American Psychological Association (APA) Meta-Analysis Reporting Standards (MARS)


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<th>Section and Topic</th>
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| **Title**         | • Make it clear that the report describes a research synthesis and include “meta-analysis,” if applicable  
                   • Footnote funding source(s) |
| **Abstract**      | • The problem of relation(s) under investigation  
                   • Study eligibility criteria  
                   • Type(s) of participants included in primary studies  
                   • Meta-analysis methods (indicating whether a fixed-effects or random-effects model was used)  
                   • Main results (including the more important effect sizes and any important moderators of these effect sizes)  
                   • Conclusion (including limitations)  
                   • Implications for theory, policy, and/or practice |
| **Introduction**  | • Clear statement of the question or relation(s) under investigation  
                   o Historical background  
                   o Theoretical, policy, and/or practical issues related to the question or relation(s) of interest  
                   o Rational for the selection and coding of potential moderators and mediators of results  
                   o Types of study designs used in the primary research, their strengths and weaknesses  
                   o Types of predictor and outcome measures used, their psychometric characteristics  
                   o Populations to which the question or relation is relevant  
                   o Hypotheses, if any |
| **Methods**       | • Operational characteristics of independent (predictor) and dependent (outcomes) variable(s)  
                   • Eligible participants populations  
                   • Eligible research design features (e.g., random assignment only, minimal sample size)  
                   • Time period in which studies needed to be conducted  
                   • Geographical and/or cultural restrictions |
| **Inclusion and Exclusion Criteria** | • Reference and citation databases searched  
                   • Registries (including prospective registries) searched  
                   o Keywords used to enter databases and registries  
                   o Search software used and version |
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<tbody>
<tr>
<td><strong>Coding Procedures</strong></td>
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|  | ● Time period in which studies needed to be conducted, if applicable  
|  | ● Other efforts to retrieve all available studies, e.g.,  
|  |   ○ Listservs queried  
|  |   ○ Contacts made with authors (and how authors were chosen)  
|  |   ○ Reference lists of reports examined  
|  | ● Method of addressing reports in languages other than English  
|  | ● Process for determining study eligibility  
|  | ● Aspects of reports examined (i.e., title, abstract, and/or full text)  
|  |   ○ Number and qualifications of relevance judges  
|  |   ○ Indication of agreement  
|  |   ○ How disagreements were resolved  
|  | ● Treatment of unpublished studies  |
| **Moderator and Mediator Analyses** |  |
|  | ● Number and qualification of coders (e.g., level of expertise in the area, training)  
|  | ● Intercoder reliability or agreement  
|  | ● Whether each report was coded by more than one coder and, if so, how disagreements were resolved  
|  | ● Assessment of study quality  
|  |   ○ If a study quality scale was employed, a description of criteria and the procedures for application  
|  |   ○ If study design features were coded, what these were  
|  | ● How missing data were handled  |
| **Statistical Methods** |  |
|  | ● Definition of all coding categories used to test moderators or mediators of the relation(s) of interest  |
|  | ● Effect size metric(s)  
|  |   ○ Effect size calculating formulas (e.g., means and SDs, use of univariate F-to-r transformation, etc.)  
|  |   ○ Corrections made to effect sizes (e.g., small sample bias, correction for unequal sample sizes, etc.)  
|  | ● Effect size averaging and/or weighting method(s)  
|  | ● How effect size confidence intervals (or standard errors) were calculated  
|  | ● How effect size credibility intervals were calculated, if used  
|  | ● How studies with more than one effect size were handled  
|  | ● Whether fixed-effects and/or random-effects models were used and the model choice justification  
|  | ● How heterogeneity in effect sizes was assessed or estimated  
|  | ● Means and SDs for measurement artifacts, if construct-level relationships were the focus  
|  | ● Tests and any adjustments for data censoring (e.g., publication bias, selective reporting)  
|  | ● Tests for statistical outliers  
|  | ● Statistical power of the meta-analysis  
<p>|  | ● Statistical program or software packages used to conduct statistical analyses |</p>
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| **Results**      | - Number of citations examined for relevance  
|                  | - List of citations included in the synthesis  
|                  | - Number of citations relevant on many but not all inclusion criteria excluded from the meta-analysis  
|                  | - Number of exclusions for each exclusion criteria (e.g., effect size could not be calculated), with examples  
|                  | - Table giving descriptive information for each included study, including effect size and sample size  
|                  | - Tables and/or graphical summaries  
|                  |   - Overall characteristics of the database (e.g., number of studies with different research designs)  
|                  |   - Overall effect size estimates, including measures of uncertainty (e.g., confidence and/or credibility intervals)  
|                  | - Assessment of bias including possible data censoring |
| **Discussion**   | - Statement of major findings  
|                  | - Consideration of alternative explanations for observed results  
|                  |   - Impact of data censoring  
|                  | - Generalizability of conclusions, e.g.,  
|                  |   - Relevant populations  
|                  |   - Treatment variations  
|                  |   - Dependent (outcome) variables  
|                  |   - Research designs  
|                  | - General limitations (including assessment of the quality of studies included)  
|                  | - Implications and interpretation for theory, policy, or practice  
|                  | - Guidelines for future research |
| **References**   |             |