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.	Does not involve any antibodies.	N/A

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	Does not involve any Cell materials.	N/A
Primary cultures: Provide species, strain, sex of origin, genetic modification status.	Does not involve any primary cultures.	N/A

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	No animals involved.	N/A
Animal observed in or captured from the field: Provide species, sex and age where possible	No animals involved.	N/A
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID	No organisms involved.	N/A

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)	No plants nor microbes involved.	N/A
Microbes: provide species and strain, unique accession number if available, and source	No plants nor microbes involved.	N/A

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 16 line 323 - 325	Section: Footnote Paragraph: 4
Provide statement confirming informed consent obtained from study participants.	Page 16 line 324 - 325	Section: Footnote Paragraph: 4
Report on age and sex for all study participants.	Page 7 line 125 - 127	Section: Methods Paragraph: 1

Design

Study protocol	Yes (indicate where provided: section/paragraph)	n/a
For clinical trials, provide the trial registration number **OR** cite DOI in manuscript.	No clinical trails involved.	N/A

Laboratory protocol	Yes (indicate where provided: section/paragraph)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.	This was a clinical study.	N/A

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	Page6-7 Line114-127	Section: Methods Paragraph 1
Randomisation	This was a cross-sectional study. Participants who volunteered to participate in the study were included	N/A
Blinding	This was a cross-sectional study.	N/A
Inclusion/exclusion criteria	Page 6 line118-124	Section: Methods Paragraph 1

Sample definition and in-laboratory replication	Yes (indicate where provided: section/paragraph)	n/a
State number of times the experiment was replicated in laboratory	The biochemical assays were performed in the Clinical Laboratory of Peking union medical college	N/A
Define whether data describe technical or biological replicates	The biochemical assays were performed in the Clinical Laboratory of Peking union medical college	N/A

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 16 line 320 - 325	Section: Footnote, Paragraph: 4
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	No animals involved.	N/A
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	Page 16 line 323- 325	Section: Footnote, Paragraph: 4

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	No dual use involved.	N/A

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.	Page 6-7 line 114-127	Section: Methods Paragraph 1

Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	Page 8-9 line151-169	Section: Methods Paragraph 7-8

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.	Page 16 line 316-317	Section: Footnote Paragraph:2
If data are publicly available, provide accession number in repository or DOI or URL.	The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.	N/A
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	Does not involve publicly available data.	N/A

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:	This study did not involve the newly generated code and software.	N/A
State whether the code or software is available.	This study did not involve the newly generated code and software.	N/A
If code is publicly available, provide accession number in repository, or DOI or URL.	This study did not involve the newly generated code and software.	N/A

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.	Page 16 line 315.	Section: Footnote/ Paragraph: 1
State if relevant guidelines (eg., ICMJE, MIBBI, ARRIVE) have been followed, and whether a checklist (eg., CONSORT, PRISMA, ARRIVE) is provided with the manuscript.	ICMJE guidelines were followed, as the journal follows ICMJE recommendations for publication.	

Article information: http://dx.doi.org/10.21037/atm-20-6119

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

	Item No.	Recommendation	Page /Line No.	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	Page2/Line31-32	Abstract/ Paragraph1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Page2-3/Line33-49	Abstract/ Paragraph 2-4
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Page4-6/Line62-111	Introduction/ Paragraph 1-3
Objectives	3	State specific objectives, including any prespecified hypotheses	Page6/Line107-111	Introduction/ Paragraph3
Methods				
Study design	4	Present key elements of study design early in the paper	Page6/Line114-115	Method/ Paragraph 1
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Page6-7/Line114-127	Method/ Paragraph 1
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	Page6-7/Line120-127	Method/ Paragraph 1
		(*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	Not a match study.
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Page7-8/Line132-149	Method/ Paragraph 3-6
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	Page7-9/Line133-167	Method/ Paragraph 3-7
Bias	9	Describe any efforts to address potential sources of bias	Page6-7/Line 114-127	Method/ Paragraph 1
Study size	10	Explain how the study size was arrived at	Page6-7/Line114-127	Method/ Paragraph 1

Continued on next page

Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Page8/Line151-156	Method/ Paragraph 7
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Page8-9/Line151-169	Method/ Paragraph 7-8
		(*b*) Describe any methods used to examine subgroups and interactions	Page8-9/Line154-167	Method/ Paragraph 7
		(*c*) Explain how missing data were addressed	Page9/Line165-167	Method/ Paragraph 7
		(*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	Page6-7/Line114-127	Method/ Paragraph 1
		(*e*) Describe any sensitivity analyses	N/A	There was no
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	N/A	This was a cross-sectional study
		(b) Give reasons for non-participation at each stage	N/A	This was a cross-sectional study
		(c) Consider use of a flow diagram	Page7/Line125-127	Method/ Paragraph 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Page9/Line 172-182	Result/ Paragraph 1-2 (Table 1)
		(b) Indicate number of participants with missing data for each variable of interest	Page6/Line121-124	Method/ Paragraph 1
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	N/A	This was a cross-sectional study
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	N/A	Not Cohort study
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	N/A	Not Case-control study
		Cross-sectional study—Report numbers of outcome events or summary measures	Page9-12/Line171-232	Result/ Paragraph 1-8
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	Page 10-12/Line 196-232	Result/ Paragraph 4-8
		(*b*) Report category boundaries when continuous variables were categorized	Page9/Line173-175	Result/ Paragraph 1

		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	N/A	We did not calculate relative risk.

Continued on next page

Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Page10-12/Line 185-232	Result/ Paragraph 3-8
Discussion				
Key results	18	Summarise key results with reference to study objectives	Page12-13/Line234-247	Discussion/ Paragraph 1
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	Page15/Line294-299	Discussion/ Paragraph 4
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Page13-15/Line248-299	Discussion/ Paragraph 2-4
Generalisability	21	Discuss the generalisability (external validity) of the study results	Page15/Line 296-299	Discussion/ Paragraph 4
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	Page16/Line310-313	Acknowledgements/ Paragraph 1

*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.

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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.