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:	n/a
For commercial reagents, provide supplier name, catalogue number and RRID, if		x

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

Experimental animals	Yes (indicate where provided:	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		x
Animal observed in or captured from the field: Provide species, sex and age where possible		x
Model organisms: Provide Accession number in repository (where relevant) OR		x

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

Human research participants	Yes (indicate where provided:	n/a
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Yes; Methods Para 1	
Provide statement confirming informed consent obtained from study participants.	Yes; Methods Para 1	
Report on age and sex for all study participants.		x

Design

Study protocol	Yes (indicate where provided:	n/a
For clinical trials, provide the trial registration number OR cite DOI in manuscript.		X

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

Experimental study design (statistics details)	Yes (indicate where provided:	n/a
State whether and how the following have been done, or if they were not carried out.		
Sample size determination		X
Randomisation		X
Blinding		X
Inclusion/exclusion criteria	Yes; Methods Para 1	

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

Ethics	Yes (indicate where provided:	n/a
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Yes; Methods Para 1	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		X
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.		X

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

Analysis

Attrition	Yes (indicate where provided:	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:	n/a
Describe statistical tests used and justify choice of tests.		

Data Availability	Yes (indicate where provided:	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:	n/a
For all newly generated code and software essential for replicating the main findings of the		
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.		
State if relevant guidelines (eg., ICMJE, MIBBI, ARRIVE) have been followed, and whether a checklist (eg., CONSORT, PRISMA, ARRIVE) is provided with the manuscript.		

Article information: https://dx.doi.org/10.21037/tro-22-5

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

	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	Page1/line1	Abstract/Para1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Page1/line5-18	Abstract/Para2-3
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Page3-4/line27-62	Introduction/Para1-5
Objectives	3	State specific objectives, including any prespecified hypotheses	Page4-5/line63-67	Introduction/Para6
Methods				
Study design	4	Present key elements of study design early in the paper	Page5-7/line73-109	Methods/Para1-5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Page5/line73-74	Methods/Para1
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	Page5/line73-74	Methods/Para1
		(*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	N/A	N/A
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Page6/line90-96	Methods/Para3

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	Page6-7/line98-107	Methods/Para4-5
Bias	9	Describe any efforts to address potential sources of bias	Page6/line93-94	Methods/Para3
Study size	10	Explain how the study size was arrived at	Page5/line73	Methods/Para1
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Page6/line108-109	Methods/Para5
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Page7/line113-118	Methods/Para6
		(*b*) Describe any methods used to examine subgroups and interactions	Page7/line115-118	Methods/Para6
		(*c*) Explain how missing data were addressed	N/A	N/A
		(*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	N/A	N/A
		(*e*) Describe any sensitivity analyses	N/A	N/A
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	Page7/line121	Results/Para1
		(b) Give reasons for non-participation at each stage	N/A	N/A
		(c) Consider use of a flow diagram	N/A	N/A
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Page7/line121	Results/Para1
		(b) Indicate number of participants with missing data for each variable of interest	N/A	N/A
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	N/A	N/A
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	N/A	N/A
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	N/A	N/A
		Cross-sectional study—Report numbers of outcome events or summary measures	N/A	N/A
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their	Table2-3	Table2-3

		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	N/A	N/A
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	N/A	N/A
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Page9/line145-151	Results/Para5
Discussion				
Key results	18	Summarise key results with reference to study objectives	Page9/line154-159	Discussion/Para1
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	Page13/line228-238	Discussion/Para12-13
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Page13-14/line241-246	Conclusions/Para1
Generalisability	21	Discuss the generalisability (external validity) of the study results	Page9-13/line160-226	Discussion/Para2-10
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	Page14/line250	Acknowledgement/Para1

Note:

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*As the checklist was provided upon initial submission, the page number/line number reported may be changed due to copyediting and may not be referable in the published version. In this case, the section/paragraph may be used as an alternative reference.