INPLASY PROTOCOL

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Support: No.

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Conflicts of interest: No.

The Prevalence of Research Misconduct and Questionable Research Practices: A Systematic Review and Meta-Analysis

Xie, Y[1]; Kong, Y[2]; Wang, K[3].

Review question / Objective: Estimating the prevalence of research misconduct and questionable research practices (QRPs) can provide a better understanding of research integrity. This meta-analysis is performed to calculate the prevalence of research misconduct, QRPs and to examine the factors associated with the prevalence of these issues.
Condition being studied: Previous meta-analyses have failed to calculate the frequency of irresponsible research behaviour in all forms. In addition, they included studies that were published almost ten years ago.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 July 2020 and was last updated on 15 July 2020 (registration number INPLASY202070065).

INTRODUCTION

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METHODS

Search strategy: The Boolean strings "research integrity" OR "research misconduct" OR "scientific misconduct"

OR "academic dishonesty" OR "questionable research practices" are used to identify relevant articles.

Participant or population: Scientists and postgraduate students.

Intervention: No.

Comparator: No.

Study designs to be included: Cross study.

Eligibility criteria: For inclusion in the meta-analysis, studies are required to meet the following criteria: (1) Written in English (2) Include quantitative research (3) Report on research misconduct or QRPs (4) Report on the prevalence of research misconduct or QRPs.

Information sources: The following bibliographic databases will be searched: Academic Search Complete, Applied Science & Technology Source, Art & Architecture Source, Arts & Humanities Citation Index (A&HCI), Business Source Complete, Dentistry & Oral Sciences Source, Energy & Power Source, Engineering Source, Environment Complete, ERIC, Food Science Source, GreenFILE, Information Science & Technology Abstracts, IT Source, MathSciNet, MEDLINE, PubMed, Science Citation Index Expanded (SCI-EXPANDED), ScienceDirect, Scopus, Social Sciences Citation Index (SSCI), SPORTDiscus, STM Source and the Teacher Reference Center. Previously meta-analyses will be also reviewed and their references will be hand-researched for potentially relevant studies.

Main outcome(s): The prevalence of research misconduct and QRPs.

Quality assessment / Risk of bias analysis: Publication bias will be examined using a funnel plot where the effect sizes in the studies used were plotted to assess asymmetry. Egger's linear regression method will be also adopted to assess the asymmetry of the funnel plot (Egger et al. 1997). In addition, Begg's adjusted rank method will be used to assess Kendall's

tau for correlation between sample size and effect size (Begg and Mazumdar 1994).

Strategy of data synthesis: The meta-analysis will be performed using the package 'metaphor' in the R environment (Viechtbauer 2010). The effect size of this meta-analysis is the proportion of participants who admitted to or witnessed research misconduct or QRPs. These proportions are logit-transformed into the event rate and the corresponding standard of errors was calculated. Heterogeneity is examined using Q and I2 statistics, and fixed-effect and random-effect models will be adopted according to Q and I2 statistics. Moderators will be examined for rates of admitting to or witnessing research misconduct and QRPs.

Subgroup analysis: Two methodology factors (publication date and questionnaire delivery method) and four demographic factors (response rate of respondents, career level of respondents, discipline and region) will be examined. Meta-regressions for continuous moderators and subgroup analyses for categorical moderators will be conducted (Borenstein et al. 2009).

Sensibility analysis: If necessary, sensitivity analysis using standards will be performed.

Language: English.

Country(ies) involved: All the countries in the world.

Keywords: Research misconduct, Questionable research practices, Research integrity, Meta-analysis.

Contributions of each author:
Author 1 - Yu Xie - Author 1 designed research, collected data, analyzed data and wrote the paper.
Author 2 - Yan Kong - Author 2 designed research and wrote the paper.
Author 3 - Kai Wang - Author 3 designed research and wrote the paper.