


Article critics

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Outline

- (1) Why should we bother about the quality of published papers?
- (2) Citation and publication bias
- (3) Experimental bias
- (4) Author bias – papers claiming different results
- (5) The peer review process
- (6) Final exam and grading of the master thesis
- (7) Review of published papers



(1) Why should we bother about the quality of published papers which have been through a peer review process?


- Important for the development of science
- Results used as arguments in public debate
- Results used for political decisions (e.g. acceptance of drugs, wildlife management)
- Learn how to write your own master thesis!

(2) Citation and publication bias

- **Citation bias**
"Cite high ranking journals to show that your own study is important"
- **Publication bias**
First, significant results are published, then the non-significant

Examples

- Paternity in warblers
- Fluctuating asymmetry




Willow warbler – løvsanger

Fluctuating asymmetry

Examples

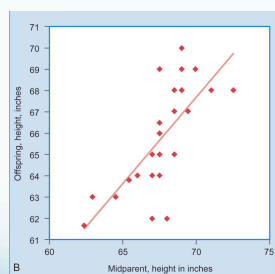
- Birds (swallows, blackbirds, pied flycatcher)



- Humans (faces, breasts, orgasm)

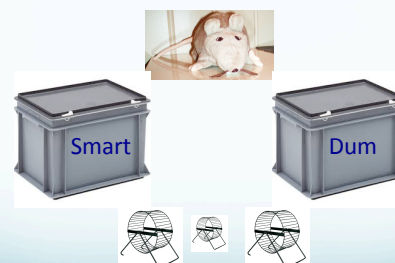
- **Statistical significance**
E.g. $r = 0.10, n = 3000 (p < 0.05)$
- **Biological significance**
E.g. $r^2 * 100 = \text{coefficient of determination}$
 $= 0.10^2 * 100 = 1\%$

Offspring height vs. midparent height



$r = 0.80$
 $r^2 = 0.64$
 64% explained by
 mid parent height

(3) Experimental bias



(4) Author bias – papers claiming different results

- Bluebirds and feminism
Are males needed for raising chicks?
- Bigamy in the pied flycatcher
Are males deceiving females?

(5) The peer review process (fagfellelvurdering)

The Editor

The Associate Editor (= AE)

Reviewer 1 Reviewer 2 Reviewer 3

- A high number of manuscripts are rejected
 E.g. Nature: 80-90% rejected without review by the Editor
 50-60% of the remaining rejected after peer review.
- Blind/Double blind: authors do not know who have been reviewers; reviewers do not know who are the authors
- Influence of gender, name of authors, institution, country

Example of reviewer form

Please consider

- the scientific novelty and soundness of the study
 (are the results of sufficiently general importance?)
- the relevance of the title
- introduction and discussion (do the author(s) explore alternative explanations in sufficient detail?)
- Please also evaluate the adequacy of the methods applied, especially the relevance of the statistical procedures used (are the sample sizes adequate?)

- (1) Excellent. Contributes to the opening of new and significant areas of research
 - (2) High quality research that makes a conceptual advance in an established field
 - (3) Good. Adds significantly to the established knowledge within the field (potentially publishable in the journal)
 - (4) Could potentially reach standard 1, 2 or 3 (please indicate which) after revision
 - (5) Sound but not novel work that does not make any significant empirical or conceptual advance to already existing knowledge (not publishable in the journal – please explain why).
 - (6) Publishable, but in another journal (feel free to give recommendations)
 - (7) Not publishable (please explain why)
- The manuscript needs: minor moderate major revision

(6) Final exam and grading of the master thesis

- (1) Supervisor(s) send a written, confidential statement to the assessors
- (2) Meeting between supervisor(s), internal and external assessor
- (3) Presentation of the thesis by the candidate (open ...)
- (4) Discussion of the thesis by the committee with the candidate
- (5) Final grading (supervisor(s) leaves the room)
- (6) The candidate is called upon, and the external assessor gives info of the grade and explains why

Confidential statement by the supervisor

- WORK
- THEORETICAL INSIGHT AND OWN CONTRIBUTION
- LEVEL OF SKILL
- WORK METHODS
- EFFORT
- DEGREE OF INDEPENDENCE
- PROGRESSION
- SUITABLE FOR PHD

(7) Review of published papers

Tonje H Stea and Monica K Torstveit
BMC Public Health 2014

Association of lifestyle habits and academic achievement in Norwegian adolescents: a cross-sectional study

Critics -1

Introduction

- Lack of theoretical framework, hypotheses, predictions. Why should meal patterns be of significant value?
- Are humans adapted to starvation?
- If eating breakfast is so important, why are not all people hungry in the morning?

Critics -2

Methods

- Students were self-reporting. Can we trust them?
- Consistency was tested by re-testing. But students may remember their first answers and be lying twice
- Project leaders told in detail how to fill in the forms. Can the students have biased their answering to support the ideas of the researchers?
- No info on time of year of study, nor of time interval for re-testing

Critics -3

- A number of confounding variables were not accounted for:
 - Depression
 - Hours of sleep
 - Playing games at night

Critics -4

Variables used may not have reflected what was the intention

Level of education by parents may not be a reliable measure of assistance with school work

How much help did the student actually get?

Critics -5

Statistics

- The authors grouped the data instead of using the actual values obtained. This will
 - reduce information (power)
 - introduce a bias in where to put the boundary between groups

Examples

- (1) Physical activity: no (≤ 4 hrs per week) or yes (> 4 hours)
- (2) Smoking: no/yes (yes included any case of occasional smoking)

Critics -6

Discussion

- The effect of confound factors should have been discussed in more detail

Example. If a student plays games until late at night, she or he will have less time for homework and do poorly in school. The student will also be tired in the morning and skip breakfast

- No consideration of whether humans are adapted to starvation

Should we expect any effects of meal patterns as long as we daily obtain enough energy and nutrients from the food eaten?
