Materials Design Analysis Reporting (MDAR) Checklist for Authors

The MDAR framework establishes a minimum set of requirements in transparent reporting applicable to studies in the life sciences (see Statement of Task: doi:10.31222/osf.io/9sm4x.). The MDAR checklist is a tool for authors, editors and others seeking to adopt the MDAR framework for transparent reporting in manuscripts and other outputs. Please refer to the MDAR Elaboration Document for additional context for the MDAR framework.

Materials

Antibodies	Yes (indicate where provided: section/paragraph)	n/a
For commercial reagents, provide supplier name, catalogue number and RRID, if available.	——	√

Cell materials	Yes (indicate where provided: section/paragraph)	n/a
Cell lines: Provide species information, strain. Provide accession number in repository **OR** supplier name, catalog number, clone number, **OR** RRID	——	√
Primary cultures: Provide species, strain, sex of origin, genetic modification status.	——	√

Experimental animals	Yes (indicate where provided: section/paragraph)	n/a
Laboratory animals: Provide species, strain, sex, age, genetic modification status. Provide accession number in repository **OR** supplier name, catalog number, clone number, **OR** RRID	——	√
Animal observed in or captured from the field: Provide species, sex and age where possible	——	√
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID	——	√

Plants and microbes	Yes (indicate where provided: section/paragraph)	n/a
Plants: provide species and strain, unique accession number if available, and source (including location for collected wild specimens)	——	√
Microbes: provide species and strain, unique accession number if available, and source	——	√

Human research participants	Yes (indicate where provided: section/paragraph)	n/a
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Page 6, Line 3-4 Section: Material and methods; Paragraph: Ethical approval	—
Provide statement confirming informed consent obtained from study participants.	Page 6, Line 7-9 Section: Material and methods; Paragraph: Ethical approval	—
Report on age and sex for all study participants.	Page 6, Line 20 Section: Material and methods; Paragraph: Research tools	—

Design

Study protocol	Yes (indicate where provided: section/paragraph)	n/a
For clinical trials, provide the trial registration number **OR** cite DOI in manuscript.	——	√

Laboratory protocol	Yes (indicate where provided: section/paragraph)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.	——	√

Experimental study design (statistics details)	Yes (indicate where provided: section/paragraph)	n/a
State whether and how the following have been done**, or** if they were not carried out.	——	√
Sample size determination	——	√
Randomisation	——	√
Blinding	——	√
Inclusion/exclusion criteria	——	√

Sample definition and in-laboratory replication	Yes (indicate where provided: section/paragraph)	n/a
State number of times the experiment was replicated in laboratory	——	√
Define whether data describe technical or biological replicates	——	√

Ethics	Yes (indicate where provided: section/paragraph)	n/a
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Page 6, Line 2-9 Section: Material and methods; Paragraph: Ethical approval	—
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	——	√
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	——	√

Dual Use Research of Concern (DURC)	Yes (indicate where provided: section/paragraph)	n/a
If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval	——	√

Analysis

Attrition	Yes (indicate where provided: section/paragraph)	n/a
State if sample or data point from the analysis is excluded, and whether the criteria for exclusion were determined and specified in advance.	——	√

Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	Page 7, Line 11-18 Section: Material and methods; Paragraph: Statistical	—

Data Availability	Yes (indicate where provided: section/paragraph)	n/a
State whether newly created datasets are available, including protocols for access or restriction on access.	——	√
If data are publicly available, provide accession number in repository or DOI or URL.	——	√
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	——	√

Code Availability	Yes (indicate where provided: section/paragraph)	n/a
For all newly generated code and software essential for replicating the main findings of the study:	——	√
State whether the code or software is available.	——	√
If code is publicly available, provide accession number in repository, or DOI or URL.	——	√

Reporting

Adherence to community standards	Yes (indicate where provided: section/paragraph)	n/a
MDAR framework recommends adoption of discipline-specific guidelines, established and endorsed through community initiatives. Journals have their own policy about requiring specific guidelines and recommendations to complement MDAR.	MADR reporting checklist has been followed. Page 22, Line 8-10 Section: Footnote; Paragraph: Reporting checklist	—
State if relevant guidelines (eg., ICMJE, MIBBI, ARRIVE) have been followed, and whether a checklist (eg., CONSORT, PRISMA, ARRIVE) is provided with the manuscript.	STROBE Statement has been followed and a checklist is provided with the manuscript. Page 22, Line 8-10 Section: Footnote; Paragraph: Reporting checklist Also, ICMJE guidelines were followed, as the journal follows ICMJE recommendations for publication.	—

Article information: http://dx.doi.org/10.21037/gs-20-657.

STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***

	Item No	Recommendation	Page No
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	P2- P3
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	P2- P3
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	P4- P5
Objectives	3	State specific objectives, including any prespecified hypotheses	P5
Methods			
Study design	4	Present key elements of study design early in the paper	P6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	P6
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	P6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	P6- P7
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	P6- P7
Bias	9	Describe any efforts to address potential sources of bias	——
Study size	10	Explain how the study size was arrived at	P6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	P6- P7
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	P7
		(*b*) Describe any methods used to examine subgroups and interactions	P7
		(*c*) Explain how missing data were addressed	P7
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	P7
		(*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	P7- P9
		(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	P7- P9
		(b) Indicate number of participants with missing data for each variable of interest	——
Outcome data	15*	Report numbers of outcome events or summary measures	P9-P15
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	P9-P15
		(*b*) Report category boundaries when continuous variables were categorized	P9-P15
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	P9-P15
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	P16-P20
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	P20
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	P21
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	P21

*Give information separately for exposed and unexposed groups.

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.

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