rationale	2	Explain the scientific background and rationale for the investigation being reported		
Objectives	3	State specific objectives, including any prespecified hypotheses		
Methods				
Study design	4	Present key elements of study design early in the paper		
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection		
Participants	6	(a) ***Cohort study***—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up ***Case-control study***—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls ***Cross-sectional study***—Give the eligibility criteria, and the sources and methods of selection of participants		
		(b) ***Cohort study***—For matched studies, give matching criteria and number of exposed and unexposed ***Case-control study***—For matched studies, give matching criteria and the number of controls per case		
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable		
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group		
Bias	9	Describe any efforts to address potential sources of bias		
Study size	10	Explain how the study size was arrived at		
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why		

Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding		
		(b) Describe any methods used to examine subgroups and interactions		
		(c) Explain how missing data were addressed		
		(d) ***Cohort study***—If applicable, explain how loss to follow-up was addressed ***Case-control study***—If applicable, explain how matching of cases and controls was addressed ***Cross-sectional study***—If applicable, describe analytical methods taking account of sampling strategy		
		(e) Describe any sensitivity analyses		
Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed		
		(b) Give reasons for non-participation at each stage		
		(c) Consider use of a flow diagram		
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders		
		(b) Indicate number of participants with missing data for each variable of interest		
		(c) ***Cohort study***—Summarise follow-up time (eg, average and total amount)		
Outcome data	15*	***Cohort study***—Report numbers of outcome events or summary measures over time		
		Case-control study—Report numbers in each exposure category, or summary measures of exposure		
		Cross-sectional study—Report numbers of outcome events or summary measures		
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included		
		(b) Report category boundaries when continuous variables were categorized		
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses		
Discussion				
Key results	18	Summarise key results with reference to study objectives		
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias		

Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence		
Generalisability	21	Discuss the generalisability (external validity) of the study results		
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based		

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.