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Interventions to improve adherence to reporting guidelines in health research: a scoping review protocol

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Interventions to improve adherence to reporting guidelines in health research: a scoping review protocol

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Abstract

Introduction: There is evidence that the use of some reporting guidelines, such as the Consolidated Standards for Reporting Trials (CONSORT), is associated with improved completeness of reporting. However, the current levels of adherence to reporting guidelines are suboptimal. Over the last few years, several actions aiming to improve compliance with reporting guidelines have been taken and proposed. We will conduct a scoping review of interventions to improve adherence to reporting guidelines that have been evaluated or suggested, in order to inform future interventions.

Methods and analysis: Our review will follow the Joanna Briggs Institute scoping review methods manual. We will search for relevant studies in MEDLINE, EMBASE, and Cochrane Library databases, as well as Google Scholar. The reference lists of included studies and the lists of studies citing them will be added.

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3 One reviewer will screen the full list, which will be randomly split into two halves and
4 independently screened by the other two reviewers. Two reviewers will perform data
5 extraction independently. Discrepancies will be solved through discussion. The
6 interventions found will be classified as assessed or suggested, as well as according to
7 different criteria, in relation to the target population (journal policies, journal editors,
8 authors, reviewers, funders, ethical boards, or others) or the research stage at which
9 they are performed (design, conducting, reporting, or peer review). Descriptive
10 statistical analysis will be performed.
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17
18 **Ethics and dissemination:** All findings will be published in peer-reviewed journals.
19 Results from this scoping review will contribute to a better understanding and a
20 broader perspective on how the problem of adhering better to reporting guidelines
21 has been tackled so far. This could be a major first step towards developing future
22 strategies to improve compliance with reporting guidelines.
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28 **Strengthens and limitations of the study**

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30
31 • Results from this scoping review will contribute to a broader perspective on
32 how the problem of improving compliance with reporting guidelines has been
33 addressed so far.
- 34
35
36 • This scoping review is part of a larger project whose ultimate goal is to explore
37 what strategies to improve adherence to reporting guidelines could be
38 implemented and formally assessed.
- 39
40
41 • A potential limitation could be the small number of eligible articles in the
42 literature.
- 43
44
45 • As this is a scoping review, the quality of the evidence will not be assessed.
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50 **Introduction**

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53 Reporting guidelines have been available since the inception of the CONSORT
54 statement (1996), which provided a minimum set of recommendations for reporting
55 randomized trials. From that time, different reporting guidelines for different study
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3 types and clinical areas have been developed. In general, these guidelines provide
4 advice on how to report research methods and findings (1).
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8 Although the vast majority of reporting guidelines have not yet been assessed as to
9 whether they help improve the reporting of research (2), for some of them, such as
10 CONSORT, it has been shown that they enhance the completeness of reporting (3, 4).
11 Saaman et al. examined the extent of adherence to reporting guidelines in different
12 areas of health research since the creation of the CONSORT Statement (5). Some
13 studies reported acceptable overall reporting quality and concluded that it has
14 improved since the introduction of the CONSORT Statement. However, most of the
15 reviews (43 of 50, 86%) concluded that more improvement is needed, or that the
16 reporting quality was inadequate, poor, medium or suboptimal (5).
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24 Consequently, several actions aiming to improve adherence to reporting guidelines
25 have been taken over the last years. Writing aid tools such as WebCONSORT (6) have
26 been developed and many journals explicitly endorse reporting guidelines (7).
27
28 However, few of these interventions have been assessed and some of them have not
29 been shown to have a benefit (2, 6). Further actions need to be taken to increase the
30 current levels of adherence to reporting guidelines.
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36 **Scoping review objective**

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38 The goal of this scoping review is to identify interventions aiming to improve
39 adherence to reporting guidelines in health research. More specifically, in addition to
40 quantify the effect of those already evaluated, our aim is to gather ideas suggested in
41 the literature as possible interventions that could be implemented in the future. No
42 scoping review on this subject has been performed so far.
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48 **Methods**

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50 Our research objectives will be addressed using established scoping review
51 methodology. Since we aim to provide a wide overview of this field (8), and map the
52 key concepts underpinning this research area and the main sources and types of
53 evidence available, we consider that performing a scoping review is the most suitable
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3 approach to our problem (9). This protocol will follow the methodology manual
4 published by the Joanna Briggs Institute for scoping reviews (10).
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7 **Scoping review questions**

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10 We aim to answer the following questions:

- 11
12 1. What interventions to improve adherence to reporting guidelines in health
13 research have been evaluated?
- 14
15 2. What actions to improve adherence to reporting guidelines have been
16 suggested in the literature?
17
18 3. For each intervention found in the questions 1 and 2 above,
19
20 a) What was the target population of it? We will consider the following
21 possible targets: journal policies, journal editors, authors, reviewers,
22 funders, ethical boards, or others.
23
24 b) What research stages does it affect? We will consider the following possible
25 research stages: design, conducting, reporting, and peer review.
26
27 c) In which health care area was it evaluated or suggested?
28
29 d) What was the rationale behind it?
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31 e) In case that it was evaluated,
32 a. How was it evaluated?
33
34 b. What reporting guidelines does it consider?
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36 c. What was the effect of it on adherence to the reporting guidelines
37 mentioned above?
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43 **Inclusion criteria**

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45
46 We will include:

- 47
48 1. Studies evaluating interventions aiming to improve the adherence to reporting
49 guidelines in health research, irrespective of study design.
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51 2. Commentaries, editorials, letters, and studies containing ideas or suggestions
52 of interventions that can be implemented.
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3 We will consider publications written in English, French, German, Catalan, and Spanish.
4 The reporting guidelines considered will be those shown in the EQUATOR (Enhancing
5 the QUALity and Transparency Of Health Research) Network website (1) as “Reporting
6 Guidelines for main study types” (see Table 1). In addition, we will also include
7 QUOROM (Quality of Reporting of Meta-analysis) for systematic reviews, since it was
8 the precursor of PRISMA.
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13 **Search strategy**

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16 We will search MEDLINE (via PubMed), EMBASE (via Ovid), and Cochrane Library
17 databases, as well as Google Scholar, for relevant articles. The search will be limited to
18 articles published after January 1996, since the CONSORT Statement was the first
19 reporting guideline in biomedical research and it was elaborated in 1996. The search
20 strategy has been developed with the help of a librarian of the Barcelona Tech. Table 2
21 shows the detailed search terms for MEDLINE.
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29 The retrieved studies will be exported into the reference manager Mendeley.
30 Following the removal of duplicates, one reviewer (DB) will first screen the titles and
31 abstracts for eligibility before reading the full texts, while the other two reviewers (EC
32 and JK) will be assigned and will screen one of the two random halves in which the full
33 list will be divided. Second, the reviewers will thoroughly examine the full-text for all
34 potentially eligible articles to confirm whether the study should be included or not.
35 One reviewer (DB) will ensure literature saturation by searching the reference lists of
36 included studies, as well as the lists of articles citing them. Disagreement will be
37 addressed by consensus after discussion, and the third reviewer (EC or JK) will
38 be consulted if no consensus is reached.
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47 **Data extraction**

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50 The selected articles will be exported into an Excel file, where the data extraction will
51 be performed. Two authors (DB and JK) will independently extract data as shown
52 below:
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- 1
- 2
- 3 1. Publication characteristics: title, year of publication, author, design, and field of
- 4 study.
- 5
- 6 2. Characteristics of the intervention:
- 7
- 8 a. Classification as evaluated or suggested.
- 9
- 10 b. Target: journal policies, authors, peer reviewers, journal editors,
- 11 funders, ethical boards, or others.
- 12
- 13 c. Research stage: design, conducting, reporting or peer review.
- 14
- 15 d. Health care area where it was evaluated or suggested.
- 16
- 17 e. Rationale.
- 18
- 19 f. In case that it was evaluated, way of assessment, reporting guidelines
- 20 considered, and effect of the intervention on adherence to those
- 21 reporting guidelines.
- 22
- 23
- 24 3. Overall conclusions by the authors.
- 25
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27 If further information is needed, we will contact the authors of the included studies.

28 Any disagreement will be solved by discussion.

30 **Synthesis and reporting of results**

31

32 The interventions found will be first divided in two groups: the ones that have already

33 been evaluated and the ones that have not. For each group, the interventions will be

34 classified according to their target population, as well as to the research stage at which

35 they are performed or suggested. The general characteristics of included studies will

36 be summarized. In addition, for the group of evaluated interventions, we will describe

37 how the authors assess them, what reporting guidelines they consider, and what their

38 effect on adherence to those reporting guidelines is. Descriptive statistical analysis will

39 be performed.

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49 A checklist for reporting scoping reviews, the “Preferred Reporting Items for

50 Systematic Reviews and Meta-Analysis: extension for Scoping Reviews (PRISMA-ScR)”,

51 is currently under development (11). If it is available by the time of reporting the

52 results of the scoping review, it will be used.

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Discussion

The aim of this review is to identify and classify interventions to improve adherence to reporting guidelines. We believe that having a wide picture of how the problem of adhering better to reporting guidelines has been tackled so far, as well as investigating what further actions have been suggested, is critical to facing the problem of improving adherence to reporting guidelines with a broader perspective.

This scoping review is part of a larger project whose ultimate goal is to explore what strategies to improve adherence to reporting guidelines could be implemented and formally assessed. The results of this review could send a message to funders, authors, editors and reviewers about what has already been done to face this critical problem, and about what else could be done from now on. We believe that this review could be a major first step towards developing future strategies to improve adherence to reporting guidelines.

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Authors' contributions: All authors contributed to conceptualizing and designing the study. DB and EC drafted the manuscript. IB, DM, DGA, and JK made major revisions. All authors read and approved the final version of the manuscript.

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Competing interests: None declared.

Ethics approval: Not required.

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Table 1

Description of the acronyms and full names of the reporting guidelines shown in the EQUATOR website as “Reporting Guidelines for main study types”.

Acronym	Full name
CONSORT	Consolidated Standards of Reporting Trials
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SRQR	Standards for Reporting Qualitative Research
COREQ	Consolidated criteria for Reporting Qualitative research
STARD	Standard Protocol Items: Recommendations for Interventional Trials
TRIPOD	Transparent Reporting of a multivariable prediction model for Individual Prognosis or Diagnosis
SQUIRE	Standards for Quality Improvement Reporting Excellence
CHEERS	Consolidated Health Economic Evaluation Reporting Standards
SPIRIT	Standard Protocol Items: Recommendations for Interventional Trials
PRISMA-P	Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols
CARE	Case Report
AGREE	Appraisal of Guidelines, Research and Evaluation
ARRIVE	Animal Research: Reporting In Vivo Experiments
RIGHT	Reporting Tool for Practice Guidelines in Health Care

Table 2

Search terms for MEDLINE (from January 1, 1996, to March 31, 2017) via PubMed. These terms are modified for the search in other databases.

Steps	Search terms
S1	impact* [tw]
S2	improv* [tw]
S3	enhanc* [tw]
S4	boost* [tw]
S5	increas* [tw]
S6	influen* [tw]
S7	effect [tw]
S8	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
S9	compliance [tw]
S10	adherence [tw]
S11	completeness [tw]
S12	"quality of reporting" [tw]
S13	"reporting quality" [tw]
S14	S9 OR S10 OR S11 OR S12 OR S13
S15	"Consolidated Standards of Reporting Trials"[tw] OR CONSORT[tw]
S16	"Strengthening the Reporting of Observational Studies in Epidemiology"[tw] OR STROBE[tw]
S17	"Preferred Reporting Items for Systematic reviews and Meta-Analyses"[tw] OR PRISMA[tw]
S18	"Standards for Reporting Qualitative Research"[tw] OR SRQR[tw]
S19	"Consolidated criteria for Reporting Qualitative research"[tw] OR COREQ[tw]
S20	"Standard Protocol Items: Recommendations for Interventional Trials"[tw] OR STARD[tw]
S21	"Transparent Reporting of a multivariable prediction model for Individual Prognosis or Diagnosis"[tw] OR TRIPOD[tw]
S22	"Standards for Quality Improvement Reporting Excellence"[tw] OR SQUIRE[tw]
S23	"Consolidated Health Economic Evaluation Reporting Standards"[tw] OR CHEERS[tw]
S24	"Standard Protocol Items: Recommendations for Interventional Trials"[tw] OR SPIRIT[tw]
S25	"Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols"[tw] OR PRISMA-P[tw]
S26	"Quality of Reporting of Meta-analysis"[tw] OR QUOROM[tw]
S27	"Case Report"[tw] AND CARE[tw]
S28	"Appraisal of Guidelines, Research and Evaluation"[tw] AND AGREE[tw]
S29	"Animal Research: Reporting In Vivo Experiments"[tw] AND ARRIVE[tw]
S30	"Reporting Tool for Practice Guidelines in Health Care"[tw] AND RIGHT[tw]
S31	S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30
S32	S8 AND S14 AND S31
S33	S32 AND "1996/01/01"[PDAT] : "2017/01/31"[PDAT]

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Abstract

Introduction: There is evidence that the use of some reporting guidelines, such as the Consolidated Standards for Reporting Trials (CONSORT), is associated with improved completeness of reporting in health research. However, the current levels of adherence to reporting guidelines are suboptimal. Over the last few years, several actions aiming to improve compliance with reporting guidelines have been taken and proposed. We will conduct a scoping review of interventions to improve adherence to reporting guidelines in health research that have been evaluated or suggested, in order to inform future interventions.

Methods and analysis: Our review will follow the Joanna Briggs Institute scoping review methods manual. We will search for relevant studies in MEDLINE, EMBASE, and Cochrane Library databases. Moreover, we will carry out

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3 25 lateral searches from the reference lists of the included studies, as well as from the
4
5 26 lists of articles citing the included ones. One reviewer will screen the full list, which will
6
7 27 be randomly split into two halves and independently screened by the other two
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9 28 reviewers. Two reviewers will perform data extraction independently. Discrepancies
10
11 29 will be solved through discussion. In addition, this search strategy will be
12
13 30 supplemented by a grey literature search. The interventions found will be classified as
14
15 31 assessed or suggested, as well as according to different criteria, in relation to their
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17 32 target (journal policies, journal editors, authors, reviewers, funders, ethical boards, or
18
19 33 others) or the research stage at which they are performed (design, conducting,
20
21 34 reporting, or peer review). Descriptive statistical analysis will be performed.

22 35 **Ethics and dissemination:** A paper summarizing the findings from this review will be
23
24 36 published in a peer-reviewed journal. This scoping review will contribute to a better
25
26 37 understanding and a broader perspective on how the problem of adhering better to
27
28 38 reporting guidelines has been tackled so far. This could be a major first step towards
29
30 39 developing future strategies to improve compliance with reporting guidelines in health
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32 40 research.

41 **Strengths and limitations of the study**

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37 42
- 43 • Results from this scoping review will contribute to a broader perspective on
44 how the problem of improving compliance with reporting guidelines has
45 been addressed in the published literature thus far.
 - 46 • This scoping review is part of a larger project whose ultimate goal is to
47 explore what strategies to improve adherence to reporting guidelines could
48 be implemented and formally assessed.
 - 49 • A potential limitation could be the small number of eligible articles in the
50 literature.
 - 51 • As this is a scoping review, the quality of the evidence will not be assessed.
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53 Introduction

54 Reporting guidelines have been available since the inception of the CONSORT
55 statement (1996), which provided a minimum set of recommendations for reporting
56 randomized trials. From that time, different reporting guidelines for different study
57 types, data, and clinical areas have been developed. In general, these guidelines
58 provide advice on how to report research methods and findings (1).

59 Although the vast majority of reporting guidelines have not yet been assessed as to
60 whether they help improve the reporting of research (2), for some of them, such as
61 CONSORT, it has been shown that they may enhance the completeness of reporting (3,
62 4).

63 Dozens of systematic reviews have explored the extent of adherence to different
64 reporting guidelines in some areas of health research (5-9). Saaman et al. (10) went
65 one step further and performed a systematic review of systematic reviews assessing
66 adherence to reporting guidelines. As they considered a broad range of clinical areas
67 and study designs since the creation of the CONSORT Statement, their results provided
68 a global picture of compliance with reporting guidelines in health research. The
69 authors determined that, although some studies reported acceptable overall reporting
70 quality and stated that it has improved since the introduction of the CONSORT
71 Statement, most of the reviews (43 of 50, 86%) concluded that more improvement is
72 needed, or that the reporting quality was inadequate, poor, medium or suboptimal.
73 For this reason, the authors outlined some recommendations to enhance adherence to
74 reporting guidelines and encouraged action to develop strategies to improve the
75 current state of completeness of reporting.

76 In recent years, different initiatives aiming to improve adherence to reporting
77 guidelines have been proposed, and some of them have already been evaluated. For
78 example, writing aid tools such as WebCONSORT (11) have been developed and
79 assessed, the influence of statistician involvement on quality of reporting has been
80 evaluated (12), and different studies have investigated the effect of explicitly
81 endorsing reporting guidelines on completeness of reporting (3, 4, 13, 14). While some

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3 82 of these actions have not been shown to have a benefit (11, 12), others report better
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5 83 but still suboptimal levels of reporting (4, 5, 13 14). Therefore, further actions have to
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7 84 be taken to enhance the current levels of compliance with reporting guidelines.
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10 85 As mentioned, several reviews have analyzed the quality of reporting in different
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12 86 clinical areas and for different studies (5-10), but no scoping review investigating what
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14 87 actions have been taken or suggested in order to improve compliance with reporting
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16 88 guidelines has been performed so far. Given the low levels of completeness of
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18 89 reporting in health research observed (10) and the urgent need of taking further
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20 90 actions to mitigate this problem, performing such a scoping review is warranted.

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22 91 The goal of this scoping review is to identify interventions aiming to improve
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24 92 adherence to reporting guidelines in health research. More specifically, in addition to
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26 93 quantify the effect of those already evaluated, our aim is to gather ideas suggested in
27
28 94 the literature as possible interventions that could be implemented in the future.

29 **Methods**

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32 96 Our research objectives will be addressed using established scoping review
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34 97 methodology. Since we aim to provide a wide overview of this field (15), and map the
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36 98 key concepts underpinning this research area and the main sources and types of
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38 99 evidence available, we consider that performing a scoping review is the most suitable
39
40 100 approach (16). This protocol will follow the methodology manual published by the
41
42 101 Joanna Briggs Institute for scoping reviews (17).

43 **Scoping review questions**

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45
46 102 We aim to answer the following questions:
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- 48
49 104 1. What interventions to improve adherence to reporting guidelines in health
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51 105 research have been evaluated?
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53 106 2. What actions to improve adherence to reporting guidelines have been
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55 107 suggested in the literature?
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57 108 3. For each intervention found in the questions 1 and 2 above,
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3 109 a) What was the target? We will consider the following possible targets:
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5 110 journal policies, journal editors, authors, reviewers, funders, ethical boards,
6
7 111 or others.
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9 112 b) What research stages does it affect? We will consider the following possible
10 113 research stages: design, conducting, reporting, and peer review.
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12 114 c) In which health care area was it evaluated or suggested?
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14 115 d) What was the rationale behind it?
15
16 116 e) In cases where it was evaluated,
17 117 a. How was it evaluated?
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19 118 b. What reporting guidelines does it consider?
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21 119 c. What was the effect on adherence to the reporting guidelines
22 120 mentioned above?
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25 121 **Inclusion criteria**

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28 122 We will include:

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31 123 1. Studies evaluating interventions aiming to improve the adherence to reporting
32 124 guidelines in health research, irrespective of study design.
33
34 125 2. Commentaries, editorials, letters, and studies containing ideas or suggestions
35 126 of interventions that can be implemented.
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39 127 The reporting guidelines considered will be those shown in the EQUATOR (Enhancing
40 128 the QUALity and Transparency Of Health Research) Network website (1) as “Reporting
41 129 Guidelines for main study types” (see Table 1). In addition, we will also include
42 130 QUOROM (Quality of Reporting of Meta-analysis) for systematic reviews, since it was
43 131 the precursor of PRISMA.
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48 132 **Exclusion criteria**

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51 133 We will consider the following languages: English, French, German, Catalan, and
52 134 Spanish. Publications not written in any of those languages will be excluded.
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55 135 **Search strategy**

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3 136 We will search MEDLINE (via PubMed), EMBASE, and Cochrane Library databases for
4
5 137 relevant articles. The search will be limited to articles published between 1 January
6
7 138 1996 and 31 March 2017, given that the CONSORT Statement is considered the first
8
9 139 reporting guideline in biomedical research and it was published in 1996. The search
10
11 140 strategy has been developed with the help of a librarian of the Barcelona Tech. Table 2
12
13 141 and Table 3 show the detailed search terms for MEDLINE and EMBASE. The search
14
15 142 terms for Cochrane Library are analogue to those used for EMBASE.

16
17 143 The retrieved studies will be exported into the reference manager Mendeley, which
18
19 144 will be subsequently used to remove the duplicates. One reviewer (DB) will first screen
20
21 145 the titles and abstracts for eligibility before reading the full texts, while the other two
22
23 146 reviewers (EC and JK) will be assigned and will also screen the titles and the abstracts
24
25 147 of one of the two random halves in which the full list will be divided. This process will
26
27 148 be carried out in Mendeley. Second, the reviewers will thoroughly examine the full-
28
29 149 text for all potentially eligible articles to confirm whether the study should be included
30
31 150 or not. One reviewer (DB) will ensure literature saturation by searching the reference
32
33 151 lists of included studies, as well as the lists of articles citing them, according to
34
35 152 PubMed. Disagreement will be addressed by consensus after discussion, and the third
36
37 153 reviewer (EC or JK) will be consulted if no consensus is reached.

38
39 154 In addition, we will perform a grey literature search, including websites of networks
40
41 155 promoting the use of reporting guidelines (i.e. EQUATOR Network), organizations that
42
43 156 offer resources for reviewers (i.e. Publons), work groups of medical journal editors (i.e.
44
45 157 ICMJE), biomedical journal publishers (i.e. BMJ Publishing Group), or funding agencies
46
47 158 (i.e. NIH). In addition, a non-systematic search in Google Scholar will be performed.

48
49 159 The search will start in early May 2017.

50 **Data extraction**

51
52 161 The selected articles will be exported into an Excel file, where the data extraction will
53
54 162 be performed. Two authors (DB and JK) will independently extract data as shown
55
56 163 below:
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3 164 1. Publication characteristics: title, year of publication, author, design, country of
4
5 165 origin, and field of study.
6
7 166 2. Characteristics of the intervention:
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9 167 a. Classification as evaluated or suggested.
10
11 168 b. Target: journal policies, authors, peer reviewers, journal editors,
12
13 169 funders, ethical boards, or others.
14
15 170 c. Research stage: design, conducting, reporting or peer review.
16
17 171 d. Health care area where it was evaluated or suggested.
18
19 172 e. Rationale.
20
21 173 f. In case that it was evaluated, way of assessment, reporting guidelines
22
23 174 considered, and effect of the intervention on adherence to those
24
25 175 reporting guidelines.
26
27 176 3. Overall conclusions by the authors.

27 177 If further information is needed, we will contact the authors of the included studies.
28
29 178 Any disagreement will be solved by discussion.

30 31 179 **Synthesis and reporting of results**

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33
34 180 The interventions found will be first divided in two groups: the ones that have already
35
36 181 been evaluated and the ones that have not. For each group, the interventions will be
37
38 182 classified according to their target population, as well as to the research stage at which
39
40 183 they were performed or suggested. The general characteristics of included studies will
41
42 184 be summarized. In addition, for the group of evaluated interventions, we will describe
43
44 185 how the authors assessed them, what reporting guidelines they considered, and what
45
46 186 their effect on adherence to those reporting guidelines was. Descriptive statistical
47
48 187 analysis will be performed.

49
50 188 A checklist for reporting scoping reviews, the “Preferred Reporting Items for
51
52 189 Systematic Reviews and Meta-Analysis: extension for Scoping Reviews (PRISMA-ScR)”,
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54 190 is currently under development (18). However, according to its developers, it is highly
55
56 191 unlikely that the checklist will be published before we report the results of the review.

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193 Discussion

194 The aim of this review is to identify and classify interventions to improve adherence to
195 reporting guidelines. We believe that having a wide picture of how the problem of
196 adhering better to reporting guidelines has been tackled so far, as well as investigating
197 what further actions have been suggested, is critical to facing the problem of
198 improving adherence to reporting guidelines with a broader perspective.

199 This scoping review is part of a larger project whose ultimate goal is to explore what
200 strategies to improve adherence to reporting guidelines could be implemented and
201 formally assessed. The results of this review could send a message to funders, authors,
202 editors and reviewers about what has already been done to face this critical problem,
203 and about what else could be done from now on. We believe that this review could be
204 a major first step towards developing future strategies to improve adherence to
205 reporting guidelines.

206
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211 **Authors' contributions:** All authors contributed to conceptualizing and designing the study. DB
212 and EC drafted the manuscript. IB, DM, DGA, and JK made major revisions. All authors read
213 and approved the final version of the manuscript.

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218 **Competing interests:** None declared.

219 **Ethics approval:** Not required.

220

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291 **Table 1**

292 Description of the acronyms and full names of the reporting guidelines shown in the
 293 EQUATOR website as “Reporting Guidelines for main study types”.

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Acronym	Full name
CONSORT	Consolidated Standards of Reporting Trials
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SRQR	Standards for Reporting Qualitative Research
COREQ	Consolidated criteria for Reporting Qualitative research
STARD	Standard Protocol Items: Recommendations for Interventional Trials
TRIPOD	Transparent Reporting of a multivariable prediction model for Individual Prognosis or Diagnosis
SQUIRE	Standards for Quality Improvement Reporting Excellence
CHEERS	Consolidated Health Economic Evaluation Reporting Standards
SPIRIT	Standard Protocol Items: Recommendations for Interventional Trials
PRISMA-P	Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols
CARE	Case Report
AGREE	Appraisal of Guidelines, Research and Evaluation
ARRIVE	Animal Research: Reporting In Vivo Experiments
RIGHT	Reporting Tool for Practice Guidelines in Health Care

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304 **Table 2**

305 Search terms for MEDLINE (from January 1, 1996, to March 31, 2017) via PubMed.

Steps	Search terms
S1	impact* [tw]
S2	improv* [tw]
S3	enhanc* [tw]
S4	boost* [tw]
S5	increas* [tw]
S6	influen* [tw]
S7	effect [tw]
S8	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
S9	compliance [tw]
S10	adherence [tw]
S11	completeness [tw]
S12	"quality of reporting" [tw]
S13	"reporting quality" [tw]
S14	S9 OR S10 OR S11 OR S12 OR S13
S15	"Consolidated Standards of Reporting Trials"[tw] OR CONSORT[tw]
S16	"Strengthening the Reporting of Observational Studies in Epidemiology"[tw] OR STROBE[tw]
S17	"Preferred Reporting Items for Systematic reviews and Meta-Analyses"[tw] OR PRISMA[tw]
S18	"Standards for Reporting Qualitative Research"[tw] OR SRQR[tw]
S19	"Consolidated criteria for Reporting Qualitative research"[tw] OR COREQ[tw]
S20	"Standard Protocol Items: Recommendations for Interventional Trials"[tw] OR STARD[tw]
S21	"Transparent Reporting of a multivariable prediction model for Individual Prognosis or Diagnosis"[tw] OR TRIPOD[tw]
S22	"Standards for Quality Improvement Reporting Excellence"[tw] OR SQUIRE[tw]
S23	"Consolidated Health Economic Evaluation Reporting Standards"[tw] OR CHEERS[tw]
S24	"Standard Protocol Items: Recommendations for Interventional Trials"[tw] OR SPIRIT[tw]
S25	"Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols"[tw] OR PRISMA-P[tw]
S26	"Quality of Reporting of Meta-analysis"[tw] OR QUOROM[tw]
S27	"Case Report"[tw] AND CARE[tw]
S28	"Appraisal of Guidelines, Research and Evaluation"[tw] AND AGREE[tw]
S29	"Animal Research: Reporting In Vivo Experiments"[tw] AND ARRIVE[tw]
S30	"Reporting Tool for Practice Guidelines in Health Care"[tw] AND RIGHT[tw]
S31	S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30
S32	S8 AND S14 AND S31
S33	S32 AND "1996/01/01"[PDAT] : "2017/03/31"[PDAT]

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307

308 **Table 3**

309 Search terms for EMBASE (from January 1, 1996, to March 31, 2017).

Steps	Search terms
S1	impact*:ti,ab
S2	improv*:ti,ab
S3	enhanc*:ti,ab
S4	boost*:ti,ab
S5	increas*:ti,ab
S6	influenc*:ti,ab
S7	effect:ti,ab
S8	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
S9	compliance:ti,ab
S10	adherence:ti,ab
S11	completeness:ti,ab
S12	"quality of reporting":ti,ab
S13	"reporting quality":ti,ab
S14	S9 OR S10 OR S11 OR S12 OR S13
S15	"Consolidated Standards of Reporting Trials":ti,ab OR CONSORT:ti,ab
S16	"Strengthening the Reporting of Observational Studies in Epidemiology":ti,ab OR STROBE:ti,ab
S17	"Preferred Reporting Items for Systematic reviews and Meta-Analyses":ti,ab OR PRISMA:ti,ab
S18	"Standards for Reporting Qualitative Research":ti,ab OR SRQR:ti,ab
S19	"Consolidated criteria for Reporting Qualitative research":ti,ab OR COREQ:ti,ab
S20	"Standard Protocol Items: Recommendations for Interventional Trials":ti,ab OR STARD:ti,ab
S21	"Transparent Reporting of a multivariable prediction model for Individual Prognosis or Diagnosis":ti,ab OR TRIPOD:ti,ab
S22	"Standards for Quality Improvement Reporting Excellence":ti,ab OR SQUIRE:ti,ab
S23	"Consolidated Health Economic Evaluation Reporting Standards":ti,ab OR CHEERS:ti,ab
S24	"Standard Protocol Items: Recommendations for Interventional Trials":ti,ab OR SPIRIT:ti,ab
S25	"Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols":ti,ab OR PRISMA-P:ti,ab
S26	"Quality of Reporting of Meta-analysis":ti,ab OR QUOROM:ti,ab
S27	"Case Report":ti,ab AND CARE:ti,ab
S28	"Appraisal of Guidelines, Research and Evaluation":ti,ab AND AGREE:ti,ab
S29	"Animal Research: Reporting In Vivo Experiments":ti,ab AND ARRIVE:ti,ab
S30	"Reporting Tool for Practice Guidelines in Health Care":ti,ab AND RIGHT:ti,ab
S31	S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30
S32	S8 AND S14 AND S31
S33	S32 AND AND [1996-2017]/py NOT[3-31-2017]/sd

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BMJ Open

Interventions to improve adherence to reporting guidelines in health research: a scoping review protocol

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Primary Subject Heading:	Medical publishing and peer review
Secondary Subject Heading:	Evidence based practice
Keywords:	Reporting guidelines, Scoping review, Adherence

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Manuscripts

Interventions to improve adherence to reporting guidelines in health research: a scoping review protocol

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Abstract

Introduction: There is evidence that the use of some reporting guidelines, such as the Consolidated Standards for Reporting Trials (CONSORT), is associated with improved completeness of reporting in health research. However, the current levels of adherence to reporting guidelines are suboptimal. Over the last few years, several actions aiming to improve compliance with reporting guidelines have been taken and proposed. We will conduct a scoping review of interventions to improve adherence to reporting guidelines in health research that have been evaluated or suggested, in order to inform future interventions.

Methods and analysis: Our review will follow the Joanna Briggs Institute scoping review methods manual. We will search for relevant studies in MEDLINE, EMBASE, and Cochrane Library databases. Moreover, we will carry out

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3 25 lateral searches from the reference lists of the included studies, as well as from the
4
5 26 lists of articles citing the included ones. One reviewer will screen the full list, which will
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7 27 be randomly split into two halves and independently screened by the other two
8
9 28 reviewers. Two reviewers will perform data extraction independently. Discrepancies
10
11 29 will be solved through discussion. In addition, this search strategy will be
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13 30 supplemented by a grey literature search. The interventions found will be classified as
14
15 31 assessed or suggested, as well as according to different criteria, in relation to their
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17 32 target (journal policies, journal editors, authors, reviewers, funders, ethical boards, or
18
19 33 others) or the research stage at which they are performed (design, conducting,
20
21 34 reporting, or peer review). Descriptive statistical analysis will be performed.

22 35 **Ethics and dissemination:** A paper summarizing the findings from this review will be
23
24 36 published in a peer-reviewed journal. This scoping review will contribute to a better
25
26 37 understanding and a broader perspective on how the problem of adhering better to
27
28 38 reporting guidelines has been tackled so far. This could be a major first step towards
29
30 39 developing future strategies to improve compliance with reporting guidelines in health
31
32 40 research.

41 **Strengths and limitations of the study**

- 33
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37 42
- 43 • Results from this scoping review will contribute to a broader perspective on
44 how the problem of improving compliance with reporting guidelines has
45 been addressed in the published literature thus far.
 - 46 • This scoping review is part of a larger project whose ultimate goal is to
47 explore what strategies to improve adherence to reporting guidelines could
48 be implemented and formally assessed.
 - 49 • A potential limitation could be the small number of eligible articles in the
50 literature.
 - 51 • As this is a scoping review, the quality of the evidence will not be assessed.
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53 Introduction

54 Reporting guidelines have been available since the inception of the CONSORT
55 statement (1996), which provided a minimum set of recommendations for reporting
56 randomized trials. From that time, different reporting guidelines for different study
57 types, data, and clinical areas have been developed. In general, these guidelines
58 provide advice on how to report research methods and findings (1).

59 Although the vast majority of reporting guidelines have not yet been assessed as to
60 whether they help improve the reporting of research (2), for some of them, such as
61 CONSORT, it has been shown that they may enhance the completeness of reporting (3,
62 4).

63 Dozens of systematic reviews have explored the extent of adherence to different
64 reporting guidelines in some areas of health research (5-9). Saaman et al. (10) went
65 one step further and performed a systematic review of systematic reviews assessing
66 adherence to reporting guidelines. As they considered a broad range of clinical areas
67 and study designs since the creation of the CONSORT Statement, their results provided
68 a global picture of compliance with reporting guidelines in health research. The
69 authors determined that, although some studies reported acceptable overall reporting
70 quality and stated that it has improved since the introduction of the CONSORT
71 Statement, most of the reviews (43 of 50, 86%) concluded that more improvement is
72 needed, or that the reporting quality was inadequate, poor, medium or suboptimal.
73 For this reason, the authors outlined some recommendations to enhance adherence to
74 reporting guidelines and encouraged action to develop strategies to improve the
75 current state of completeness of reporting.

76 In recent years, different initiatives aiming to improve adherence to reporting
77 guidelines have been proposed, and some of them have already been evaluated. For
78 example, writing aid tools such as WebCONSORT (11) have been developed and
79 assessed, the influence of statistician involvement on quality of reporting has been
80 evaluated (12), and different studies have investigated the effect of explicitly
81 endorsing reporting guidelines on completeness of reporting (3, 4, 13, 14). While some

1
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3 82 of these actions have not been shown to have a benefit (11, 12), others report better
4 83 but still suboptimal levels of reporting (4, 5, 13 14). Therefore, further actions have to
5
6 84 be taken to enhance the current levels of compliance with reporting guidelines.
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9 85 As mentioned, several reviews have analyzed the quality of reporting in different
10 86 clinical areas and for different studies (5-10), but no scoping review investigating what
11 87 actions have been taken or suggested in order to improve compliance with reporting
12 88 guidelines has been performed so far. Given the low levels of completeness of
13 89 reporting in health research observed (10) and the need of taking further actions to
14 90 mitigate this problem, we consider that performing such a scoping review is
15 91 warranted.
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22 92 The goal of this scoping review is to identify interventions aiming to improve
23 93 adherence to reporting guidelines in health research. More specifically, in addition to
24 94 quantify the effect of those already evaluated, our aim is to gather ideas suggested in
25 95 the literature as possible interventions that could be implemented in the future.
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31 **Methods**

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34 97 Our research objectives will be addressed using established scoping review
35 98 methodology. Since we aim to provide a wide overview of this field (15), and map the
36 99 key concepts underpinning this research area and the main sources and types of
37 100 evidence available, we consider that performing a scoping review is the most suitable
38 101 approach (16). This protocol will follow the methodology manual published by the
39 102 Joanna Briggs Institute for scoping reviews (17).
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45 **Scoping review questions**

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48 104 We aim to answer the following questions:
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- 51 105 1. What interventions to improve adherence to reporting guidelines in health
52 106 research have been evaluated?
53
54 107 2. What actions to improve adherence to reporting guidelines have been
55 108 suggested in the literature?
56
57 109 3. For each intervention found in the questions 1 and 2 above,
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3 110 a) What was the target? We will consider the following possible targets:
4
5 111 journal policies, journal editors, authors, reviewers, funders, ethical boards,
6
7 112 or others.
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9 113 b) What research stages does it affect? We will consider the following possible
10 114 research stages: design, conducting, reporting, and peer review.
11
12 115 c) In which health care area was it evaluated or suggested?
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14 116 d) What was the rationale behind it?
15
16 117 e) In cases where it was evaluated,
17 118 a. How was it evaluated?
18
19 119 b. What reporting guidelines does it consider?
20
21 120 c. What was the effect on adherence to the reporting guidelines
22 121 mentioned above?
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25 122 **Inclusion criteria**

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28 123 We will include:

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31 124 1. Studies evaluating interventions aiming to improve the adherence to reporting
32 125 guidelines in health research, irrespective of study design.
33
34 126 2. Commentaries, editorials, letters, and studies containing ideas or suggestions
35 127 of interventions that can be implemented.
36
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39 128 The reporting guidelines considered will be those shown in the EQUATOR (Enhancing
40 129 the QUALity and Transparency Of Health Research) Network website (1) as “Reporting
41 130 Guidelines for main study types” (see Table 1). In addition, we will also include
42 131 QUOROM (Quality of Reporting of Meta-analyses) for systematic reviews, since it was
43 132 the precursor of PRISMA.
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48 133 **Exclusion criteria**

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51 134 We will consider the following languages: English, French, German, Catalan, and
52 135 Spanish. Publications not written in any of those languages will be excluded.
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55 136 **Search strategy**

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3 137 We will search MEDLINE (via PubMed), EMBASE, and Cochrane Library databases for
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5 138 relevant articles. The search will be limited to articles published between 1 January
6
7 139 1996 and 31 March 2017, given that the CONSORT Statement is considered the first
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11 141 strategy has been developed with the help of a librarian of the Barcelona Tech. Table 2
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13 142 and Table 3 show the detailed search terms for MEDLINE and EMBASE. The search
14
15 143 terms for Cochrane Library are analogue to those used for EMBASE.

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17 144 The retrieved studies will be exported into the reference manager Mendeley, which
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19 145 will be subsequently used to remove the duplicates. One reviewer (DB) will first screen
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21 146 the titles and abstracts for eligibility before reading the full texts, while the other two
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23 147 reviewers (EC and JK) will be assigned and will also screen the titles and the abstracts
24
25 148 of one of the two random halves in which the full list will be divided. This process will
26
27 149 be carried out in Mendeley. Second, the reviewers will thoroughly examine the full-
28
29 150 text for all potentially eligible articles to confirm whether the study should be included
30
31 151 or not. One reviewer (DB) will ensure literature saturation by searching the reference
32
33 152 lists of included studies, as well as the lists of articles citing them, according to
34
35 153 PubMed. Disagreement will be addressed by consensus after discussion, and the third
36
37 154 reviewer (EC or JK) will be consulted if no consensus is reached.

38
39 155 In addition, we will perform a grey literature search, including websites of networks
40
41 156 promoting the use of reporting guidelines (i.e. EQUATOR Network), organizations that
42
43 157 offer resources for reviewers (i.e. Publons), work groups of medical journal editors (i.e.
44
45 158 ICMJE), biomedical journal publishers (i.e. BMJ Publishing Group), or funding agencies
46
47 159 (i.e. NIH). In addition, a non-systematic search in Google Scholar will be performed.

48
49 160 The starting date of the search is 8 May 2017.

50 161 **Data extraction**

51
52 162 The selected articles will be exported into an Excel file, where the data extraction will
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54 163 be performed. Two authors (DB and JK) will independently extract data as shown
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56 164 below:
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3 165 1. Publication characteristics: title, year of publication, author, design, country of
4
5 166 origin, and field of study.
6
7 167 2. Characteristics of the intervention:
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9 168 a. Classification as evaluated or suggested.
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11 169 b. Target: journal policies, authors, peer reviewers, journal editors,
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13 170 funders, ethical boards, or others.
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15 171 c. Research stage: design, conducting, reporting or peer review.
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17 172 d. Health care area where it was evaluated or suggested.
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19 173 e. Rationale.
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21 174 f. In case that it was evaluated, way of assessment, reporting guidelines
22
23 175 considered, and effect of the intervention on adherence to those
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25 176 reporting guidelines.
26
27 177 3. Overall conclusions by the authors.

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29 178 If further information is needed, we will contact the authors of the included studies.

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31 179 Any disagreement will be solved by discussion.

32 180 **Synthesis and reporting of results**

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34 181 The interventions found will be first divided in two groups: the ones that have already
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36 182 been evaluated and the ones that have not. For each group, the interventions will be
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38 183 classified according to their target population, as well as to the research stage at which
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40 184 they were performed or suggested. The general characteristics of included studies will
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42 185 be summarized. In addition, for the group of evaluated interventions, we will describe
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44 186 how the authors assessed them, what reporting guidelines they considered, and what
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46 187 their effect on adherence to those reporting guidelines was. Descriptive statistical
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48 188 analysis will be performed.

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50 189 A checklist for reporting scoping reviews, the "Preferred Reporting Items for
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52 190 Systematic Reviews and Meta-Analysis: extension for Scoping Reviews (PRISMA-ScR)",
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54 191 is currently under development (18). However, according to its developers, it is highly
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56 192 unlikely that the checklist will be published before we report the results of the review.

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3 194 **Discussion**
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6 195 The aim of this review is to identify and classify interventions to improve adherence to
7 reporting guidelines. We believe that having a wide picture of how the problem of
8 196 reporting guidelines. We believe that having a wide picture of how the problem of
9 adhering better to reporting guidelines has been tackled so far, as well as investigating
10 197 what further actions have been suggested, is critical to facing the problem of
11 198 improving adherence to reporting guidelines with a broader perspective.
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16 200 This scoping review is part of a larger project whose ultimate goal is to explore what
17 201 strategies to improve adherence to reporting guidelines could be implemented and
18 202 formally assessed. The results of this review could send a message to funders, authors,
19 203 editors and reviewers about what has already been done to face this critical problem,
20 204 and about what else could be done from now on. We believe that this review could be
21 205 a major first step towards developing future strategies to improve adherence to
22 206 reporting guidelines.
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44

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292 **Table 1**

293 Description of the acronyms and full names of the reporting guidelines shown in the

294 EQUATOR website as “Reporting Guidelines for main study types”.

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Acronym	Full name
CONSORT	Consolidated Standards of Reporting Trials
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SRQR	Standards for Reporting Qualitative Research
COREQ	Consolidated criteria for Reporting Qualitative research
STARD	Standard Protocol Items: Recommendations for Interventional Trials
TRIPOD	Transparent Reporting of a multivariable prediction model for Individual Prognosis or Diagnosis
SQUIRE	Standards for Quality Improvement Reporting Excellence
CHEERS	Consolidated Health Economic Evaluation Reporting Standards
SPIRIT	Standard Protocol Items: Recommendations for Interventional Trials
PRISMA-P	Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols
CARE	Case Report
AGREE	Appraisal of Guidelines, Research and Evaluation
ARRIVE	Animal Research: Reporting In Vivo Experiments
RIGHT	Reporting Tool for Practice Guidelines in Health Care

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305 **Table 2**

306 Search terms for MEDLINE (from January 1, 1996, to March 31, 2017) via PubMed.

Steps	Search terms
S1	impact* [tw]
S2	improv* [tw]
S3	enhanc* [tw]
S4	boost* [tw]
S5	increas* [tw]
S6	influen* [tw]
S7	effect [tw]
S8	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
S9	compliance [tw]
S10	adherence [tw]
S11	completeness [tw]
S12	quality of reporting [tw]
S13	reporting quality [tw]
S14	S9 OR S10 OR S11 OR S12 OR S13
S15	Consolidated [tw] Standards [tw] Reporting [tw] Trials [tw] OR CONSORT[tw]
S16	Strengthening [tw] Reporting [tw] Observational [tw] Studies [tw] Epidemiology[tw] OR STROBE[tw]
S17	Preferred [tw] Reporting [tw] Items [tw] Systematic [tw] reviews [tw] Meta-Analyses [tw] OR PRISMA[tw]
S18	Standards [tw] Reporting [tw] Qualitative Research[tw] OR SRQR[tw]
S19	Consolidated [tw] Criteria [tw] Reporting [tw] Qualitative [tw] Research[tw] OR COREQ[tw]
S20	Standard [tw] Protocol [tw] Items [tw] Recommendations [tw] Interventional [tw] Trials[tw] OR STARD[tw]
S21	Transparent [tw] Reporting [tw] multivariable [tw] prediction [tw] model [tw] Individual [tw] Prognosis [tw] Diagnosis[tw] OR TRIPOD[tw]
S22	Standards [tw] QQuality [tw] Improvement [tw] Reporting [tw] Excellence[tw] OR SQUIRE[tw]
S23	Consolidated [tw] Health [tw] Economic [tw] Evaluation [tw] Reporting [tw] Standards[tw] OR CHEERS[tw]
S24	Standard [tw] Protocol [tw] Items [tw] Recommendations [tw] Interventional [tw] Trials[tw] OR SPIRIT[tw]
S25	Preferred [tw] Reporting [tw] Items [tw] Systematic [tw] Review [tw] Meta-Analysis [tw] Protocols[tw] OR PRISMA-P[tw]
S26	Quality [tw] Reporting [tw] Meta-analyses[tw] OR QUOROM[tw]
S27	Case [tw] Report [tw] AND CARE[tw]
S28	Appraisal [tw] Guidelines [tw] Research [tw] Evaluation[tw] AND AGREE[tw]
S29	Animal [tw] Research [tw] Reporting [tw] Vivo [tw] Experiments[tw] AND ARRIVE[tw]
S30	Reporting [tw] Tool [tw] Practice [tw] Guidelines [tw] Health [tw] Care[tw] AND RIGHT[tw]
S31	S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30

S32	S8 AND S14 AND S31
S33	S32 AND "1996/01/01"[PDAT] : "2017/03/31"[PDAT]

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309 **Table 3**

310 Search terms for EMBASE (from January 1, 1996, to March 31, 2017).

Steps	Search terms
S1	impact*:ti,ab
S2	improv*:ti,ab
S3	enhanc*:ti,ab
S4	boost*:ti,ab
S5	increas*:ti,ab
S6	influenc*:ti,ab
S7	effect:ti,ab
S8	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
S9	compliance:ti,ab
S10	adherence:ti,ab
S11	completeness:ti,ab
S12	"quality of reporting":ti,ab
S13	"reporting quality":ti,ab
S14	S9 OR S10 OR S11 OR S12 OR S13
S15	"Consolidated Standards of Reporting Trials":ti,ab OR CONSORT:ti,ab
S16	"Strengthening the Reporting of Observational Studies in Epidemiology":ti,ab OR STROBE:ti,ab
S17	"Preferred Reporting Items for Systematic reviews and Meta-Analyses":ti,ab OR PRISMA:ti,ab
S18	"Standards for Reporting Qualitative Research":ti,ab OR SRQR:ti,ab
S19	"Consolidated criteria for Reporting Qualitative research":ti,ab OR COREQ:ti,ab
S20	"Standard Protocol Items: Recommendations for Interventional Trials":ti,ab OR STARD:ti,ab
S21	"Transparent Reporting of a multivariable prediction model for Individual Prognosis or Diagnosis":ti,ab OR TRIPOD:ti,ab
S22	"Standards for Quality Improvement Reporting Excellence":ti,ab OR SQUIRE:ti,ab
S23	"Consolidated Health Economic Evaluation Reporting Standards":ti,ab OR CHEERS:ti,ab
S24	"Standard Protocol Items: Recommendations for Interventional Trials":ti,ab OR SPIRIT:ti,ab
S25	"Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols":ti,ab OR PRISMA-P:ti,ab
S26	"Quality of Reporting of Meta-analysis":ti,ab OR QUOROM:ti,ab
S27	"Case Report":ti,ab AND CARE:ti,ab
S28	"Appraisal of Guidelines, Research and Evaluation":ti,ab AND AGREE:ti,ab
S29	"Animal Research: Reporting In Vivo Experiments":ti,ab AND ARRIVE:ti,ab
S30	"Reporting Tool for Practice Guidelines in Health Care":ti,ab AND RIGHT:ti,ab
S31	S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27

	OR S28 OR S29 OR S30
S32	S8 AND S14 AND S31
S33	S32 AND [1996-2017]/py NOT [31-3-2017]/sd

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