

GuidelinesForScience.com*

Directors

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A draft working paper version of the paper “Guidelines for Science: Evidence and Checklists” is available from ResearchGate, [here](#).

Criteria for Scientific Research Checklist^a

Paper title:	Reviewer:	Date: / /
<p>The task: Raters should spend no more than 15 minutes skimming the paper in order to be able to assess compliance with the useful science criteria below. As a rater, you must be convinced of the paper’s usefulness by clear descriptions of the research process, findings, and conclusions^b. Check True (T) if the research complies, not applicable (na), or False/Unclear (F/?) if not or if you are unsure. Items for which the na option is marked * are necessary for science. Papers that do not comply are unscientific.</p>		
<p>Assess compliance with lettered items under each criterion, below. Then assess whether criteria 1 through 8 are true based on compliance with the associated items. Do not speculate.</p>		<p>Complies T na F/?</p>
1. Design was objective (unbiased by advocacy for a preferred hypothesis)		
a. All reasonable hypotheses, including the “no change” hypothesis, were represented fairly in the design	<input type="checkbox"/>	<input type="checkbox"/> * <input type="checkbox"/>
2. Findings are useful (can be applied to achieve better outcomes)		
a. Importance of problem explained in the title, abstract, result tables, or conclusions	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. Findings provide improved prediction, decision-making, policy, or methods	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
c. Directional or effect size findings are presented	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
d. Directional or effect size findings are <i>shown</i> to be surprising to practitioners or researchers	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3. Prior scientific knowledge was comprehensively reviewed and summarized		
a. Search procedures for prior useful scientific knowledge were objective and comprehensive	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. Checked with cited authors that summaries of substantive findings and references were correct	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
c. Checked with cited authors that no key studies are overlooked	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4. Disclosure is comprehensive (sufficient for understanding and replication)		
a. Prior hypotheses clearly described (e.g. directions and magnitudes of relationships; effects of conditions)	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. Revisions to hypotheses and conditions are described	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
c. Methods are fully described and easy to understand	<input type="checkbox"/>	<input type="checkbox"/> * <input type="checkbox"/>
d. Data are easily accessible using information provided in the paper	<input type="checkbox"/>	<input type="checkbox"/> * <input type="checkbox"/>
e. Other information needed for understanding (e.g. acknowledgements, shortcomings, potential biases) provided	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5. Data are valid (true measures) and reliable (repeatable measures)		
a. Data were shown to be relevant to the problem	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. All relevant data (multiple measures) were used to help ensure validity and compensate for biases	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
c. Longest available time-series used when analyzing time series data	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
d. Reliability of data was assessed	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6. Methods were valid (proven fit for purpose) and simple		
a. Methods were shown to be valid for the problem, unless obvious to intended readers, users, and reviewers	<input type="checkbox"/>	<input type="checkbox"/> * <input type="checkbox"/>
b. Multiple validated methods were used	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
c. Methods used cumulative scientific knowledge explicitly	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
d. Methods were sufficiently simple for all potential users of the findings to understand	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
7. Experimental evidence was used to compare all reasonable alternative hypotheses		
a. All reasonable hypotheses were compared using experimental evidence under explicit conditions	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. Predictive validity of hypotheses on effect sizes were tested using out-of-sample data	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8. Conclusions are based on evidence		
a. Conclusions do not go beyond the evidence presented in the paper	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. Conclusions contribute to cumulative scientific knowledge	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Complied with necessary items and [__] out of 8 criteria

^aAn electronic version of this checklist is available at GuidelinesforScience.com.

^bResearchers should consult [Armstrong & Green’s “Guidelines for Science”](#) and rate their paper against this checklist before submitting.