# Integrating a writing aid to facilitate the use of reporting guidelines: A crossover randomized controlled trial

Trial protocol

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Trial registration: To be registered at ClinicalTrials.gov

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## Introduction

Incomplete reporting of research is an important cause of research waste. Poor reporting of research may limit reproducibility and influence readers to make erroneous conclusions based on the limited information provided in the paper [1]. The need to improve the reporting of scientific research in biomedical research has led to the development of reporting guidelines including Consolidated Standards of Reporting Trials “CONSORT” for randomized controlled trials [2] and STrengthening the Reporting of OBservational studies in Epidemiology “STROBE” for three types of observational studies [3].

A research reporting guideline is a tool that details/lists a minimum number of essential items that should be addressed when reporting research manuscripts. It aims to improve reporting quality without restricting research creativity. A guideline is commonly organized as a checklist, explicit text, a flow diagram, or a combination between these three elements that specifies the items to be reported during the write up of the study [4]. The use of reporting guidelines has been enforced by various journals[5].When authors submit papers to the journal, they are required to complete a table with the essential items and indicate where they are described in the paper. The international network Enhancing the QUAlity and Transparency of health Research “EQUATOR” was launched to promote accurate, responsible and transparent reporting of scientific health publications, by centralizing almost all existing reporting guidelines [4]. There are currently 396 reporting guidelines on EQUATOR’s website[6].

Present use of reporting guidelines requires consideration. First, guidelines are mostly used at the final stages of the writing process, i.e. immediately before submission for publication. As a result, reporting guidelines might be considered as an administrative burden rather than assistance for authors during write-up. Moreover, certain items contain more than one aspect to report on and authors might misinterpret its content, thus filling it improperly [7]. Moreover, reporting guidelines have remained a paper-based initiative, isolated from other steps of the writing process such as the collaborative nature of writing of papers electronically or managing bibliographies within manuscripts. The long term success and adherence to the use of reporting guidelines is highly dependent upon how well they are

integrated in day-to-day practices of researchers and the digital ecosystem of software in which authors work[8].

Various initiatives are exploring the idea to improve adherence to the reporting guidelines. Initiatives such as Consort-based WEB tool “COBWEB”[9]. Penelope and StatReviewer are created to increase the use of reporting guidelines by integrating them in Information and Communication Technology “ICT” applications (table 1). Other text editing software for researchers such as Overleaf, F1000 and Paperpile provide useful services for references and collaborative editing but do not integrate tools for reporting guidelines.

Table 1 an overview of existing ICT Tools to enhance research reporting

| Tool | Description of the tool | Focus | Platform | Open Source status | Barriers of use |
|---|---|---|---|---|---|
| **COBWEB** | A CONSORT based online writing aid tool that contains one or several text boxes, with the information to be reported above each box. | Writing a randomized controlled trial with CONSORT | Software that generates a Word document from the collection of boxes to edit and continue working on. | COBWEB is accessible at http://cochrane.fr/cobweb/. | |
| **Penelope** | Provides online services to check critical elements of manuscripts, including a suggestion of relevant reporting guidelines. | A platform that ensures that manuscripts meet journal requirements. | Online software | Penelope is accessible at https://www.penelope.ai | The online submission of research manuscripts (which often contains elements that should not be disclosed prior to publication) seems to be an important barrier for widespread use. |
| **StatReviewer** | The software scans the document looking for information according to | an audit and feedback (to authors and editors) of | An Online software that mimics peer-reviewing process. | StatReviewer is accessible at | |

| | | | | | |
|---|---|---|---|---|---|
| | standard IMRAD (Introduction, Methods, Results and Discussion) heading. It evaluates the appropriate use and reporting of statistical tests and p-values. It then runs many algorithms on each section, comparing them against the relevant reporting guidelines to see if the information has been reported, The result of this scan is a numbered list of 'suggested improvements'. | compliance to a reporting guideline | | https://blogs.biomedcentral.com/bmcblog/2016/05/23/peerless-review-automating-methodological-statistical-review/ | |

Despite these initiatives to improve adherence to reporting guidelines, there is still a need for effective, free, and easy-to-use tools that authors worldwide can use during the writing process[10]. A recently published commentary [7] recommends journals engagement in making sure reporting guidelines are properly used, while this might be beneficial, we argue the need for finding other solutions focused on authors engagement. For instance, making the use of reporting guidelines embedded in the writing procedure.

## Objectives and hypothesis

We have developed a writing aid tool in the form of an Add-in in Microsoft Word. The aim of this study is to test the use, and the intention of future use of the reporting guidelines as a writing aid during the write up of research papers. The writing aid is designed to propose the items of existing reporting guidelines as a base for the writing of a scientific article. Based on this study result, further recommendations may be formulated to study the actual use of the reporting guidelines during the manuscript writing.

The present study will be registered on Ghent University Academic Bibliography (https://biblio.ugent.be). The trial will be reported using the CONSORT recommendations [2]. The study was presented to the ethics committee in Belgium, namely the Ethics Committee of the University Hospital in Ghent for review. No approval was required under the Belgian law. The protocol was written with the

guidance of: Recommendations for Interventional trials (SPIRIT) guidelines[11]. Study number is EC/2018/0479

## Methods

### Study design

An exploratory randomised controlled trial will be carried out to study the intention of using reporting guidelines as electronic tool compared to a common paper-based format. The study will use a crossover design, with 50:50 allocations of participants to the different intervention arms of the study. Participants will be randomly allocated using a computer generator sequence to each arm.

The study will compare the traditional way of administering the following reporting guidelines and their elaboration and explanation documents: PRISMA, CONSORT, STROBE, and STROBE-nut as a MS Word table version (control) with administering it as a writing tool (MS aid on) during the write up of research manuscript (intervention). The procedure to compare the two groups will be similar. The only difference is the sequence of the intervention (Figure 1).

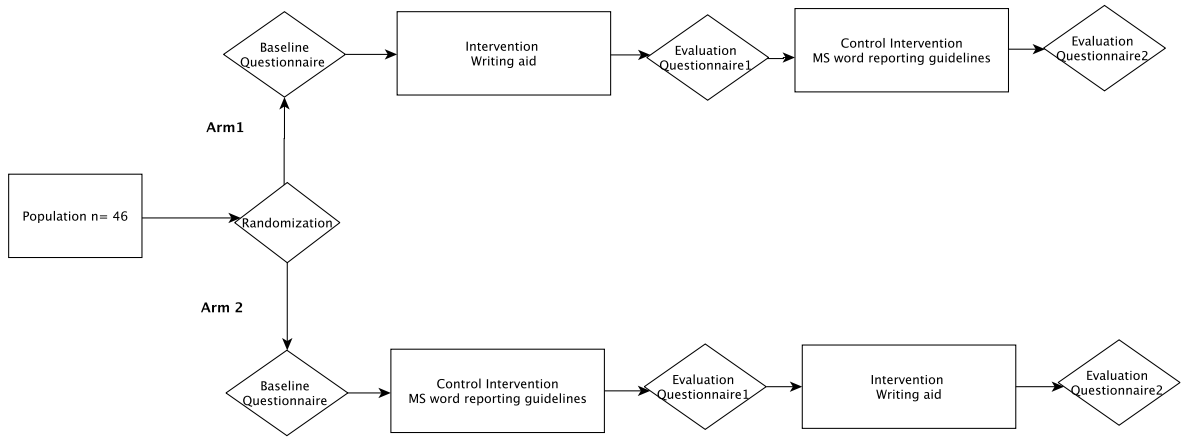


Figure 1. Participant flow chart of crossover randomized controlled trial

### Writing aid Intervention

As a proof of concept, the following checklists are used: Preferred Reporting Items for Systematic Reviews and Meta- Analyses “PRISMA” (systematic reviews), CONSORT (randomised trials), STROBE (observational studies in epidemiology), and STROBE-nut (nutritional epidemiology). Although the study acknowledges that

the flow chart is an integral part of reporting guidelines, emphasis for this proof of concept study is only given to the checklist items with explanations and examples.

The tool is developed as a MS Word Add-in in VisualBA by researchers at the department of food technology, safety and health of Ghent University that are not involved as participants in the trial. The software was developed for Window 7 Professional with Word 2013 and on Windows 10 with Word 2007 but is designed for functions on other versions of MS Office and Windows.

The writing aid has the following functions:

- User ability to select a reporting guideline that applies to the manuscript[1] which adds a checklist reporting table at the end of the manuscript[2];
- The ability to display/hide (via a menu button) mark up and the reporting table;
- Authors can annotate manuscript text (right mouse click) by selecting the relevant item of the checklist in the resulting dropdown menu. When linked to an item of the checklist, a MS Word comment with a short descriptor such as "Strobe nut 1" will be visually displayed in the margin of the document. In addition, the annotated text will be copied in the reporting table at the end of the paper. Changes to the annotated text will be updated in the reporting table.
- The right-click button also has the option of un-tagging text;
- After completing the annotation process, users have the option to fill the remaining items in the reporting table manually and, if necessary, provide additional explanations why certain items were not considered;
- Information box: when considering reporting items, authors will receive the information in the explanation and elaboration document of each checklist inside the information box option [12-15]

The writing aid automatically generates following output:

1. Document with or without mark-up (can be saved as MS Word document or PDF)

[1] A simple dropdown list is used in the current version, it is clear that intelligent queries (e.g. using search functions) are needed to cater for the current number of checklists

[2] this table can be submitted with the paper to a journal or integrated in an electronic workflow

2. A reporting table at the end of the document. This table will include recommended items (column 1), corresponding text that was tagged (column 2) and page numbers for that text (column 3). In column 2, if the author decided not to include certain information, the reason for the omission can be manually entered, and marked in red in the table.

**Study setting and selection of participants**

Participants will be a sample of PhD and Post Doc students who are currently writing a paper in biomedical research. We aim to invite students from different universities. At Ghent University, we will recruit students from three different faculties: Faculty of Bioscience Engineering, Faculty of Medicine and Health Sciences, Faculty of Psychology and Educational Sciences, and Hogeschool Gent. The PhD and Post Doc student lists will be retrieved from each faculty secretary, and each student will be sent a personalised email to invite him/her to participate. Collaboration with colleagues from the MiRoR project and co-authors of the STROBE nut will be sought to recruit more participants, and strategies of recruitment will be tailored.

The study will be administered in the computer labs of each university with the support of collaborating researchers outside Gent University. At Ghent University, the principal investigator (DH) will administer the questionnaires. Similar arrangements will be carried out at other testing places outside Belgium, with collaborators who agree to administer the study at their site. The testing sessions will be organized based on the availability of students and computer labs. On the testing day, students will choose an envelope with a random number (the number is well hidden and students cannot tell what it is before they pick it). Their allocation in the study arms will be determined based on the picked number. The study will be a crossover design and all participants will be exposed to both the writing aid and the traditional MS Word version of the checklists (only the sequence of application differs). The writing aid software will be installed beforehand on the computers in the labs. Technical assistance will be provided at the beginning to make sure the add-on is correctly installed and the software runs properly.

The study has two arms. Each arm will have the same number of randomly allocated students. All participants will be asked to fill in the baseline questionnaire at the beginning of the study. After the baseline questionnaire, all participants will be given

half a page explanatory document (appendix 6) that includes a small description in bullet points of what reporting guidelines are. A manual of use and a 3 minutes video on the functionalities of the tool will be provided with the writing aid. No further clarifications regarding the content of reporting guidelines items will be given in the two arms of the intervention groups. Reporting guidelines are supposed to be self-explanatory and participants will be referred to publicly available manuscripts and websites for more information.

The only thing that will be different between participants is their allocation to the intervention into two different arms. Both arms will receive the writing aid yet the sequence is different; one at the first stage and the other at the second stage of the intervention.

Arm1: Writing aid intervention followed by reporting guidelines as MS Word table.

Participants in arm 1 will first be asked to apply the reporting guidelines as a writing aid on their document by tagging their text and making use of the different elements of the writing aid tool, followed immediately by filling in the assessment of outcomes questionnaire to evaluate their user experience with the tool.

Second, they are asked to apply the reporting guidelines as MS Word table on their document, yet this time they will fill in the table manually by the number of page where the relevant information exist, followed by filling the intervention questionnaire to evaluate their user experience with the traditional way of applying the guidelines.

Arm 2: Reporting guidelines as MS Word table followed by the writing aid intervention.

Participants in arm 2 will have a reversed sequence. They will first be asked to apply the reporting guidelines as MS word table on their document. Second, they are asked to apply the reporting guidelines as writing aid on their document by tagging their text and making use of the different elements of the writing aid tool.

Students will be given the needed time to read the relevant checklist and apply it to their papers. There will be a ten minutes break between the two tasks. Each student can work at his/her own pace.

**Carry over effect**

We hypothesis that tagging the text in the first stage of the intervention will take longer time than in the second stage as students will be familiar with the place of the needed information for each checklist item in the text, which will make tagging in the second stage easier and could be a potential carry over effect. To measure the effect, we added a question to the second evaluation questionnaire asking participants the following question. “Do you think that filling in the items in the checklist in this part of the study is easier because you have already filled it with the same information in the previous stage”?

**Exclusions criteria**

Researchers using a study design that is not covered by the reporting guidelines will not be invited e.g. diagnostic prognostic studies.

**Blinding**

Because of the nature of the study, participants cannot be blinded to the intervention. However, participants will not be informed regarding the sequence of the intervention in the other group and specific nature of the study. The invitation letter and information sheet will only mention the general purpose of the study in this regard.

## Data collection and outcome measures

All factors will be assessed in both groups using online questionnaires (appendix 4 and 5) after termination of each intervention phase. The questionnaires will be entered and administered using Qualtrics software.

## Primary outcome measurements

The primary outcome consists of intention of use of the reporting guideline (writing aid vs. traditional checklist). Intention of use will be tested using a Technology Acceptance Model "TAM" (Figure 2)[16]. Intention of use correlates positively with the actual use [16]. If there is an intention to do something, then it is most likely to be done [16]. A validated questionnaire will be used to test the primary outcome [17]. It will be assessed with 2 questions (stated below); each question has a seven points scale answer format (appendix 4 and 5). The total score for each question will be measured as percentage of responses in each category. And then the total mean score for both questions will be calculated.

- Assuming I have access to the reporting guidelines (the writing aid and info box), I intend to use it
- Given access to the reporting guidelines (the writing aid and info box), I predict that I would use it

Primary hypothesis of the outcome

H0: There is no difference in the intention of using reporting guidelines as writing aid compared to using reporting guidelines as table in all participants of the study. (H0: the mean score of intention of using the writing aid = the mean score of intention of using the reporting guidelines as table).

H1: There is a difference in the intention of using reporting guidelines as writing aid compared to using reporting guidelines as table in all participants of the study. (Ha: the mean score of the intention of using the writing aid $\neq$ the mean score of the intention of using the reporting guidelines as table)

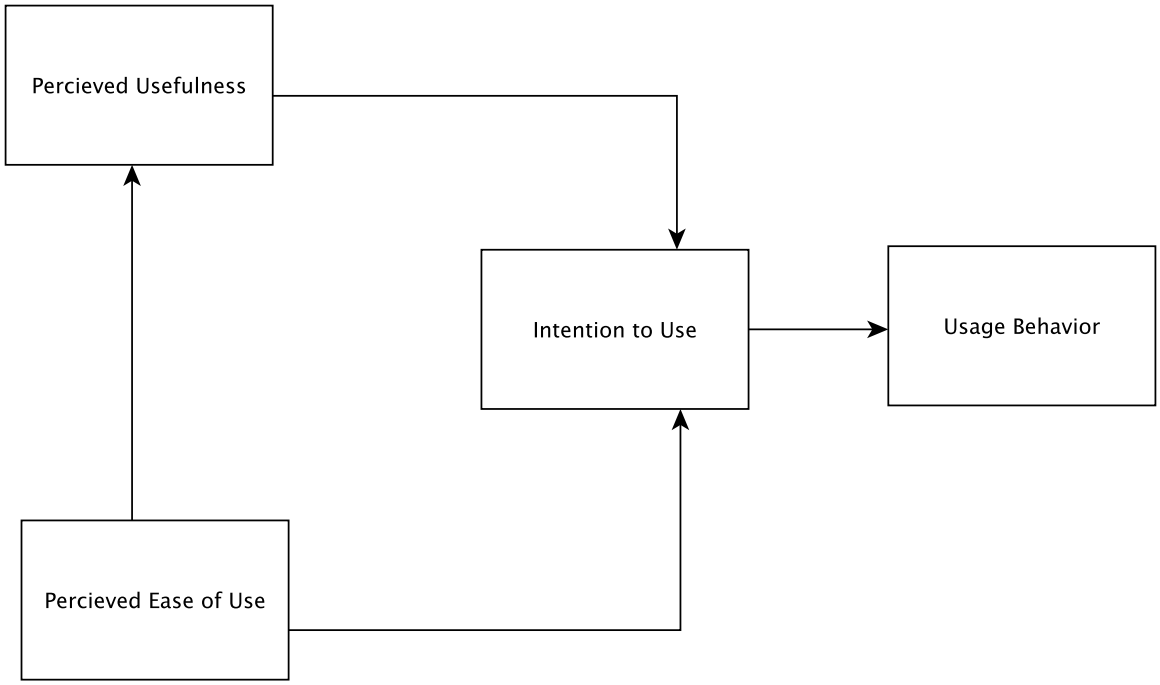


Figure 2. Technology Acceptance Model (TAM)

**Secondary outcome measures**

Perceived usefulness and ease of use will be assessed with 4 questions, each question has a seven point scale answer format adopted from the Technology Acceptance Model [17]. Figure 3.a shows the pathways that will be tested in the Technology Acceptance Model.

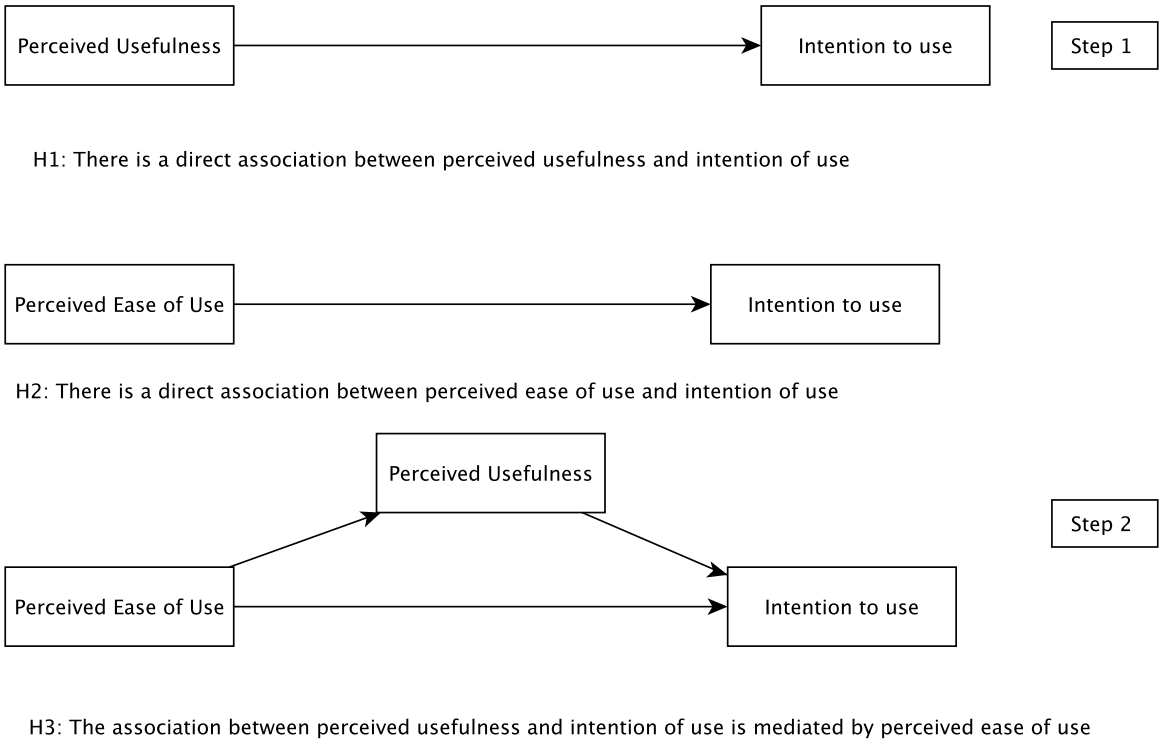


**Figure 3a Structural Equation Modeling with a two level equation modeling. First direct association between perceived usefulness and intention of use, and between perceived ease of use and intention of use. Second, the mediation pathway of perceived ease of use will be tested**

Moreover, in the evaluation questionnaires we have added a few more questions, to add more clarity and give more information on other aspects of reporting guidelines usage. So besides the validated questions from the Technology Acceptance Model we will assess the following.

1- Perceived completeness of reporting: A question with a seven points scale answer format is formulated to assess authors opinion on whether the use of reporting guidelines improve completeness of reporting (appendix 4 and 5)
2- Intention of using the reporting guidelines while writing the next manuscript, and more systematically in the future: two questions with a seven points scale

answer format are formulated to give more insight on author's intention to use the reporting guidelines more systematically (appendix 4 and 5)

3- The need to make any revision to the usage of reporting guidelines: a question with 5 options is formulated to assess author's opinion on the need to make any modification to the use of reporting guidelines. This will be evaluated by the following question
"How do you intend to use the reporting guidelines (the writing aid and info box) on your next manuscript and the options are?" as it is, I will make major revisions, I will make minor revisions, No, Unsure (appendix 4 and 5)

**Other Measurements**

In this study we will focus on the following variables. Objective and subjective knowledge will be tested in the baseline questionnaire (appendix 3), while system accessibility will be measured in the evaluation questionnaires (appendix 4 and 5)

- Objective knowledge will be assessed at baseline using 6 true and false statements
- Subjective knowledge will also be assessed at baseline using two questions to rank the research's knowledge with respect to the utilization and content of the guidelines, each question has a five point answer format
- System accessibility will be assessed at the intervention, and will mainly focus on the writing aid code, and ability to perform the job without errors. It will be assessed with the following (yes or no) question: "Have you encountered technical problems with using the writing aid that stopped you from further use of the tool?"

Other measurements for explorative research including mediators and moderators will be carried out. For example the effects of external variables (system accessibility) as a moderator between ease of use and intention of use will be tested (figure 4)

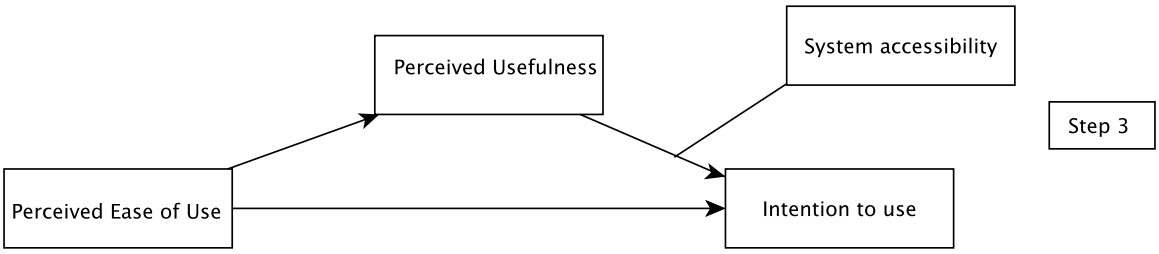


**Figure 3b Structural Equation Modeling: Evaluating if the system accessibility moderates the association between ease of use and the intention of us**

Table 1 Summary of outcomes measures

| | **Arm1 + Arm 2** | **Arm 1**<br>**Sequence (writing aid, table)** | | **Arm 2**<br>**Sequence (table, writing aid)** | |
|---|---|---|---|---|---|
| **Questionnaire** | **Baseline** | **First Evaluation: After writing aid application** | **Second Evaluation: After reporting guideline table application** | **First Evaluation: After reporting guideline table application** | **Second Evaluation: After writing aid application** |
| General information | X | | | | |
| Characteristic of participants including: Objective and Subjective knowledge on reporting guidelines and previous experiences | X | | | | |
| System accessibility | | X | | | X |
| Perceived ease of use of writing aid | | X | | | X |
| Perceived ease of use of reporting guideline table | | | X | X | |
| Perceived usefulness of writing aid | | X | | | X |
| Perceived usefulness of reporting guideline table | | | X | X | |
| Intention of use | | X | X | X | X |
| Which method do you prefer to use? Please state it here | | | X | | X |

## Pilot study

A pilot study of the tool was carried out in February 2017 during nutritional epidemiology lecture as part of the MSc Nutrition and Rural Development at Ghent University. Students worked in groups of 4 and were given a previously publish paper and the tool. The students in each group first identified the relevant sections and items and then annotated the papers using the tool. The purpose was to test the functionality of the software, users acceptability, and the flow between co-authors

while coediting the text while tagging and sharing between the other students in the group. Similar to the trial, no personal data were collected. The questionnaires were also tested with a sample of volunteer PhD students for correct wording and clarity

**Sample size estimate**

The study is an exploratory trial, and no formal sample size calculation is needed. We aim to collect as many responses as possible. Recruitment period will be from May until October 2018. We aim for around 50 students.

**Study timeline**

The study will start as soon as possible at Gent University and follow at other places. Events at the faculty where students normally gather will be foreseen as an opportunity for test days.

**Data analysis plan**

The baseline and evaluation questionnaires were piloted by the primary investigators (DH, CL) to make sure they are clear. The recruitment will be ongoing until we have obtained the needed participants number. Once the sample size is achieved, the baseline and intervention Qualtrics questionnaires will be inactivated and the data will be translated into a STATA file.

Descriptive analyses will be used. For each question, answers will be calculated and summarized, and results will be reported as percentages. Quantitative variables for the whole sample within the baseline and evaluation forms will be reported as medians. Adjustment for study type will be done using an analysis of covariance. Differences in difference will be used to test if there is any significant difference between using the writing aid and the reporting guidelines as MS table between study participants. The results of the intention of use as primary outcome will be compared intra participant and between participants in the two arms calculated as difference in means to evaluate the effect of introducing the reporting guidelines in another format.

The total score for each question for the ease of use and perceived usefulness will be measured as a percentage of responses in each category. And then the total mean score for both factors (perceived usefulness and ease of use will be calculated) will be calculated using factor analysis and structural equation modeling

for the whole model. Structural equation modelling (SEM) will be used to assess the associations in the technology acceptance model. In addition, mediating and moderating analyses will be conducted to provide more insight into intervention effects. Carry over effect will be tested, and the analysis will be adjusted to include the effect if significant.

**Ethics and dissemination**

The ethical committee at Gent University was consulted for ethical clearance. No approval was required under the Belgian law

The trial will be explained in the invitation email sent to participants, and the informed consent will be sent (appendix 1 and 2), upon acceptance further communication between the participant and the principal investigator (DH) is foreseen to fix a date and time for the testing at Gent University. Similar arrangement will be carried out at other testing places outside Belgium, with collaborators. During the intervention day, the informed consent provided, as a compulsory fill in box in the baseline questionnaire to continue the study will be obtained. The Baseline and two intervention questionnaires after each stage will be collected using Qualtrics online questionnaires (Appendices 3, 4,5).

Everyone will receive writing aid in installer at the end of the intervention. The software is open access and source code will be made publicly available under the GNU General Public License version 3 or above. Ethical clearance will be obtained from Ghent University Ethics Committee.

**Discussion**

To the best of our knowledge, this will be the first study that will assess the efficacy of using an innovative offline tool to assess researcher's intention of using reporting guidelines while they write their manuscripts. Results of the trial are expected to provide guidance on efforts to increase completeness of reporting of research and applications that can be integrated in the work flow of researchers worldwide. Measuring completeness of reporting at this stage with the proposed study design would be a normative procedure with little added value, yet we hope that the results of the qualitative analysis will guide is to the next step of measuring completeness of reporting.

## Funding

There is no outside funding for this study. Dana Hawwash receives a scholarship from Schlumberger Foundation, Faculty of the future. Schlumberger Foundation was not involved in the design, implementation or analysis of this study.

## Roles and Responsibilities

Conceptualization: CL DH PK. Developed the tool: HJ. Drafting the protocol Cl DH . Supervision: CL PK.  Wrote the first draft of the manuscript: CL DH. Contributed to the writing of the manuscript: PK. Agree with the protocol and study design : Cl DH PK. All authors have read, and confirm that they meet ICMJE criteria for authorship

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## Appendix 1

Invitation letter

Dear researcher,

My Name is Dana Hawwash, a PhD student at the faculty of Food technology, safety and health, Ghent University. I work on developing tools and guidelines to improve the quality of nutritional epidemiology research. I am inviting you to participate in a trial to assess the use of reporting guidelines during the manuscript writing process. The intervention aims to understand researcher's experience with the reporting guidelines and to produce recommendations that are aligned with researcher's needs.

If you agree to participate, you will be asked to participate during the intervention day in May 4th 2018. The study will take an hour of your time testing two methods of applying reporting guidelines on a manuscript you are currently writing. There will be no follow up (see the attached information sheet for detailed information on the study). We ask you kindly to be let us know when you can be present on the day (we will be at the computer lab the whole day). If the date and time doesn't suit you, we can arrange a personalized testing day. Note that we will not collect the paper that you are working on and only request general information (i.e. working title and type of study). All information collected will also be confidential.

The study was presented to the ethics committee in Belgium, namely the Ethics Committee of the University Hospital in Ghent for review. No approval was required under the Belgian law. Your privacy and anonymity will be guaranteed. Only a researcher assisting in the processing of the data and the principal investigator will have access to names of the participants.

If you are interested in participating, please send me an email at dana.hawwash@ugent.be

Thank you for your time.

Kind regards,

Principal Investigator
Dana Hawwash
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Safety and Health, Faculty of Bioscience Engineering

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Project coordinator
Dr. Carl Lachat
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## 1. PARTICIPANT INFORMATION SHEET

Integrating a Writing Aid to Facilitate the Use of Reporting Guidelines A Cross Over Randomized Controlled Trial

Coordinating Investigator: Prof. Carl Lachat

Principal Investigator: Dana Hawwash

Sponsor of the study:

Participant Number:..

Dear Student,

You are invited to participate in a study that wants to study the usefulness of providing a writing aid during the writing of a scientific manuscript. Before you decide to participate in this study, it is good to read this form as it explains the study clearly and states your rights and our responsibilities.

**PURPOSE AND DESCRIPTION OF THE STUDY**

This research study will provide more evidence and insight on how to improve the reporting quality of manuscripts in biomedical research. We want to compare the effect of testing two different tools on a manuscript you are currently busy writing. One approach is to fill a MS word table and the other approach is the writing aid we have developed. The MS word document is what you normally fill when you need to submit a reporting guideline at endorsing journals. It is expected that the writing aid that we will give to you as part of the study participation will support the completeness of the reporting of scientific papers. It is worth noting that the tool serves no commercial benefits, and it will be published open access.

**HOW THE STUDY IS DONE**

The study is a cross over design meaning you will enjoy testing and giving feedback on both tools with a break in between. In the break, some refreshment will be served.

The study consists of 4 steps:

1- Filling a 3 minutes baseline questionnaire,
2- Testing the first tool on your manuscript and filling a 3 minutes feedback questionnaire on the first tool
3- Break
4- Testing the second tool on your manuscript and giving feedback on the second tool (filling a 4mminutes feedback questionnaire)

**VOLUNTARY PARTICIPATION**

You participate entirely voluntarily in this study. You have the right to refuse to participate in the study without explanation. You also have the right yourself to stop your participation in the study at any time, even after you have signed this informed consent form.

**INCONVENIENCES**

The study will take an hour of your time and will be conducted using the computer facilities

**BENEFITS**

We can arrange a personalized test, at your own faculty, suiting your free time.

You will receive the tools developed for free, and any needed consultation regarding their use (we can arrange a Skype call or a face to face meeting if you are in Gent)

We expect to show that using writing aid can increase the completeness of scientific manuscripts, and thus aim to support researchers by developing user-friendly tool that can be integrated in the research flow.

**PROTECTION OF YOUR PRIVATE LIFE**

Your identity and your participation in this study will be treated strictly confidential. The specific information we obtain from you (email address and title of the study) will not be shared with anybody, except the study investigators. Your identity remains secret since your personal information will only be designated by a unique participant number. Your name will not appear in any reports or publication resulting from this study. After the study is completed, you may request information about the study results.

**ETHICS COMMITTEE**

The study was presented to the ethics committee in Belgium, namely the Ethics Committee of the University Hospital in Ghent for review. No approval was required under the Belgian law

**CONTACT PERSONS IN CASE YOU HAVE QUESTIONS ABOUT THIS STUDY**

If you have any questions concerning your participation in this study, you can always contact dana.hawwash@ugent.be

**Appendix 2**

**Informed consent form**

Before you agree to participate in this study, you need to be aware that:

- The study was presented to the ethics committee in Belgium, namely the Ethics Committee of the University Hospital in Ghent for review. No approval was required under the Belgian law
- This clearance is not to be taken as an obligation to take part in this study.
- Your participation is only voluntary. If you wish, you can withdraw from this study at any point, even after providing consent. You can withdraw by contacting the researchers through email or telephone. You do not have to motivate or explain the decision of withdrawal. Your data will be discarded and not be used in the analysis
- You can revise your answers to the questions before submission if you wish so, once the answers are submitted they cannot be changed.
- Your input will be stored anonymously; researchers not involved in the data collection will not have access to your personal data and name.
- You can contact the researcher or the coordinator of the project at any time if you wish to obtain more information regarding this study.

I declare that I have been informed about the purpose of this study and understand that I can refuse to answer a particular question and withdraw when I like. My name won't be associated in any publication with the collected information. I accept that there is neither remuneration nor direct benefit for me.

My consent will be confirmed by clicking this link to the online questionnaire


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Project coordinator

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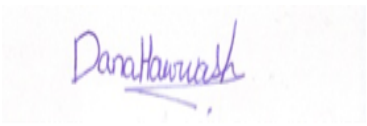

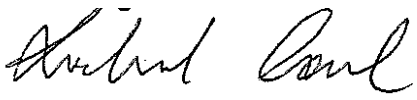

**Appendix 3 Baseline questionnaire**

**Dear researcher**

Thank you for accepting our invitation to participate in our study. Before the start of the trial, please complete this baseline questionnaire. The questionnaire should not take more than 5 minutes of your time.

Informed Consent

- ☐ I declare that I have been informed about the purpose of this study and understand that I can refuse to answer a particular question and withdraw when I like. My name won't be associated in any publication with the collected information. I accept that there is neither remuneration nor direct benefit for me.

**General information**

**Before filling the questionnaire, please provide the following details**

Full name:

Email:

Picked number:

The current working title of the paper ( we understand that title can be modified at a later stage)

Research experience:

-PhD student

-Post Doc

-Professor

- ☐ I confirm that I am in charge of writing the first version of the manuscript

**Q1 What is your affiliation regarding the current unpublished paper (tick one or more if more than one applies)**

- First author (1)
- Co-author (2)
- Senior author (3)
- Principal investigator (4)

**Q2 What is your thesis/ current unpublished paper focused on**

- Systematic review
- Randomized controlled studies
- Observational studies (cross sectional, cohort, case-control)

If systematic review, are you using PRISMA guidelines while writing this study?

If Randomized controlled trial, are you using the CONSORT guidelines while writing this study?

If Observational studies, are you using the STROBE guidelines while writing this study?

**Q3 Have you used a reporting guideline like PRISMA, CONSORT or STROBE before? (Tick all those that apply)**

- Yes, to write or co-write a paper (1), specify which guidelines
- Yes, to review a paper (2), specify which guidelines
- No, it will be my first time to use reporting guidelines (3)

**If answer is yes to the above question, then this question will show up**

In General, how often do you use reporting guidelines?

Never Rarely Sometimes Usually Every time

**Q4 What motivated you to use the guideline?**

- Self motivation or motivation from colleagues or coauthors
- Journal suggestions to use checklists within the writing process
- Journal requirements to fill the checklist at the end
- Journal requirements during peer reviewing

**Subjective knowledge**

**The following questions only apply to PRISMA, CONSORT, STROBE and STROBE nut**

**Q5 A) How do you rank your knowledge with respect to the utilization of the reporting guideline?**

- Very knowledgeable
- Somewhat knowledgeable
- Neither knowledgeable nor unknowledgeable
- Somewhat knowledgeable
- Very unknowledgeable

**Q5 B) how do you rank your knowledge with respect to the content of the reporting guideline?**

- Very knowledgeable
- Somewhat knowledgeable
- Neither knowledgeable nor unknowledgeable
- Somewhat knowledgeable
- Very unknowledgeable

**Objective knowledge**

**The following questions only apply to PRISMA, CONSORT, STROBE and STROBE nut**

**Q6 Answer the following statement with true or false**

- The reporting guidelines should be used to evaluate the quality of papers
- The reporting guideline must be completely filled with existing information in my paper, or my paper will be rejected
- It is not acceptable to report that some items on the checklist are not applicable to my study
- Reporting on items that are not carried out will add more clarity to my paper and will not lead to rejection
- The reporting guidelines aim to make reporting more clear, complete and transparent
- Reporting guidelines were developed to improve communication between the co-authors

**Appendix 4 : Evaluation questionnaire 1 (arm 2 will receive similar questionnaire q1 is not asked ,all other questions are modified)**

**General information**

**Before filling the questionnaire, please provide the following details**

Picked number

Checklist used:

- CONSORT
- PRISMA
- STROBE
- STROBE nut

**Q 1 Have you encountered technical problems with using the writing aid that stopped you from further use of the tool during manuscript writing? Feel free to explain in the blank space**

- Yes----------
- No ----------

**Q2 ) Which sentence describes best how you used the reporting guideline?**

- I tagged only one section
- I tagged a few sections of the paper using the checklist
- I used the checklist to tag the whole paper

**Q3) Which sections of the paper have you tagged? You can check more than one**

- Title and Abstract
- Introduction
- Methods
- Results
- Discussion
- Other information (including funding)

**Q4 Perceived Usefulness**

1. Using the reporting guideline software (as a writing aid and info box) improved the completeness of information in my study

Likely Unlikely

2. Extremely Quite Slightly Neither Slightly Quite Extremely

3. Using the reporting guideline software (as a writing aid and info box) during writing increased my productivity.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

4. Using the reporting guideline software (as a writing aid and info box) enhanced my effectiveness while writing my research paper.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

5. I found the reporting guideline software (as a writing aid and info box) useful in my job.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**Q5 Perceived Ease of Use**

1. I founded it easy to get the reporting guideline software (the writing aid and info box) to guide me in writing the paper's sections..

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

2. My interaction with the reporting guidelines software (the writing aid and info box) was clear and understandable.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

3. I founded the reporting guidelines software (the writing aid and info box) to be flexible to interact with (doesn't require a lot of my mental effort).

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

4. I found the reporting guidelines software (the writing aid and info box) easy to use.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**Q6 Intention of use**

**a) Assuming I have access to the reporting guidelines software** (the writing aid and info box)**, I intend to use it**

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**b) Given access to the reporting guidelines** software (the writing aid and info box)**, I predict that I would use it**

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**c)** Do you intent to **use the reporting guidelines** software (the writing aid and info box) **on your next manuscript:**

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**d) Even if the journal does not formally require it, do you plan on using the reporting guidelines software (the writing aid and info box) more systematically in the future for other publications?**

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**Q7 How you intent to use the reporting guidelines** (the writing aid and info box) **on your next manuscript, please explain in the blank spaces:**

- As, it is
- I will make major revisions
- I will make minor revisions
- No
- Unsure

**Appendix 5 : Evaluation questionnaire 2 (arm 2 will receive similar questionnaire q3 and q4 are modified)**

**General information**

**Before filling the questionnaire, please provide the following details**

Number picked

**Q1 ) Which sentence describes best how you used the reporting guideline?**

- I filled the MS word table document only for one section
- I filled the MS word table for a few sections of the paper
- I filled the entire MS word table for all the sections of the paper

**Q3) Which sections of the paper have you tagged? You can check more than one**

- Title and Abstract
- Introduction
- Methods
- Results
- Discussion
- Other information (including funding)

**Q4 Perceived Usefulness**

1. Using the reporting guideline documents (as a MS word table and elaboration and explanation document) improved the completeness of information in my study

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

2. Using the reporting guideline documents (as a MS word table and elaboration and explanation document) during writing increased my productivity.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

3. Using the reporting guideline documents (as a MS word table and elaboration and explanation document) enhanced my effectiveness while writing my research paper.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

4. I found the reporting guideline documents (as a MS word table and elaboration and explanation document) useful in my job.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**Q5 Perceived Ease of Use**

1. I founded it easy to get the reporting guideline documents (as a MS word table and elaboration and explanation document) to guide me in writing the paper's sections..

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

2. My interaction with the reporting guidelines documents (as a MS word table and elaboration and explanation document) was clear and understandable.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

3. I founded the reporting guidelines documents (as a MS word table and elaboration and explanation document) to be flexible to interact with (doesn't require a lot of my mental effort).

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

4. I found the reporting guidelines documents (as a MS word table and elaboration and explanation document) easy to use.

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**Q6 Intention of use**

**a) Assuming I have access to the reporting guidelines documents** (as a MS word table and elaboration and explanation document)**, I intend to use it**

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**b) Given access to the reporting guidelines documents** (as a MS word table and elaboration and explanation document)**, I predict that I would use it**

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**c) Do you intent to use the reporting guidelines documents** (as a MS word table and elaboration and explanation document) **on your next manuscript:**

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**d) Even if the journal does not formally require it, do you plan on using the reporting guidelines documents (the writing aid and info box) more systematically in the future for other publications?**

Likely Unlikely

Extremely Quite Slightly Neither Slightly Quite Extremely

**Q7 How do you intend to use the reporting guidelines** (as a MS word table and elaboration and explanation document) **on your next manuscript: Feel free to fill in the blank space**

- As, it is
- I will make major revisions
- I will make minor revisions
- I will not use it
- Unsure I will use it
-

Q8) Do you think that filling in the items in the checklist in this part of the study is easier because you have already filled it with the same information in the previous stage? Feel free to explain in the blank space

- Yes _____
- No _____

Q9) State your method of preference to apply the reporting checklist (as a MS word table and elaboration and explanation document)

- The reporting guidelines (as a MS word table and elaboration and explanation document)
- The reporting guidelines (as the writing Aid Software Package)

Q10 Please write your email address here so we can send you the installer zip folder for free

Q11 Would you like to be contacted for further information or findings of this study?

**Appendix 6**

**What are Reporting Guidelines?**

- Authors of scientific articles commonly neglect to include important details about the studies they have done. This information is considered essential for the readers to know and understand what and how things were done. Although authors might have the needed information, not reporting them in the study can lead to their studies being redeemed useless.
- To increase transparency and completeness of research manuscripts, research-reporting guidelines are developed. Research reporting guidelines are tools for authors and reviewers to ensure the presences of certain information that can add clarity on how the research was done, and how the results were obtained.
- Reporting guidelines are mainly organized as a checklist, explicit text, a flow diagram or a combination between these three elements.
- An example of an item on the reporting guideline:
  Title - #1a - Indicate the study's design with a commonly used term in the title or the abstract

- The checklist commonly organizes the items that need to be reported according to the typical sections of a research paper (title and abstract, introduction, methods, results, discussion, other information)
- It is essential to clearly describe how things where done in a study, therefore, if an item that is asked to be reported was not considered; it is important to report that it was not done in the paper
- It is important to note that reporting guidelines and checklists are tools to help researchers and should in no way restrict writing style or interfere with the editorial or review process.