

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. | No | |
| 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 | No | |
| Primary cultures: Provide species, strain, sex of origin, genetic modification status. | No | |
| 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 | |
| Animal observed in or captured from the field: Provide species, sex and age where possible | No | |
| Model organisms: Provide Accession number in repository (where relevant) OR RRID | No | |
| 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 | |
| Microbes: provide species and strain, unique accession number if available, and source | No | |
| 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. | Yes.SCMCIRB-K2016051 (Methods/paragraph 1) | |
| Provide statement confirming informed consent obtained from study participants. | Methods/paragraph 1 | |
| Report on age and sex for all study participants. | (6-18 years, M:40; Female:22) and 20 patients with rTOF (10-13 years, Male:15; Female:5) during studies performed between June 2017 and April 2021. (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. | 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. | 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. | N/A | |
| Sample size determination | N/A | |
| Randomisation | N/A | |
| Blinding | N/A | |
| Inclusion/exclusion criteria | We acquired the CMR data was of 62 healthy participants (aged 6–18 years; male: 40, female: 22) and 20 patients with rTOF (aged 10–13 years; male: 15, female: 5) using 4D flow and cine sequence in routine chamber view. The VFT was calculated based on comparison of different algorithms from cine measurements (VFTvolume) and 4D flow measurements (VFTblood). Then, VFT measurements were compared to subject peak filling rate (PFR), age, and cardiac mass using simple linear regression and multiple regression analyses. Data were also categorized according to age for VFT and cardiac functional assessment comparisons between 3 age groups (Group 1: 6–9 years; Group 2: 10–13 years; Group 3: 14–18 years). The correlation of VFT and cardiac function parameters were analyzed in the rTOF group. (Methods/paragraph 2) | |
| Sample definition and in-laboratory replication | Yes (indicate where provided: section/paragraph) | n/a |
| State number of times the experiment was replicated in laboratory | N/A | |
| Define whether data describe technical or biological replicates | 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. | The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by research ethics committee board of Shanghai Children's Medical Center (No. SCMCIRB-K2017062). Informed consent was taken from all the patients' guardians. (Methods/paragraph 1) | |
| Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval. | 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. | N/A | |
| 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 | 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. | No | |

| Statistics | Yes (indicate where provided: section/paragraph) | n/a |
|--|---|------------|
| Describe statistical tests used and justify choice of tests. | Statistical analysis was performed using GraphPad Prism version 6.0 (GraphPad Inc., San Diego, CA, USA). Continuous data were reported as mean \pm standard deviation. Categorical data were reported as numbers with percentages. We calculated the correlation between VFT and age, heart rate, PFR, time-averaged velocity, and open distance of mitral orifice. Correlation was evaluated using simple linear regression analysis with Pearson r-values calculated for normally distributed data and Spearman r-values for non-normally distributed continuous variables. Correlations were categorized as follows: 0.95–0.80, strong; 0.80–0.60, good; 0.60–0.40, moderate; and less than 0.40, poor. Multiple regression analyses was performed between VFTvolume and age, heart rate, PFR, cardiac mass, and VFTblood. A generic linear relationship was calculated between VFTvolume and VFTblood. Comparisons among 3 groups were performed using one-way analysis of variance (ANOVA) for normally distributed data and Kruskal-Wallis tests for non-normally distributed continuous variables. Comparison of continuous variables between the rTOF group and volunteer group was performed using an independent-samples t-test for normally distributed data, and Mann-Whitney U test for non-normally distributed data. Statistical significance was indicated by $P < 0.05$. (Methods/paragraph 11) | |

| 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. | No | |
| If data are publicly available, provide accession number in repository or DOI or URL. | NO | |
| If publicly available data are reused, provide accession number in repository or DOI or URL, where possible. | No | |

| Code Availability | N/A | n/a |
|---|------------|------------|
| For all newly generated code and software essential for replicating the main findings of the study: | N/A | |
| State whether the code or software is available. | N/A | |
| If code is publicly available, provide accession number in repository, or DOI or URL. | 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. | | |
| 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: <https://dx.doi.org/10.21037/tp-22-67>