ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

Knowledge, Practice, and Factors Influencing Publication Ethics among Health Researchers and Academicians: Institution-Based, Cross-Sectional Study

By

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APPROVAL SHEET
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Knowledge, Practice, and Factors Influencing Publication Ethics among Health Researchers and Academicians: Institution-Based, Cross-Sectional Study

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Acronyms and Abbreviations

AAU: Addis Ababa University

AHRI: Armauer Hansen Research Institution

AOR: Adjusted Odds Ratio

CHS: College of Health Sciences

CI: Confidence Interval

CoI: Conflict of Interest

COPE: Committee on Publication Ethics

EPHI: Ethiopian Public Health Institute

ICMJE: International Committee of Medical Journal Editors

NIH: National Institution of Health

OR: Odds Ratio

RCR: Responsible Conduct of Research

RMC: Research Misconduct

SPH: School of Public Health

SPSS: Statistical Package for Social Sciences

URMs: Uniform Requirements for Manuscripts

WAME: World Association of Medical Editors

Summary

Background: Publication ethics are rules of conduct for publishing scientific research results. They aim to ensure transparency, integrity, and accountability among writers, publishers, editors, reviewers, and readers. The International Committee of Medical Journals Editors (ICMJE), World Association of Medical Editors (WAME), and the Committee on Publication Ethics (COPE) are organizations working to provide guidelines and recommendations for authors, editors, and reviewers. These organizations aim to promote integrity, openness, and responsibility in publishing research results, ensuring high-quality science and avoiding potential moral dilemmas. However, the extent to which publication ethics standards are known or adhered to is not well known in Ethiopia.

Objective: To assess knowledge, practice, and factors influencing practice of publication ethics among health researchers in three institutions.

Methods: A cross-sectional study was conducted at three institutions to examine knowledge, practice, and factors influencing publication ethics among health researchers and academicians. A total of 588 respondents were obtained from the three institutions, stratified sampling approach was used. The questionnaire was adapted and modified from an international survey and a self-administered questionnaire was given to participants. The data was analyzed using SPSS statistical software version 27.

Results: This study revealed that a significant number of the participants lack knowledge about prior publication ethics, dual submission, self-plagiarism, and image manipulation. Authorship, conflict of interest, and plagiarism were well-understood by most respondents. However, those who engage in dual submission and have a conflict of interest were found to be more likely to violate publication ethics. This study also shows that an increase in experience leads to a 7% decrease in violation of publication ethics practices, while an increase in knowledge leads to an 11% decrease. These findings highlight unethical practices and suggest areas for improvement in publication ethics.

Conclusion: The study reveals varied levels of knowledge and practice regarding publication ethics among health researchers and academicians, with gaps in consistent disclosure and adherence to ethical principles. Targeted interventions, continuous education, mentorship, and strengthening disclosure policies can improve standards.

Keywords: Publication, Ethics, Research, Health Researchers, Academician

1. Introduction

1.1. Background

Publication ethics are rules of conduct generally agreed upon when publishing results of scientific research or other scholarly work (1). A scientific paper is defined as an organized research description of hypothesis, data, and conclusions intended to instruct the readers, and is the cornerstone of the development of modern science (2). Within the scientific community, research is deemed incomplete if it is not published as a scientific paper or adequately documented (3). These scientific articles communicate the researchers' work to others while giving the credit of discovery to the authors (4).

The Committee on Publication Ethics (COPE) defines publication ethics as professional conduct that reflects the current best principles of transparency and integrity (5). It alludes to the moral principles, rules, and regulations established to guarantee the accuracy, reliability, and integrity of scientific research that has been published. The goal of the ethical standards is to encourage integrity, openness, and responsibility among writers, publishers, editors, reviewers, and readers (6).

A peer-reviewed publication is considered a culmination of the scientific process, and it involves various stages, including planning and executing a research project (7). Such publications, however, must adhere to the ethical conduct of doing the study as well as publication (3). In this regard, publishers, scientific societies, organizations,and research institutions have been working on initiatives to codify the expectations associated with publishing research results in the last three decades (4). Good publications are built on the foundation of high-quality science, and producing high-quality science requires adherence to ethical standards. Professionals who are well-versed in publication ethics and best practices may be able to publish truthful results with integrity and more effectively handle any potential moral conundrums down the road (8). Authors are now expected to adhere to this ethical idea (9).

So far, three international organizations have worked to provide recommendations and develop guidelines to assist authors, editors, and reviewers (3). These are the

International Committee of Medical Journals Editors (ICMJE), the World Association of Medical Editors (WAME), and COPE.

ICMJE is a small working group of medical journal editors formed in 1979 tostandardize the ethics, preparation, and formatting of manuscripts submitted to biomedical journals for publication. ICMJE was originally known as the Vancouver Group, because of their first meeting in Vancouver, British Columbia Canada (10). ICMJE was the first to release "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (abbreviated URMs and often shortened to "Uniform Requirements") (11). Currently, more than 5, 500 journals worldwide claim to follow their recommendations (12).

In 1995, WAME was founded by some members of ICMJE as a voluntary nonprofit association (10,13). The main objectives of WAME are to enhance editorial standards, advance professionalism in medical editing, facilitate global collaboration amongst editors of peer-reviewed medical journals, and foster studies on the fundamentals and applications of medical editing (13).

In 1997, the Committee on Publication Ethics (COPE) was established specifically to address breaches of research and publication ethics. COPE is comprised of voluntary individuals to provide a discussion forum and advice for scientific editors, it aims to find practical ways of dealing with the issues and to develop good practices. In 1999, they published the first Guideline on Good Publication Practice (14). This study aims to assess Knowledge and Practice and Factors Influencing Publication Ethics Among Health Researchers and Academicians.

1.2. Statement of the problem

Researchers are usually assumed to have adequate knowledge of publication ethics(15). Previous research has identified considerable variation in knowledge and practice of publication ethics among biomedical researchers (15). The increasing pressure to publish has not been matched by the limited availability of training for researchers about ethical matters that are commonly encountered in the process of scientific publication; which includes honorary authorship, authorship omission, self-plagiarism, plagiarism, image manipulation, prior publication, and conflict of interest (15). Plagiarism and other publication misconduct can have serious consequences, including damaging the reputation of individuals and entire disciplines and skewing research findings. There is a scarcity of research in Ethiopia that assesses the knowledge and practice of publication ethics of local researchers. Considering the importance of researchers' awareness of publication ethics, it is relevant to first assess the current status of knowledge and practice of publication ethics among Ethiopian researchers. This study aims to assess the level of knowledge, practice and factors associated with publication ethics, and provide evidence-based recommendations.

1.3. Significance of the study

This study aims to contribute to the gap in local publications regarding the knowledge and practice of publication ethics among health researchers/academicians in Ethiopia. The level of training and self-perceived competence of researchers in publication ethics has not been extensively studied in the Ethiopian context. By conducting this study, valuable insights can be gained into the current understanding and adherence to publication ethics principles among health researchers and academicians in Ethiopia.

This study can also serve as a baseline for future research studies in this area. It provides a starting point for assessing the effectiveness of any interventions or educational programs aimed at enhancing awareness and compliance with publication ethics standards among researchers.

Furthermore, the outcomes of this study can inform decision makers regarding the need for additional training, or capacity-building initiatives related to publication ethics such as workshops, seminars, webinars or guidelines to be implemented.

2. Literature review

The differences between publication ethics and research ethics are frequently unclear. The two are connected. The research's downstream component is the publication of research findings. Research that violates research ethics guidelines cannot meet publication ethics standards (16). Lately, there has been a growing body of policies and writings that inform scientists about publication ethics and, in many cases, become the basis of normative standards regarding publication (4). A wide range of elements make up publication ethics, including informed consent, statutory and ethical approval, plagiarism, data manipulation, research fraud, simultaneous submission, duplicate publication, self-citation, permission to reproduce published work, authorship ethics, and conflicts of interest (17).

Many studies have highlighted that there is a general lack of awareness and knowledge among academia and researchers on publication ethics (7,18). While COPEcontinues to release good publication practices as new ethical issues evolve, the seven topics emphasized in its educational activities for authors and editors are ***honorary authorship, authorship omission, self-plagiarism, plagiarism, image manipulation, prior publication, and conflict of interest*** (15).

2.1. Knowledge and practice of publication ethics

In an international study that assessed biomedical researchers' awareness of biomedical ethics, a cross-sectional survey tool was designed and distributed to 10, 582 corresponding authors from 101 different countries, and collectively submitted to 20 different journals(Reference?) (15). This study found that there is a large degree of variability in the training and perceived knowledge on the seven topics of publication ethics (honorary authorship, prior publication, author omission, plagiarism, self-plagiarism, image manipulation, and conflicts of interest). The study participant responds to questions according to their perceived knowledge from 'no knowledge', 'some knowledge', and 'substantial knowledge'. About one-third of the participants reported that they had 'no' or 'some knowledge' on the topic, and only 9% reported having 'substantial knowledge' of all topics. 'Substantial knowledge' in the seven topics ranged from 21.3% for author omission to 60.5% for conflicts of interest (15). However, the respondent rate was 38%, which could potentially have affected the outcomes. The authors recommended that ethical standards need to be better articulated and taught to

improve the consistency oftraining across institutions and countries. In a similar study from India that assessed awareness of publication ethics among the medical faculty, only 22.3% of faculties knew COPE (Committee on Publication Ethics) or ICMJE (International Committee of Medical Journal Editors) guidelines with many endorsing practices such as gift authorship (75%), and falsification of data (56%). Among 94 faculties, 82.92% had never undergone any formal teaching in publication ethics even though they had attended research methodology workshops (18).

2.1.1. Authorship

The ICMJE recommends that authorship should be based on the following four criteria (19):

1. "Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
2. Drafting the work or reviewing it critically for important intellectual content; AND
3. Final approval of the version to be published; AND
4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved."

Individuals who do not meet these criteria, but have participated in activities like translation, identifying patients for research, provision or acquisition of funds, applied statistics, and medical writing are not eligible for authorship, however, they should be mentioned in the acknowledgment section (20). Both dismissing someone who fulfills the criteria of authorship and adding someone as an author while they do not fulfill the criteria are unethical authorship practices. Because of the need for authorship, these unethical authorship practices have been reported. These are named as; ghost, and guest/gift/honorary authors. Ghost authors are those who make a substantial contribution to the research or writing of a manuscript but is not listed as an author.On the contrary, guest/gift/honorary authors are those who are named as an author, without contributing in a meaningful way to the design, research, analysis, or writing of a paper (3).

While these unethical authorship practices may be intentional, different studies have reported that authors may not be aware of good publication practices on authorship. For example, in a study that assessed research and publication ethics knowledge and practices in the health and life sciences, only 36.7% of study participants were found to be aware of the ICMJE authorship criteria, and only 22.0% of the respondents wereaware of the existence of an ethics code (9). In another study done on 418 National Institution of Health (NIH) -funded F32 postdoctoral fellowship awardees, only half reported being aware of guidelines on authorship and publication practices and, importantly, using them during manuscript preparation, while the remaining halfeither were unaware of the guidelines or were aware of them but did not refer to them during manuscript preparation. Surprisingly, this degree of unawareness was observed while 98% of the fellows had been an author of a publication in a peer-reviewed journal before. The authors of this study suggested that those published fellows used the guidelines to clarify specific, practical issues such as journal-specific requirementsfor listing authors rather than for more general guidance on authorship roles (4).

Awareness of existing authorship criteria seems to be increasing in the latest studies. In a study on awareness of authorship criteria among American academic plastic surgeons over the 8-year gap, only 16 percent of respondents were aware of any journal authorship criteria in 2003, but this had increased to 59 percent by 2011 (21). In a study among faculty, researchers, and PhD students at Oslo University, Norway, 97% reported knowledge of defined authorship criteria, and 68% regarded breaches ofthese as scientific misconduct. About 36% reported pressure to include undeserved authors in their papers, and 29% reported that they had been denied authorship they believed they deserved. However, they found it much easier to agree with the formal criteria for authorship than to practice according to these principles (22).

2.1.2. Plagiarism

The Committee on Publication Ethics(COPE) defines plagiarism as unreferenced use of others published and unpublished ideas, including research grant applications to submission under “new” authorship of a complete paper, sometimes in a different language (14). It is generally understood to occur when work is produced that is not original, poorly credits sources, does not obtain permission from the original authors, extends other people's work without giving credit, or uses texts, figures, or other unique but non-original materials (23).

There are different forms of plagiarism; (24)

- Plagiarism of ideas: This is the act of taking another person's concept or theorythat has been put forth anywhere, after which the plagiarist conducts their research and presents it as their own.
- Plagiarism of text: This happens when a plagiarist copies and pastes an entire paragraph, word for word, into their article.
- Self-plagiarism: is when a researcher publishes two or more publications usinga substantial portion of their research findings or illustrations.
- Collusion: refers to the act of presenting someone else's writing as one's own, a practice known as plagiarism.
- Patch writing: is the process of copying most of someone else's work and changing a few words to make it appear original
- Minor plagiarism: refers to using images, diagrams, charts, tables, and figures without giving credit to the original authors or providing citations (23)
- Major plagiarism: is where someone ‘copies entire work, extensively paraphrases the work of others, quotes without citing the source, works from other authors without quotation marks, downloads materials from the internet, copies essays from banks, presents designs, concepts, charts, tables, and materials that have already produced as own work (23).

Plagiarism is a worldwide problem. COPE also highly encourages journal editors to screen submitted manuscripts for plagiarism (24). Just a decade ago, Nature Publishing Group reported that 23% of submitted articles were rejected because of

Plagiarism (25). For example, in a wide survey of 100 journals African biomedical journals, only 26 had a policy on plagiarism and 16 had text-matching software (26). The same study assessed randomly selected 495 articles from these journals forplagiarism, and 63% (95% Confidence Interval 58 to 68) showed signs of plagiarism: 17% (83) had four or more linked copied sentences, or more than six copied sentences; 19% (96) had three to six copied sentences, and the remaining participants had one or two pasted sentences (26). Even though this study was limited by the fact that it only included articles from the African Journals Online (AJOL) database, it wasevident that significant plagiarism was present (27).

Similarly, a study done in a Nigeria university reported that 90% of students admitted they have plagiarized at least once in their academic careers, only(17%) were found tobe fully aware of plagiarism, (63%) of students were partially aware, and (20%) were fully oblivious of it (28). Plagiarism is also a significant problem in East Africa, even dubbed as the 'Cancer of East African University Education'(23).

In a study that assessed knowledge, attitude and awareness of publication ethics and plagiarism among medical students in India, 95% were aware of plagiarism and publication ethics but lacked basic knowledge of details like the existence of COPE (29).

There are several reasons for plagiarism. Ignorance, carelessness, lack of scholarly skills, lack and inadequacy of policy on plagiarism and academic honesty, wide availability of computers and the internet, reluctance to punish plagiarism, inadequate English proficiency, and benefits that come from publication are the main reasons outlined by Okoche (23). The creation of comprehensive policies to support academic honesty and integrity, the provision of sufficient education on plagiarism, the assumption of responsibility by academicians and researchers in upholding honesty and integrity, the encouragement of ethical publishing, and the use of anti-plagiarism software like Turnitin are some suggestions for preventing plagiarism in academia (23).

2.1.3. Conflicts of interest

Conflicts of interest comprise personal, commercial, political, academic, or financial interests that may not be fully apparent and which may influence the judgment of the author, reviewers, and editors. Such interests must be declared by authors/reviewers toeditors(14). However, it is not often completely avoidable. Internationally recognized guidelines for the criteria to be followed have been released by ICMJE; these guidelines provide information to be given not only on potential financial conflicts of interest but also on non-financial ones like personal relationships, intellectual passions, or scientific competition (30). According to a report by US Senate investigations at academic medical centers, substantial failure to disclose financial Conflicts of Interest (COI) by researchers has been discovered (31).

New York Times has reported that a medical doctor, a child psychiatrist at Harvard University, received at least $1.6 million in consulting fees from pharmaceuticalcompanies between 2000 and 2007. However, he failed to disclose a significantportion of this revenue to Harvard officials (32). Similarly in an NIH study of five GlaxoSmithKline antidepressants, an Emory University psychiatrist, earned at least $2.8 million in consulting payments from pharmaceutical corporations, including Glaxo Smith Kline, between 2000 and 2007. A third of these fees were not disclosed byhim to Emory (31).

Only 12% of the 61 authors in the study were aware of the "conflict of interest" issue in medical research and publication, and only 19% of medical writers had heard of it recently. Of those, only 15% of the 12% of authors who sent the journals that statement was aware of the issue. Out of the 56 peer reviewers, only 30% acknowledged having a conflict of interest, and 91.5% said they hadn't thought aboutit at all while reading the manuscripts. Nonetheless, 75% of the peer reviewers admitted to having a bias in favor of the topics that their friends or fellow students wrote about. Conflicts of interest are known to only 25% of the editorial board members of Indian medical journals. The author concluded that there is a poor understanding of COI among Indian medical scientists or journals (33). Thus, addressing conflicts of interest positively requires increasing awareness (30).

2.1.4. Prior/Redundant publication

“Redundant publication refers to two or more papers, without full cross reference, thatshare the same hypothesis, data, discussion points, or conclusions” (14). While re-publication of a paper in another language can be acceptable, with full and prominent disclosure of its source at the time of submission, already published studies do not need to be repeated unless further confirmation is required (14). According to COPE redundant publications are classified into major and minor offenses. A duplicate publication based on the same dataset with identical results and/or proof that authors have attempted to conceal redundancy for example, by altering the title or author order or omitting references to earlier papers is considered a major offense. "Salami slicing," is the term for duplicate publications that contain some redundancy, legitimate repetition, or reanalysis and is considered a minor offense (17). In an editorial on redundant publication it is stated that despite increased awareness and universal disapproval, these practices continue to occur (34). Authors must carefully analyze thelong- and short-term consequences of their publication strategy. Although redundant publication may seem advantageous at first, it can damage a reputation over time (35). COPE offers explicit guidelines on how to handle these publications in addition to rejecting and revoking submitted or published papers (17).

2.2. Factors influencing knowledge and practice of publication ethics

Several factors influence knowledge and practices of publication ethics, such as prior training on publication ethics, research experience, need for publication, pressure from funders, need for recognition, academic promotion, and unclear understanding of breach of publication ethics.

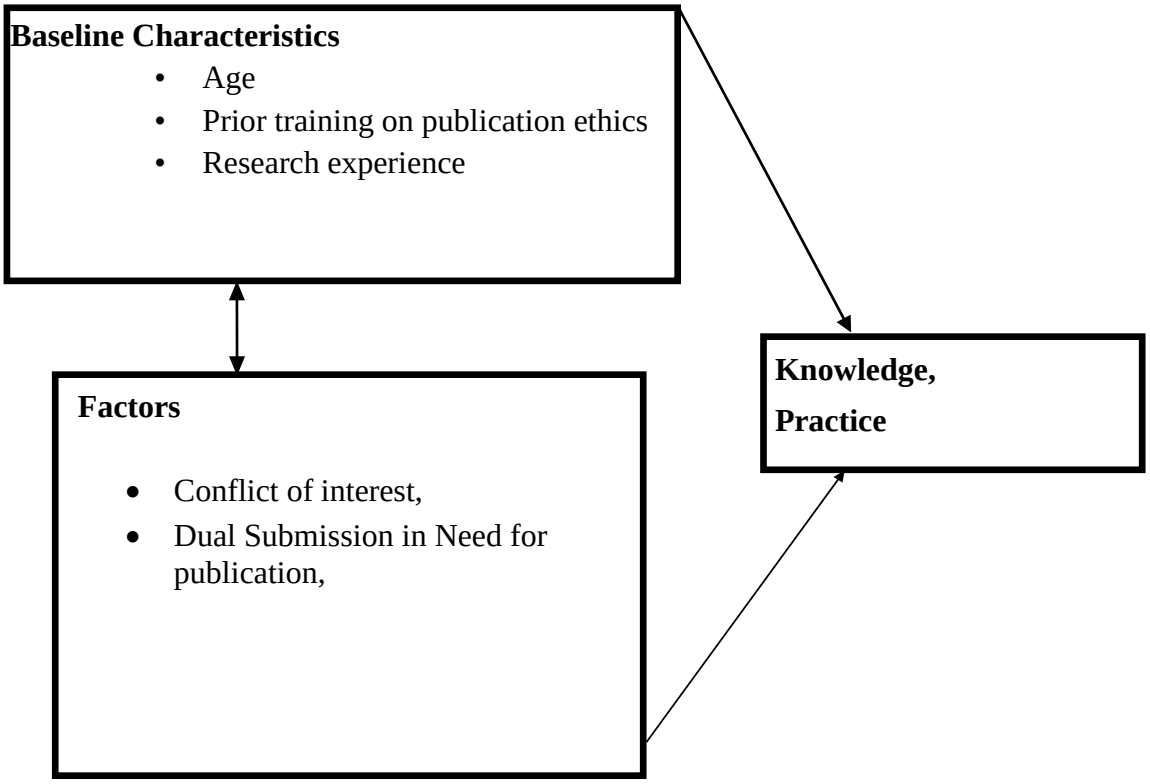
Publication of research in peer-reviewed journals has a lot of advantages in addition to the main objective of communicating one’s findings to the scientific community,for example, it validates research in the scientific world, and it can boost the confidence of the authors (36). Scientific publication is also one of the cornerstone criteria on which career development, advancement, and research funding are built. The published paper is the currency that the scientist uses in the research environment (4). In addition, it can also give national and international recognition to an author, department, university, and institution (36).

The importance of publication in the career is further emphasized by the adage "Publish or perish," i.e. publish yourresearch or lose your career prospect (3). Unfortunately, for authors in many institutions, the primary motivation for publishing is to satisfy employer-specific job requirements, like getting promoted to an academic position or increasing the likelihood of getting a research grant application approved. Similarly, having competing interests in a product or device under consideration is not considered unethical, however, failure to disclose such hidden interests severely jeopardizes the outcomes reported in the paper (17). As a result of this, authors may violate publication ethics.

A survey of 328 academicians about their perceptions of ethical and unethical research and publication practices for academicians, editors, and review board members revealed wide variation among respondents' perceptions of what constitutes ethical academic conduct. The respondent's level of publication experience was found to be significantly related to his/her assessment of the ethicality of research practices (37).

In another study perceived quality of previous training was positively associated with perceived knowledge scores, indicating that individuals with higher levels of perceived quality of previous training endorsed higher perceptions of knowledge about ethical issues (15).

Figure 1: Conceptual framework (15,37)



3. Objectives

3.1.General objective

The general objective of this study was to assess knowledge, practice, and factors influencing publication ethics amonghealth researchers in three selected institutions.

3.2.Specific objectives

1. To measure the level of knowledge of publication ethics among health researchers/ academicians in three selected institutions.
2. To measure the level of practice of publication ethics among health researchers/ academicians in three selected institutions.
3. To identify the factors influencing the practice of publication ethics among health researchers/ academicians in three selected institutions.

4. Methods

4.1.Study setting

The research was carried out at EPHI, AHRI, and AAU, College of Health Sciences (CHS), from January to April 2024. Number of staff in these institutions wasobtained from their respective Human Resources offices. The CHS consists of four schools, the School of Medicine, School of Nursing and Midwifery, School of Pharmacy, and School of Public Health, with a total of 836 academicians. EPHI has six research directorates, with a total of 226 researchers. AHRI has ten divisions with 350 researchers.

4.2.Study design

An institutional-based cross-sectional study was used to investigate the Knowledge, Practice, and Factors Influencing Publication Ethics among Health Researchers in EPHI, AHRI, and Academicians at AAU-CHS in Ethiopia.

4.3.Population

4.3.1. Source Population

The source population for this study was Researchers in EPHI and AHRI, and academicians at AAU-CHS, from which the study population was drawn.

4.3.2. Study Population

The study includes researchers at EPHI and AHRI, and academicians from CHS's four schools who had prior experience conducting research and had at least one publication in local or international journals.

4.4.Inclusion and exclusion criteria

4.4.1. Inclusion criteria

Researchers and academicians who had prior experience of conducting research and had at least one publication in reputable local or international journals, and those who were willing to provide informed consent, were eligible to participate in this study.

4.4.2. Exclusion criteria

Researchers and academicians who are no longer active in the field of research were excluded.

4.5. Sample size and Sampling design

4.5.1. Sample size determination.

The formula for a single population proportion was used to calculate the sample size. Since to our knowledge, no study on this topic had been conducted in Ethiopia, therefore, the prevalence was assumed to be 50%. The sample size was calculated with a 95% CI and a 5% margin of error. Using the formula below, a total sample size was computed based on these assumptions.

$$ni = \frac{(Z_{\alpha/2})^2 \times P\,(1-P)}{(d)^2} + 10\%\ non-response\ rate,$$

Where:

- ✓ n_i: the initial sample size
- ✓ p: the (estimated) proportion of the population that has the attribute in question, taken as 50%
- ✓ $Z_{\alpha/2}$: reliability coefficient for the desired confidence interval of 95% = 1.96
- ✓ d: the degree of precision = 5% (0.05)
- ✓ estimated non-response rate = 10%
- ✓ Therefore, using the above formula,

$$ni = \frac{(1.96)^2\ (0.5)\ (1-0.5)}{(0.05)^2} = 384$$

DEFF: 384 x 1.5 = 576

Adding 10% of the non-response rate,

$$Nf\ \frac{384}{1+\frac{384}{1412}} = 576/1 - 10\%\ non-response\ rate = 640$$

The final sample size is **640.**

4.5.2. Sampling method

The stratified sampling approach was used. The researchers were stratified by employer. The calculated sample size was multiplied by a Design Effect of 1.5 to compensate for loss of precision due to stratification. The proportional sample size for each institution was calculated from the 640-sample size provided by the preceding calculation, depending on the proportion to population size in each of the institutions. Calculating based on the population proportion, 377 participants were taken from AAU-CHS, 103 from EPHI, and 160 from AHRI. The study participants were chosen from each institution using a simple random sampling procedure.

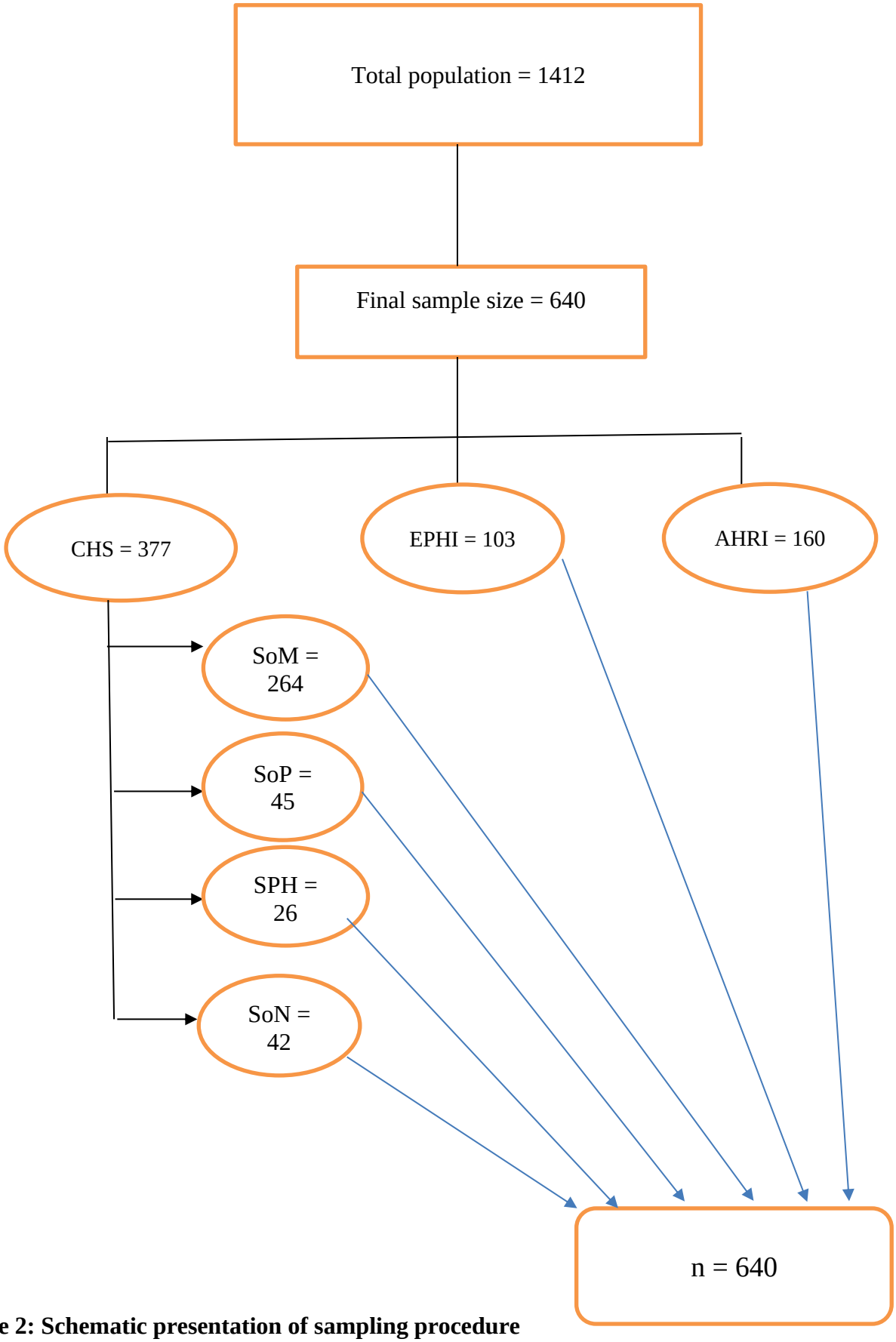


Figure 2: Schematic presentation of sampling procedure

4.6.Variables of the study

4.6.1. Independent variables

- **Characteristics**: Age, Research Experience, Prior Training in Publication Ethics.
- **Factors**: Conflict of Interest, Need for Publication.

4.6.2. Dependent variables

- **Knowledge of Publication Ethics**
- **Publication Ethics Practice**

4.7.Measurement and instruments

The questionnaire was adapted and modified from an international survey "Biomedical authors' awareness of publication ethics" (15)

In section 1, Respondent Background information was asked (Age, Research Experience, Prior training in publication ethics)

In section 2, Respondents' awareness was measured on a scale of 0 to 10, 0 represents "Not at all unethical" and 10 represents "extremely unethical".

In section 3, Respondents' knowledge: Knowledge was assessed using an ordinal scale of the respondent's self-perception of his/her knowledge regarding the specific kind of publication ethical issues using a value ordinal scale (I have no knowledge of this topic, I have some knowledge of this topic, I have substantial knowledge of this topic)

In section 4, Respondent's practice of publication ethics: Practice level of publication ethics was assessed using nine questions with YES or NO which were nominally labeled with 0 and 1 answers.

The questionnaire was distributed in English language since the study population was researchers who are capable of understanding the language.

4.8.Data collection procedure

A self-administered questionnaire was given to participants, and data collection took place from February to April 2024GC. Training was provided to data collectors on how to distribute and collect questionnaires while maintaining the anonymity, privacy, and confidentiality of study participants. Because the questionnaires were self-administered the data collectors were only responsible for distributing the questionnaires and safely collecting completed forms whileprotecting participant privacy and confidentiality.

4.9.Operational definitions

- **Publication Ethics:** defined as professional conduct that reflects the currentbest principles of transparency and integrity. Participants were asked to rate how ethical or unethical they thought the researcher's behaviors by giving a scenario; a numerical rating scale was applied and Those who rated from 0 to 4 were classified as completely ethical and those who rated from 6 to 10 were classified as completely unethical) (15)
- **Knowledge:** Participants were given a short definition of seven ethical topics and asked to indicate their level of knowledge (0, no knowledge; 1, some knowledge; 2, substantial knowledge.) then who is considered knowledgeable???
- **Publication Ethics Practice:** participant's practice of publication ethics. It was measured based on 9 questions. Each question had a possible response of "yes" and "no" Then, the correct answer (yes) was coded as 1, while the wrong answer (no) was scored as 0. The overall score ranges from 0-9. The total composite score was computed and the mean was made dichotomous those who practiced or not practiced publication ethics (15).

4.10. Quality assurance plan

A validated, standardized questionnaire that has been used in similar studies was used. It was also customized to fulfill the objectives of this specific study and pretested. Data was filtered daily. Data was double-checked by data collectors for checking data completeness when receiving each filled questionnaire from participants.

4.11. Data management and analysis plan

All collected data were stored securely on password-protected computers. Data backups were created regularly to prevent any potential loss. Data from the paper questionnaires were retrieved and entered into Epi-Data 3.1 before being exported to SPSS version 27. Data were checked for completeness and cleaned.

Categorical data were computed using percentages and frequencies of occurrence. Continuous variables were computed using means and standard deviations. Logistic regression was employed to examine associations and relationships between independent variables and the practice of publication ethics. Univariate and multivariate analysis was conducted and those associated variables were subjected to multivariate analysis. A chi-square test was done to see the association between practice and training on publication ethics.

The findings of the study are reported using appropriate data visualization techniques, including tables and graphs. The results are presented clearly and understandably to facilitate meaningful interpretation and dissemination.

4.12. Ethical considerations

The study required participants to disclose their knowledge and practice of publication ethics. Consequently, self-administered questionnaires were utilized due to their anonymity and suitability for examining sensitive subjects, and meticulous attention was paid to their distribution and acquisition. To ensure complete anonymity, the questionnaire did not contain any questions about personal identifiers that might reveal participants' identities. Due to the delicate nature of the data acquired and the possibility for dignitary harm, beneficence, and non-maleficence were addressed by which the name of the institution was blinded, and the names of schools/departments were anonymized. Additionally, questionnaires were collected in a way that makes it impossible for this researcher or any other party to link specific respondents to completed questionnaires. The principal investigator and the supervisors may access the gathered data upon request. All respondents received written informed consent before the start of the questionnaire; this consent was included in the questionnaire itself. When respondents returned the paper-based survey, their consent to participate in the study was assumed. Ethical approval was granted by AAU-CHS-SPH Ethics Committee.

5. Results

5.1 Respondents' sociodemographic characteristics

A total of 588 participants responded to the questionnaire, representing a 92% response rate. The table below shows participants' sociodemographic characteristics in this study (Table 1). The average age of the respondents is 39***±8.7***. on average respondents had 8.8 ± 7 years of research experience. The respondents completed 3.4 peer reviews each year with an SD of 5.3 and published 20± 37 articles in their careers. About 82 (16.5%) of the respondents had previous experience in an editorial role.

Table 1: Respondents' sociodemographic characteristics

Variable	***M±SD Frequency(n)***	***Percentage (%)***
Age	39***±8.7***	-
Year of research experience	8.8± 7	-
Number of publications (including co-authored)	20± 37	-
Number of peer reviews in a year	3.4 ±5.3	-
Previous experience in an editorial role		
Yes	82	16.5
No	414	83.5

5.2 Respondents self-perceived level of knowledge on publication ethics

Participants reported substantial variability in the self-perceived level of knowledge regarding publication ethics across seven ethical topics: prior publication, dual submission, self-plagiarism, authorship, conflict of interest, plagiarism, and image manipulation (Table 2).

Regarding dual submission, (14.7%) of the respondents claimed to have no knowledge of this practice. About 28.8% mentioned having some knowledge about dual submission, suggesting a moderate level of understanding within this subgroup. The majority of respondents (56.5%) stated they have substantial knowledge in this area, signifying a higher degree of familiarity among more than half of the respondents.

Regarding authorship, none of the respondents claimed to have no knowledge of this topic, indicating that all participants had some level of awareness about authorship. Around (31.7%) stated they have some knowledge in this domain, suggesting that a minority had only a partial understanding of authorship. The majority of the respondents (68.3%) reported having substantial knowledge about authorship, highlighting that a significant majority of the respondents felt confident in their

understanding of what constitutes authorship.

The result revealed that all respondents were knowledgeable about the concept of conflict of interest. A more substantial group, (30.2%), acknowledged having some knowledge about this issue. However, the majority of participants, (69.8%), claimed to possess a substantial understanding of conflict of interest. Regarding plagiarism, only (2.0%) of respondents admitted to having no knowledge about this academic misconduct. Notably, (20.4%), reported having some understanding of plagiarism. The large group (77.6%), reported they had a substantial knowledge of the topic and its implications for academic integrity.

Table 2: Respondents self-perceived level of knowledge on publication ethics

Variable	***Frequency(n)***	***Percentage (%)***
Prior/redundant publication		
I have no knowledge of this topic	99	16.8
I have some knowledge of this topic	254	43.2
I have substantial knowledge of this topic	235	40.0
Dual submission		
I have no knowledge of this topic	87	14.7
I have some knowledge of this topic	169	28.8
I have substantial knowledge of this topic	332	56.5
Self-plagiarism		
I have no knowledge of this topic	52	8.8
I have some knowledge of this topic	307	52.2
I have substantial knowledge of this topic	229	39.0
Authorship		
I have no knowledge of this topic	0.0	0.0
I have some knowledge of this topic	182	31.7
I have substantial knowledge of this topic	391	68.3
Conflict of interest		
I have no knowledge of this topic	0.0	0.0
I have some knowledge of this topic	174	30.2
I have substantial knowledge of this topic	403	69.8
Plagiarism		
I have no knowledge of this topic	12	2.0
I have some knowledge of this topic	120	20.4
I have substantial knowledge of this topic	456	77.6
Image manipulation		
I have no knowledge of this topic	168	28.6
I have some knowledge of this topic	287	48.8
I have substantial knowledge of this topic	133	22.6

5.3. Respondents perceived level of Unethical behavior.

The overview of the respondents' perceived level of unethical behavior in academic research, is categorized into five different types of scenarios on prior/redundant publication, author omission, self-plagiarism, honorary authorship, and conflicts of interest. The degree of variability in the ratings can be seen in each variable, with the entire range of possible responses (0 to 10) present for each of the scenarios. Responses for each variable are categorized into three groups: Completely Ethical, Neutral, and Completely Unethical presented below (Table 3).

Table 3: Respondents perceived level of Unethical behavior

Variable	***Frequency(n)***	***Percentage (%)***
Prior publication		
Completely Ethical	166	28.3
Neutral	57	9.7
Completely unethical	365	62.0
Author omission		
Completely Ethical	126	21.4
Neutral	36	6.20
Completely unethical	426	72.4
Self-plagiarism		
Completely Ethical	111	18.8
Neutral	60	10.2
Completely unethical	417	71.0
Honorary authorship		
Completely Ethical	259	44.1
Neutral	45	7.6
Completely unethical	284	48.3
Conflicts of interest		
Completely Ethical	75	12.8
Neutral	33	5.6
Completely unethical	480	81.6

5.4. Respondent's practice of specific publication issues

In our study, a significant percentage of participants (59.5%) admitted to using previous work or someone else's work for current publication. Of those who used it, (92.8%) said they properly cited the material. Only (47.2%) of participants reported getting permission from the original author before utilizing tables or figures. Around 28.0% of the participants admitted to submitting the same work to multiple publications simultaneously. About (25.0%) of participants admitted to using salami-slicing, which is the technique of splitting data from a single study into many papers to

raise the publication count.

Apart from the wide category of plagiarism, (27.0%) admitted to self-plagiarism. Our finding shows that (42.2%) of participants admitted to including authors who did not make significant contributions to the work. A smaller percentage (9.8%) of participants admitted to removing authors who were entitled to credit and (32%) of participants indicated that they don't always disclose conflict of interest in their articles (Table 4).

Table 4: Respondents' practice of specific publication issues

Variable	***Frequency(n)***	***Percentage (%)***
Using previous work or someone else's work for current publication		
Yes	295	59.5
No	201	40.5
If yes, citing correctly		
Yes	208	92.8
No	16	7.2
Getting permission from the original author before utilizing tables or figures		
Yes	224	47.2
No	251	52.8
Dual submission		
Yes	164	28.0
No	424	72.0
Salami-slicing		
Yes	87	25.0
No	260	75.0
Self-plagiarism		
Yes	159	27.0
No	429	73.0
Honorary authorship		
Yes	248	42.2
No	340	57.8
Author omission		
Yes	58	9.8
No	530	90.2
Conflict of interest		
Yes	236	68
No	111	32

5.5. Training in Publication Ethics

A Chi-square test was done to see the relationship between publication ethics practice and Receipt of and perceived quality of publication ethics training (Table 5).

In our finding (24%) of respondents rated training from their scientific mentor as excellent, indicating a high level of satisfaction with the guidance received. On the other hand, 33% considered their mentor to be good. A smaller percentage of (8.7%) deemed their mentor as poor, while (17.6%) rated their mentor as average, suggesting a moderate level of satisfaction. Notably, (16.7%) indicated that they had not received any mentorship in this context.

Among the respondents, (24%) rated online resources as excellent, indicating a high level of usefulness and credibility. A considerable proportion of participants (32.2%) considered these resources to be good. Additionally, (19.8%) rated online materials as average. A smaller percentage, (10.2%), deemed these resources as poor. Significantly, 13.8% mentioned that they had not received any education specifically tailored to these topics.

Table 5. Chi-square test the association between publication ethics practice and Receipt of and perceived quality of publication ethics training.

Variables	***Publication ethics practice***			
	NO (n%)	***YES(n%)***	***X^2***	***P-value***
Scientific mentor				
Excellent	78 (29.7)	59 (19.2)	9.793	***0.044***
Good	*80 (30.4)*	*109 (35.4))*		
Average	*39 (14.8)*	*61 (19.8)*		
Poor	*24 (9.1)*	26 (8.4)		
Not received	42 (16.0)	53 (17.2)		
A course you attended devoting some time to this topic				
Excellent	75 (28.1)	50 (16.4)	14.422	***0.006***
Good	89 (14.6)	133 (43.6)		
Average	39 (14.6)	54 (17.7)		
Poor	23 (8.6)	29 (9.5)		
Not received	41 (15.4)	39 (12.8)		
A course you attended specifically on this topic				
Excellent	73 (27.5)	52 (17)	12.160	***0.016***
Good	80 (30.2)	108 (35.4)		
Average	39 (14.7)	66 (21.6)		
Poor	24 (9.1)	27 (8.9)		
Not received	49 (18.5)	52 (17)		
Online resources on this topic				

Excellent	74 (27.7)	64 (26.7)	10.739	***0.030***
Good	93 (34.8)	92 (29.8)		
Average	40 (15.0)	74 (23.9)		
Poor	27 (10.1)	32 (10.4)		
Not received	33 (12.4)	47 (15.2)		

5.6. Factors associated with publication ethics practice.

The result in (Table 6) shows that individuals who have not undergone training are 46% more likely to disregard publication ethics when compared to those with training (COR = 1.46, p = 0.030). There is a statistically significant association between the quality of scientific mentorship, online resource, and adherence to publication ethics practices (X2 = 9.793, p = 0.044), (X2 = 10.739, p = 0.030) respectively (table 6). However, after adjusting for other variables, this association became non-significant (AOR = 1.20, p = 0.451, CI = 0.76-1.81). Participants who engaged in dual submission for the sake of getting a better chance of publication (need for publication) had twice the odds of not practicing publication ethics compared to those who did not (COR = 2.00, p = 0.005). However, this association became non-significant after adjusting for other variables (AOR = 0.97, p = 0.940, CI = 0.51-1.86). Those who disclose a conflict of interest had significantly lower odds of not practicing publication ethics, with only 14% of the odds compared to those without disclosing a conflict of interest (COR = 0.14, p < 0.001). This association remained significant after adjustment (AOR = 0.17, p < 0.001, CI = 0.12-0.25).

Each unit increase in experience was associated with a 7% decrease in the odds of not practicing publication ethics (COR = 0.93, p < 0.001). This association remained significant after adjustment (AOR = 0.92, p < 0.001, CI = 0.91-0.97). Each unit increase in age was associated with a 4% decrease in the odds of not practicing publication ethics (COR = 0.96, p < 0.001). However, this association became non-significant after adjustment (AOR = 1.01, p = 0.417, CI = 0.97-1.06). Each unit increase in knowledge was associated with an 11% decrease in the odds of not practicing publication ethics (COR = 0.89, p < 0.001). However, this association became non-significant after adjustment (AOR = 1.01, p = 0.730, CI = 0.92-1.12).

Table 6: Bivariate and Multivariate analysis factors associated with publication ethics practice

Variables	*COR*	*95%CI*	*P-value*	*AOR*	*95%CI*	*P-value*
Training						
No	1.46	1.03-2.06	***0.030***	1.2	0.76-1.81	0.451
Yes	Ref.					
Dual Submission in Need of Publication						
No	2.0	1.23-3.20	***0.005***	0.97	0.51-1.86	0.940
Yes	Ref.					
Conflict of Interest						
Yes	0.14	0.09-0.12	***<0.001***	0.17	0.12-0.25	***<0.001***
No						
Experience	0.93	0.91-0.97	***<0.001***	0.92	0.91-0.97	***<0.001***
Age	0.96	0.94-0.98	***<0.001***	1.01	0.97-1.06	0.417
Knowledge	0.89	0.84-0.95	***<0.001***	1.01	0.92-1.12	0.730
COR: Crude odd ratio AOR: Adjusted odd ratio CI: Confidence interval						

6. Discussion

This study aimed to look into the level of knowledge and practice of publication ethics among health researchers and academicians, including factors influencing their practices. The majority of participants were middle-aged, with a significant level of experience within the research field. Respondents reported an average of 20 publications, indicating a good experience in terms of research output. A relatively small percentage (16.5%) of respondents reported previous experience in an editorial role, indicating that the majority of respondents have not held such positions in academic publishing. According to our study individuals without training had a 46% higher likelihood of not practicing publication ethics compared to those with training. Dual submission for publication benefits had twice the odds of not practicing publication ethics. However, increasing experience, age, and knowledge decreased the odds of not practicing publication ethics.

In our study, the majority of respondents (16.8% and 43.2%) reported “to have no knowledge and some knowledge” on prior/redundant publication respectively. A paper presenting a comparative analysis of the research scholars’ awareness of research publication and related aspects also shows that often the researchers lack the information and awareness regarding the various aspects associated with research publication. They have very limited knowledge of the process and terminology related to research publication, such as prior/redundant publication

(38). the finding reveals that the majority of respondents perceived this behavior as completely unethical (62.0%) which is aligned with findings from a similar study conducted on biomedical researchers (15). A study states that the "publish or perish phenomenon" exerts intense pressure on academics to prioritize quantity over quality, leading to prior/redundant publications (39).

According to our data, all respondents claimed to have knowledge of authorship, and about 42.2% of participants admitted to including authors who did not make significant contributions to the work. Similarly, research on the knowledge and practice of authorship of research papers reveals a gap in adherence to authorship guidelines, around 47% of the participants agreed that team relationships would influence authorship allocation. Approximately 17.0% and 11% of the respondents were influenced by their supervisors to include or remove authors from their manuscripts before being sent for publication, respectively (40). A previous study suggested that the prevalence of honorary authorship and author omission in medical journals is close to 20% and 11%, respectively (41). Additionally, in a study at Oslo University, Norway, 97% reported knowledge of defined authorship criteria, and 68% regarded breaches of these as scientific misconduct. About 36% reported pressure to include underserved authors in their papers (22). These insights shed light on common challenges faced by researchers regarding authorship ethics and highlight areas where improvements are needed to uphold publication integrity.

In this study large majority of respondents claim to have substantial knowledge of COI, indicating a high level of awareness and understanding. The absence of respondents claiming no knowledge in this area suggests it's a well-understood concept among respondents. In contrast, a study concluded that there is a poor understanding of COI among Indian medical scientists or journals, only 12% of the 61 authors in the study were aware of the "conflict of interest" issue in medical research and publication, and only 19% of medical writers had heard of it recently (33). Differences in the composition and features of the study populations, may contribute to these contradictory findings.

In our finding 32% of participants indicated that they don’t always disclose conflict of interest in their articles. This underscore a shared understanding among respondents regarding the unethical nature of certain practices in academic publishing, with conflicts of interest being universally condemned, the vast majority of respondents perceive conflicts of interest as

completely unethical, with a very small percentage viewing them as neutral or completely ethical. This indicates a strong consensus that conflicts of interest are highly unethical in academic publishing. Similarly several reports show that substantial failure by researchers to disclose COI has been discovered (31,32).

Only 2.0% of respondents admitted to having no knowledge about plagiarism. A larger group, 77.6%, reported having some understanding of this academic misconduct. The remaining 20.4%, reported they had a substantial knowledge of the topic and its implications for academic integrity. Apart from the wide category of plagiarism, 27.0% admitted to committing self-plagiarism. Similarly, study done at a Nigeria university reported that 90% of students admitted they have plagiarized at least once in their academic careers, only 17% were found to be fully aware of plagiarism, 63% of students were partially aware, and 20% were fully oblivious of it (28). Another study in India also reported that 95% of participants were aware of plagiarism (29).

In this study quality of most of publication ethics training was rated “excellent or good”. In a study done on biomedical researchers training from a mentor and an online resource were the highest rated source, with 43% of the sample reporting perceiving at least a “good” or “excellent” level of training from a research mentor. The bivariant analysis shows previous training was positively associated with their perceived knowledge, indicating that individuals with higher levels of previous training have higher perceptions of knowledge about ethical issues (15). Our study also shows a positive association of training with both the knowledge and practice of respondents.

The bivariant and multivariant analysis of our study showed that experience has a significant association with the practice of publication ethics. Similar study shows that the respondent’s level of publication experience was found to be significantly related to his/her assessment of the ethicality of research practices (37). The consistent association between publication experience and ethicality observed in the studies underscores the importance of providing researchers with adequate training and mentorship to enhance their understanding of ethical research practices.

Both the bivariant and multivariant analysis of our study showed that COI has a significant association with the practice of publication ethics. In line with this, a research on biomedical publications showed that COI, or competition of interests, often distorts the presentation and interpretation of research data in biomedical publications, and its non-disclosure is perceived as misconduct with serious consequences for the trustworthiness of science communication (42). WAME also reported that COI in medical publishing affects everyone with a stake in research integrity including journals, research/academic institutions, funding agencies, the popular media, and the public (13).

7. Conclusion

The study highlights a varied level of knowledge and practice concerning publication ethics among health researchers and academicians. While there is a general awareness of concepts such as authorship, COI, and plagiarism, there are gaps in practice, particularly regarding consistent disclosure and adherence to ethical standards. However, the positive association between training, experience, and ethical practice suggests that targeted interventions can lead to improvements. By prioritizing continuous education, mentorship, and strengthening disclosure policies, the academic community can uphold the highest standards of integrity and trustworthiness in scientific publication.

8. Recommendation

Given the variable levels of knowledge and practice of publication ethics among health researchers and academicians, it's imperative to implement ongoing education programs. That covers topics such as COI, authorship criteria, and plagiarism, ensuring a thorough understanding and adherence to ethical standards. Building on the positive feedback regarding mentorship as an effective source of publication ethics training, institutions should consider formal mentorship programs to provide guidance and support to researchers, particularly those early in their careers.

Considering the significant percentage of respondents who do not consistently disclose conflicts of interest, institutions, and disclosure policies should be strengthened. Clear guidelines and rigorous enforcement mechanisms can help maintain the integrity of academic publishing. Addressing publication ethics requires collaborative efforts involving researchers, institutions,

journals, and funding agencies. Establishing clear standards and fostering a culture of transparency and integrity will benefit all stakeholders involved in scientific research and communication.

9. Strength and Limitation

The study's strength lies in its substantial sample size of 588 participants, providing robust data for analysis and increasing the generalizability of findings to the broader population of health researchers and academicians. Conducting the study within institutions allows for a focused examination of publication ethics within specific academic settings, providing insights into institutional practices and potential areas for improvement. By examining knowledge, practice, and factors influencing publication ethics, the study offers a comprehensive understanding of the topic, facilitating targeted interventions to address identified gaps.

The study may be susceptible to self-reporting bias, as participants may provide socially desirable responses regarding their knowledge and practice of publication ethics, potentially inflating the perceived understanding and adherence to ethical standards. The subjective nature of some questions on the tool, required participants to interpret and respond based on their perspectives and experiences. The cross-sectional design restricts the study's ability to establish causal relationships between variables, limiting the depth of analysis regarding factors influencing publication ethics among participants. The study may not also account for all potential confounding factors influencing publication ethics, such as cultural norms, institutional policies, or individual motivations, which could affect the interpretation of findings.

10. Dissemination plan

The results of the study are shared with Addis Ababa University, College of Health Science, School of Public Health. In keeping with participant and institution confidentiality, it will also be published in national or international reputable journal.

11. REFERENCES

1. Graf C, Wager E, Bowman A, Fiack S, Scott-Lichter D, Robinson A. Best Practice Guidelines on Publication Ethics: a Publisher's Perspective. Int J Clin Pract. 2007;61(s152):1–26.
2. Whitesides GM. Whitesides' Group: Writing a Paper. Adv Mater. 2004 Aug 25;16:1375–7.
3. Singhal S, Kalra BS. Publication ethics: Role and responsibility of authors. Indian J Gastroenterol. 2021 Feb;40(1):65–71.
4. Barrett KA, Funk CL, Macrina FL. Awareness of Publication Guidelines and the Responsible Conduct of Research. Account Res. 2005 Jul;12(3):193–206.
5. Research ethics, publication ethics, and good practice guidelines. [Internet]. [cited 2023 Sep 21]. Available from: https://www.equator-network.org/library/research-ethics-publicationethics-and-good-practice-guidelines/
6. Arccjournals.com/publication-ethics.
7. Sachan A, Khanna S, Sharma V. Publication ethics and misconducts. Indian J Rheumatol. 2022;17(6):334.
8. DeTora L, Foster C, Nori M, Simcoe D, Skobe C, Toroser D. Publication ethics from the ground up. Int J Clin Pract. 2018 Feb;72(2):e13063.
9. Bain LE, Ebuenyi ID, Noubiap JJ. Research and publication ethics knowledge and practices in the health and life sciences: Findings from an exploratory survey. Ethics Med Public Health. 2022 Aug 1;23:100803.
10. ICMJE | About ICMJE | ICMJE Membership [Internet]. [cited 2023 Nov 11]. Available from: https://www.icmje.org/about-icmje/faqs/icmje-membership/
11. Uniform requirements for manuscripts submitted to biomedical journals: Writing and editing for biomedical publication - PMC [Internet]. [cited 2023 Nov 11]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3142758/
12. ICMJE | Recommendations [Internet]. [cited 2023 Nov 11]. Available from: https://www.icmje.org/recommendations/
13. WAME - A global association of editors of peer-reviewed medical journals [Internet]. [cited2023 Nov 12]. Available from: https://www.wame.org/#
14. Committee on Publication Ethics (COPE). Guidelines on good publication practice. J Postgrad Med. 2000 Jul 1;46(3):217.
15. Schroter S, Roberts J, Loder E, Penzien DB, Mahadeo S, Houle TT. Biomedical authors' awareness of publication ethics: an international survey. BMJ Open. 2018 Nov;8(11):e021282.
16. Bonney J, Donkor P. Publication ethics in practice. Ghana Med J. 2021 Jun 1;55(2):101–2.
17. Sengupta S, Honavar SG. Publication ethics. Indian J Ophthalmol. 2017 Jun;65(6):429–32.
18. Potdar AB, Raj VM, Rathod PS, Potdar PA. Publication Ethics: Awareness & Knowledge among Medical Faculties. Indian J Forensic Med Toxicol. 2021 Mar 24;15(2):3999–4002.
19. ICMJE | Recommendations | Defining the Role of Authors and Contributors [Internet]. [cited 2023 Nov 10]. Available from: https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html
20. Ghost and Guest Authors: You Can't Always Trust Who You Read | Pain Medicine | Oxford Academic [Internet]. [cited 2023 Nov 12]. Available from: https://academic.oup.com/painmedicine/article/16/3/416/2460396
21. Reinisch JF, Li WY, Yu DC, Walker JW. Authorship conflicts: a study of awareness of authorship criteria among academic plastic surgeons. Plast Reconstr Surg. 2013

Aug;132(2):303e–10e.
22. Nylenna M, Fagerbakk F, Kierulf P. Authorship: attitudes and practice among Norwegian researchers. BMC Med Ethics. 2014 Dec;15(1):53.
23. Maxel OJM. Plagiarism: the Cancer of East African University Education. J Educ Pract. 2013;4(17):137.
24. Mohammed RAA, Shaaban OM, Mahran DG, Attellawy HN, Makhlof A, Albasri A. Plagiarism in medical scientific research. J Taibah Univ Med Sci. 2015 Mar 1;10(1):6–11.
25. The Chronicle of Higher Education [Internet]. 2010 [cited 2023 Nov 24]. Journal Review Process Increasingly Includes Check for Plagiarism. Available from: https://www.chronicle.com/blogs/wiredcampus/journal-review-process-increasingly-includes-check-for-plagiarism
26. Rohwer A, Wager E, Young T, Garner P. Plagiarism in research: a survey of African medical journals. BMJ Open. 2018 Nov 1;8(11):e024777.
27. Ogunsuji OO, Fagbule OF. PLAGIARISM: THE CURSE OF INTERNET IN AFRICAN ACADEMIA? Ann Ib Postgrad Med. 2020 Dec;18(2):98–9.
28. Sivasubramaniam SD, Cosentino M, Ribeiro L, Marino F. Unethical practices within medical research and publication – An exploratory study. Int J Educ Integr. 2021 Dec;17(1):1–13.
29. Ragavi SS, YamunaDeviM S. KNOWLEDGE, ATTITUDE AND AWARENESS ON PLAGIARISM AND PUBLICATION ETHICS AMONG MEDICAL AND PARAMEDICAL STUDENTS IN A TERTIARY CARE HOSPITAL - A QUESTIONNAIRE-BASED STUDY. Indian J Appl Res [Internet]. 2020 Jan 25 [cited 2023 Nov 14]; Available from: https://www.semanticscholar.org/paper/KNOWLEDGE%2C-ATTITUDE-AND-AWARENESS-ON-PLAGIARISM-AND-Ragavi-YamunaDeviM./9a7b295649db195e30458b07a049eaac5f35c640
30. Awareness and management of conflicts of interest | Journal of Public Health [Internet]. [cited 2023 Nov 14]. Available from: https://link.springer.com/article/10.1007/s10389-010-0350-x
31. Braff JP. Conflicts of Interest in Research—Towards a Greater Transparency. Perm J. 2010;14(2):31–4.
32. Harris G, Carey B. Researchers Fail to Reveal Full Drug Pay. The New York Times [Internet]. 2008 Jun 8 [cited 2023 Nov 14]; Available from: https://www.nytimes.com/2008/06/08/us/08conflict.html
33. Das KK, Vallabha T, Ray J, Murthy PSN. Conflict of interest - serious issue on publication ethics for Indian medical journals. JNMA J Nepal Med Assoc. 2013;52(190):357–60.
34. Kassirer JP, Angell M. Redundant Publication: A Reminder. N Engl J Med. 1995 Aug 17;333(7):449–50.
35. Smart P. Redundant publication and salami slicing: the significance of splitting data. Dev Med Child Neurol. 2017;59(8):775–775.
36. Asnake M. The importance of scientific publication in the development of public health. Ciênc Saúde Coletiva. 2015 Jul;20:1972–3.
37. Okonta P, Rossouw T. Prevalence of scientific misconduct among a group of researchers in Nigeria. Dev World Bioeth. 2013 Dec;13(3):149–57.
38. Prajapati V. A Comparative Analysis of Research Scholars' Awareness about Research Publication and Related Aspects. In 2020 [cited 2024 May 17]. Available from: https://www.semanticscholar.org/paper/A-Comparative-Analysis-of-Research-Scholars%E2%80%99-about-Prajapati/a9c9fa496071ce1474dd62ac9a9eb17ee21e4fd6
39. Ibe B. Duplicate and Redundant Publications: What Authors and Editors need to know? Niger J Paediatr. 2011 Nov 16;38(1):1–3.
40. Badreldin H, Aloqayli S, Alqarni R, Alyahya H, Alshehri A, Alzahrani M, et al. Knowledge

and Awareness of Authorship Practices Among Health Science Students: A Cross-Sectional Study. Adv Med Educ Pract. 2021 Apr 20;12:383–92.
41. Flanagin A. Prevalence of Articles With Honorary Authors and Ghost Authors in Peer-Reviewed Medical Journals. JAMA. 1998 Jul 15;280(3):222.
42. Conflicts of interest in biomedical publications: considerations for authors, peer reviewers, and editors - PMC [Internet]. [cited 2024 May 6]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3893982/

12. Annexes

12.1.Information sheet and consent forms

Title: Knowledge, Practice, and Factors Influencing Publication Ethics among Health Researchers and Academicians: Institution-Based, Cross-Sectional Study

Name of principal investigator: Hana Getachew

Name of the organization: Addis Ababa University, College of Health Sciences, School of Public Health.

Name of the Sponsor: Addis Ababa University, College of Health Sciences, School of Public Health, and John Hopkins University.

Introduction: Hello, my name is_____I am a member of the research team entitled "Knowledge, Practice and Factors Influencing Publication Ethics Among Health Researchers and Academicians". This information sheet and consent form are to study the knowledge, practice, and factors affecting publication ethics amonghealth researchers and academicians at EPHI, AHRI, and AAU-CHS in Ethiopia. The researcher is an MPH student in Health Research Ethics at Addis Ababa University's School of Public Health.

Purpose: The overall objective of this research is to assess the knowledge, practice, and factors affecting publication ethics among health researchers and academicians at EPHI, AHRI, and AAU-CHS in Ethiopia.

As a result, this study's conclusions will be useful in determining the scope of the issue, promoting appropriate procedures, raising awareness, facilitating training, and ultimately reducing breaches of publication ethics.

Procedure: To assess the knowledge, practice, and factors affecting publication ethics, I call on your sincere cooperation and willingness to take part in this project. If you are willing to participate in this project, you need to understand and give written consent. Then, you will be asked to give your response by filling out the questionnaireby yourself for 30-40 minutes.

Why you are chosen: because you are a health researcher and academician, involved in research before and during the study period, and have publication/s.

Confidentiality, anonymity, and privacy of the data: All the responses and the results obtained will be kept anonymous and confidential using a coding system; only the research team (data collector, primary investigator, and supervisors) will have access to your responses.

Risk and/or discomfort: We do not anticipate any risk in your participation in this study except for the time you spent filling out this questionnaire. We will use every precaution to our best ability to ensure confidentiality and you can skip any question that you may feel uncomfortable to answer.

Benefits: Participating in this study does not have a direct benefit, but indirectly, the output of the result will benefit the university, research institutions, and relevant stakeholders to take necessary measures.

Incentives: There is no incentive or compensation for being involved in the study.

Voluntary participation: Participating in this study is voluntary. You have the right to refuse to participate in this research (you can choose not to respond to some or allof the questions). If you do not wish to participate, this will not affect your status. Youalso have the undisputed right to withdraw from this study at any time in the process.

Dissemination of the result: The findings of the study will be communicated with AAU-CHS. It will also be submitted for publication in national and international journals while maintaining the confidentiality of the institution and participants.

Personal contact: If you have any questions or anything that is not clear, please feel free to ask the data collector. If there is any concern about the tool, please contact the principal investigator, Hana Getachew, Addis Ababa University, College of Health Sciences, School of Public Health. Cell phone number: +251 934471560, email:hanagetachew30@gmail.com, or if there is any ethical concern, you may contact the Ethics Committee of AAU-SPH.

If you are clear with the information given and willing to participate in this study, youare kindly asked to sign the consent form attached below.

12.2. Consent Form

I am oriented about the objective of the study. I have been informed that all of my information will be kept confidential and used solely for this study. I have been well informed that the data collection is anonymous and a unique identifier will be used. I fully understand that I can participate in the study voluntarily and can refuse or withdraw anytime, or I can jump some questions about which I do not feel comfortable.

I certify that I have read and understood all the information in this consent form, including the nature and purpose, the potential benefits, and the possible risks associated with participating in this study.

Do you agree to participate?

- Yes
- No

Signature: _____

Date: _____

Name of data collector: _____

Signature: _____

Date: _____

12.3. Questionnaire

The questionnaire is adapted and modified from an international survey, “Biomedical authors’ awareness of publication ethics." (15)

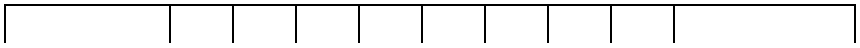
SECTION 1

This section asks about how ethical or unethical you think the specific scenarios are.

Read each scenario and rate how unethical you think it is on a scale of 0 to 10.

1. A researcher submitted a manuscript describing the primary results of a study to a medical journal that prohibits the submission of work that has previously been published. A peer reviewer comments that the same study results have already been published in an abstract at a professional meeting or as a paper in the proceedings of a conference and that this prior publication means the work is not new and should not be considered for publication by the journal.

   On a scale of 0 to 10 below please rate how ethical or unethical you think this researcher's behavior is:

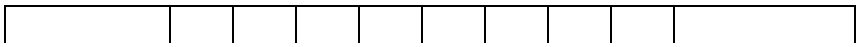


0 1 2 3 4 5 6 7 8 9 10

completely ethical completely unethical

2. A corresponding author, a member of staff, is ready to submit a manuscript. A research student helped with the design of the study, data collection, and writing of the manuscript, but has since relocated and cannot be reached to provide final approval of the manuscript. After trying to contact the research student for months, the corresponding author decides to remove the student’s name from the paper, recognizes their contribution in the Acknowledgements section instead, and publishes the paper.

   On a scale of 0 to 10 below please rate how ethical or unethical you think the corresponding author’s behavior is:



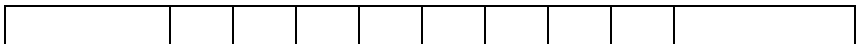
0 1 2 3 4 5 6 7 8 9 10

completely ethical completely unethical

3. An author submitted a systematic review article to Journal X. A peer reviewer commented that parts of the paper reproduced work previously published by the same author in a textbook chapter. The reviewer claimed that about 10% of the text, mainly in the Introduction section and

the Methods describing the literature search strategy, appeared to be identical without any reference to the textbook chapter.

On a scale of 0 to 10 below please rate how ethical or unethical you think this author's behavior is:

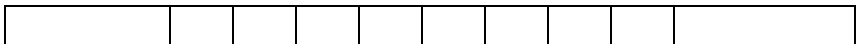


0 1 2 3 4 5 6 7 8 9 10

completely ethical completely unethical

4. Three authors from the same institution conducted a research study and wrote it up as a paper for publication. With agreement from the co-authors and after preparing the manuscript for submission, the corresponding author invited a fourth researcher to be the last-listed author. This author, a professor and head of department, was familiar with the subject matter of the paper but had not been involved with the study. After agreeing to be an author, the fourth researcher gave general advice on how to improve the Discussion section and identified some typographical corrections on reading the final version of the manuscript before submission.

On a scale of 0 to 10 below please rate how ethical or unethical you think the corresponding author's decision to include the 4th researcher to be an author:

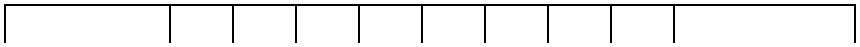


0 1 2 3 4 5 6 7 8 9 10

completely ethical completely unethical

5. A researcher submitted an unsolicited narrative review article to a medical journal. The article reviewed the treatment benefits of several major pharmaceutical products commonly used in the field. A year before this, the researcher received a research grant from Company X in relation to a product discussed in the review article but did not mention this in the submission of the review.

On a scale of 0 to 10 below please rate how ethical or unethical you think this researcher's behavior is:



0 1 2 3 4 5 6 7 8 9 10

completely ethical completely unethical

SECTION 2

This section asks about your knowledge of specific publication issues. Please select the statement that best describes your knowledge of each of the seven topics.

1) **Self-plagiarism** is defined as the reuse or recycling of one's own previously published text, theories, images, data, or tables, usually without citation.

Please indicate your level of knowledge of self-plagiarism

1. I have no knowledge of this topic
2. I have some knowledge of this topic
3. I have substantial knowledge of this topic

2) **Image manipulation** involves the modification of the originally captured image, including the insertion or deletion of visual data.

Please indicate your level of knowledge of image manipulation:

1. I have no knowledge of this topic
2. I have some knowledge of this topic
3. I have substantial knowledge of this topic

3) **Plagiarism** constitutes the use of the words, theories, images, or data of others without proper credit and involves the passing off of material as one's own.

Please indicate your level of knowledge of plagiarism:

1. I have no knowledge of this topic
2. I have some knowledge of this topic
3. I have substantial knowledge of this topic

4) **Prior publication** involves the use of data, tables, and images that have previously been made public, including in a setting other than a journal article.

Please indicate your level of knowledge of prior publications:

1. I have no knowledge of this topic
2. I have some knowledge of this topic
3. I have substantial knowledge of this topic

5) **Authorship** is defined as the inclusion of an individual who has contributed significantly to the reported research and the composition of the paper. Many journals have adopted criteria that define what contributions constitute authorship.

Please indicate your level of knowledge about authorship:

1. I have no knowledge of this topic
2. I have some knowledge of this topic
3. I have substantial knowledge of this topic

6) **Conflict of interest** has been defined as a set of conditions in which professional judgment concerning a primary interest, such as patient welfare or the validity of research, can be influenced by a secondary interest, such as personal or financial gain.

Please indicate your level of knowledge about conflict of interest:

1. I have no knowledge of this topic
2. I have some knowledge of this topic
3. I have substantial knowledge of this topic

7) **Dual submission** is defined as the simultaneous submission of the same manuscript to more than one journal at the same time and without letting both journals know.

Please indicate your level of knowledge of dual submission:

1. I have no knowledge of this topic
2. I have some knowledge of this topic
3. I have substantial knowledge of this topic

SECTION 3

This section asks about your practice of specific publication issues. Please answer Yes or No on your practice of each of the topics.

No	Question	Response	Remark
1	Was there a time in your research experience when you may have utilized your prior work or other's work for your current publication?	1. Yes 2. No	
2	If yes, have you cited these correctly?	1. Yes 2. No	
3	Whenever you need to include figures and tables, do you have a habit of communicating with the original author and getting consent from the person who originally created them?	1. Yes 2. No	

4	It is common to submit a paper to multiple journals at the same time for the sake of getting a better chance of publishing, do you also have that experience before?	1. Yes 2. No	
5	Once a big study is done, there is a practice of publishing by breaking it into different smaller multiple papers (salami-slicing). Do you have that experience before?	1. Yes 2. No	
6	On some topics, there may not be enough literature, and researchers may end up using their previous papers as a source several times. Did you have that challenge before and end up without other options?	1. Yes 2. No	
7	It is known that supervisors and friends may put direct and indirect pressure on researchers to get their names included in publications. Have you ever included someone else's name in your original work without a significant contribution from their side?	1. Yes 2. No	
8	There is a chance that someone who coauthors a paper could be omitted during publication. Did that ever happen during your previous publications?	1. Yes 2. No	
9	In your previous publications, have you always mentioned significant interest groups that were financially or non-financially involved in your work, under the conflict-of-interest section?	1. Yes 2. No	

SECTION 4

1) Age? _____

2a) What is your clinical specialty?

b) if you are primarily an academic researcher, what is your research specialty? _____

3) For how many years have you been an active researcher?
_____

4) Approximately how many research or review papers have you published in journals (including papers that you have co-authored)? _____

5) On average, approximately how many journal articles do you peer review in a year? _____

6) Have you ever performed an editorial role, such as editor-in-chief, or acted as an Editorial Board member?

1. Yes
2. No

7) How would you rate the quality of the training/guidance you have received on the ethics of publishing scientific research?

	1 (Excellent)	**2 (Good)**	**3 (Average)**	**4 (Poor)**	**5 (I have never received this type of training/guidance)**
From a scientific mentor					
A course you attended devoting some time to this topic					
A course you attended specifically on this topic					
Online resources on this topic					

Thank you for your help.