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.		Antibodies aren't involved in the nucleic acid extraction and gene sequencing.

Cell materials	Yes	n/a
Cell lines: Provide species information, strain. Provide accession number in repository **OR** supplier name, catalog number, clone number, **OR** RRID		Cell lines aren't involved in the nucleic acid extraction and gene sequencing.
Primary cultures: Provide species, strain, sex of origin, genetic modification status.		Cell cultures aren't involved in the nucleic acid extraction and gene sequencing.

Experimental animals	Yes (indicate where	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		Animals aren't involved in the nucleic acid extraction and gene sequencing.
Animal observed in or captured from the field: Provide species, sex and age where possible		Animals aren't involved in the nucleic acid extraction and gene sequencing.
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID		Model organisms aren't involved in the nucleic acid extraction and gene sequencing.

Plants and microbes	Yes (indicate where	n/a
Plants: provide species and strain, unique accession number if available, and source (including location for collected wild specimens)		Plants aren't involved in the nucleic acid extraction and gene sequencing.
Microbes: provide species and strain, unique accession number if available, and source		Microbes mentioned in this article were determined by sequencing of barcoded 16S rDNA gene fragments (V4).

Human research participants	Yes (indicate where	n/a
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Methods/Paragraph 1 Page 7/Line 255-256	
Provide statement confirming informed consent obtained from study participants.	Methods/Paragraph 1 Page 7/Line 256	
Report on age and sex for all study participants.	Table 1	

Design

Study protocol	Yes (indicate where	n/a
For clinical trials, provide the trial registration number **OR** cite DOI in manuscript.	Methods/Paragraph 1 Page 7/Line 257	

Laboratory protocol	Yes (indicate where	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.		This is a observatory study.

Experimental study design (statistics details)	Yes (indicate where	n/a
State whether and how the following have been done**, or** if they were not carried out.		
Sample size determination		It wasn't carried out.
Randomisation		It wasn't carried out.
Blinding		It wasn't carried out.
Inclusion/exclusion criteria	Methods/Paragraph 2 Page 6-7/Line 263-312	

Sample definition and in-laboratory replication	Yes (indicate where	n/a
State number of times the experiment was replicated in laboratory		The gene sequencing was following the manufacturer's.
Define whether data describe technical or biological replicates	Methods/Paragraph 4 Page 4/Line 135-136	

Ethics	Yes (indicate where	n/a
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Methods/Paragraph 1 Page 8/Line 323-325	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		Animals aren't involved in the nucleic acid extraction and gene sequencing.
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.		The specimens were required in the routine sampling.

Dual Use Research of Concern (DURC)	Yes (indicate where	n/a
If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval		Not involved.

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.	Methods/Paragraph 2 Page 7-8/Line 270-312	

Statistics	Yes (indicate where provided:	n/a
Describe statistical tests used and justify choice of tests.	Methods/Paragraph 5 Page 9/Line 336-341	

Data Availability	Yes (indicate where provided:	n/a
State whether newly created datasets are available, including protocols for access or restriction on access.		Not involved.
If data are publicly available, provide accession number in repository or DOI or URL.		Not involved.
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.		Not involved.

Code Availability	Yes (indicate where provided:	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.		Not involved.
If code is publicly available, provide accession number in repository, or DOI or URL.		Not involved.

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.	Yes, we've uploaded the STROBE reporting checklist. ICMJE guidelines were followed, as the journal follows ICMJE recommendations for publication	

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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	Page 1/Line 4-5	Title/ Paragraph 1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	Page 2-3/Line 64-96	Abstract/Paragraph 1-4
Introduction				
Background/ rationale	2	Explain the scientific background and rationale for the investigation being reported	Page 5-6/Line 116-158	Introduction/Paragraph 1-3
Objectives	3	State specific objectives, including any prespecified hypotheses	Page 6/Line 167-170	Introduction/Paragraph 4
Methods				
Study design	4	Present key elements of study design early in the paper	Page 7/Line 260-262	Methods/Paragraph 2
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Page 7-8/Line 263-313	Methods/Paragraph 2
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	Page 7-8/Line 263-313	Methods/Paragraph 2
		(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	NA	NA
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Page 7/Line 260-263	Methods/Paragraph 2
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	Page 9/Line 336-346	Methods/Paragraph 5
Bias	9	Describe any efforts to address potential sources of bias	NA	NA
Study size	10	Explain how the study size was arrived at	NA	NA
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Page 9/Line 336-339	Methods/Paragraph 5

Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	Page 9/Line 336-341	Methods/Paragraph 5
		(b) Describe any methods used to examine subgroups and interactions	NA	NA
		(c) Explain how missing data were addressed	NA	NA
		(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	NA	NA
		(e) Describe any sensitivity analyses	NA	NA
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	Page 9-10/Line 155-156	Results/Paragraph 1
		(b) Give reasons for non-participation at each stage	NA	NA
		(c) Consider use of a flow diagram	Page 9/Line 156	Results/Paragraph 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Page 9/Line 355	Results/Paragraph 1
		(b) Indicate number of participants with missing data for each variable of interest	NA	NA
		(c) ***Cohort study***—Summarise follow-up time (eg, average and total amount)	NA	NA
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	Page 9/Line 355	Results/Paragraph 1
		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	NA	NA
		(b) Report category boundaries when continuous variables were categorized	NA	NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Page 9/Line 467-481	Results/Paragraph 7
Discussion				
Key results	18	Summarise key results with reference to study objectives	Page 15/Line 627-668	Discussion/Paragraph 3
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	Page 19-20/Line 830-878	Discussion/Paragraph 6

Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Page 14/Line 543-622 Page 17-18/Line 693-779	Discussion/Paragraph 2 Discussion/Paragraph 4
Generalisability	21	Discuss the generalisability (external validity) of the study results	Page 19-20/Line	Discussion/Paragraph 6
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	Page 21/Line 902-904	Funding

*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 copy editing and may not be referable in the published version. In this case, the section/paragraph may be used as an alternative reference.