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Criteria for Authorship in Bioethics

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Abstract

Multiple authorship is becoming increasingly common in bioethics research. There are well-established criteria for authorship in empirical bioethics research but not for conceptual research. It is important to develop criteria for authorship in conceptual publications to prevent undeserved authorship and uphold standards of fairness and accountability. This article explores the issue of multiple authorship in bioethics and develops criteria for determining who should be an author on a conceptual publication in bioethics. Authorship in conceptual research should be based on contributing substantially to: (1) identifying a topic, problem, or issue to study; (2) reviewing and interpreting the relevant literature; (3) formulating, analyzing, and evaluating arguments that support one or more theses; (4) responding to objections and counterarguments; and (5) drafting the manuscript and approving the final version. Authors of conceptual publications should participate substantially in at least two of areas (1)–(5).

Keywords

accountability; authorship guidelines; bioethics; conceptual publications; fairness; multiple authorship

Bioethics emerged in the early 1970s as an interdisciplinary field in which philosophers, attorneys, theologians, physicians, sociologists, and scientists reflected on ethical problems in biology and medicine (Jonsen 2003; Jecker et al. 2007). The initial scholarly work in the field was largely conceptual. Authors typically developed arguments for ethical positions through analysis and discussion of concepts, theories, principles, distinctions, and assumptions relevant to the issue (see Rachels 1975, for example). As the field matured, researchers began to conduct empirically based studies relevant to bioethics issues, such as surveys, interviews, focus groups, historiography, and ethnography (see Kopelman et al. 1988, for example). Today, both conceptual and empirical methodologies are prevalent in bioethics research, and some papers employ both methods (Sugarman and Sulmasy 2001).

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¹By “research” we mean a systematic investigation that attempts to advance human knowledge or wisdom. Though research is often associated with scientific inquiry, we do not limit the concept in this way. Research may include scientific studies as well as other scholarly activities, such as philosophical or legal analysis, literature interpretation, theological reflection, historiography, journalism, etc. This article is the work product of an employee or group of employees of the National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health (NIH). The statements, opinions and conclusions contained in the article do not represent the statements, opinions, or conclusions of NIEHS, NIH, Health Canada, or the U.S. or Canadian governments, or any affiliated academic institutions. The authors are grateful to Bruce Androphy and William Schrader for helpful comments. David B. Resnik is associate editor of *Accountability in Research*.

Most of the discussion about the relationship between conceptual and empirical approaches to bioethics has focused on the relevance of descriptive studies to normative claims (Leget et al. 2009; Hofmaster and Hooker 2009; Kon 2009). What can a survey of attitudes and opinions concerning an ethical issue tell us about how to make decisions concerning that issue? How can we draw conclusions about what ought to be the case from descriptive premises about the current situation? While these questions are interesting and important, they are not our main concern. Instead, we would like to call attention to a somewhat different issue related to the increasing prevalence of empirical approaches to bioethics: multiple authorship.

Multiple authorship is common in the empirical sciences, because many may make significant contributions to collaborative research, such as performing experiments and analyzing data. Multiple authorship can lead to ethical concerns when individuals named as authors do not deserve such recognition, or when individuals are omitted from the authorship list when they deserve such recognition. To promote ethical authorship practices, most scientific journals have developed their own authorship policies or adopted widely recognized international guidelines (Shamoo and Resnik 2009).

Elsewhere, we have examined potential problems related to multiple authorship in bioethics (Master 2011; Resnik and Master 2011). We published a recent study of the authorship policies of 30 bioethics journals which found that only *Theoretical Medicine and Bioethics* offers guidance on its public website pertaining to authorship on conceptual papers (Resnik and Master 2011). (Accountability in Research [2011] decided to publish guidance for conceptual papers on its public website after learning about our study.) The lack of authorship guidance, especially in conceptual research, is cause for concern, since international guidelines do not adequately address the roles of authors for conceptual publications. Because conceptual research lacks the clearly defined roles one finds in empirical research, it may be difficult to determine who should be named as an author on a conceptual bioethics paper, and undeserved authorship could become a problem. This article explores the issue of multiple authorship in bioethics and proposes criteria for determining who should be an author on a conceptual publication in bioethics.²

MULTIPLE AUTHORSHIP IN BIOETHICS

Numerous studies have documented a steady rise in the number of authors per paper in various natural and applied scientific disciplines (Drenth 1996; Powers 1988; King 2000; Levsky et al. 2000; Weeks et al. 2004; Rahman and Muirhead-Allwood 2010), as well as the social sciences (Endersby 1996), business (Manton and English 2007), political science (Fisher et al. 1998), and economics (Hudson 1996). A study published several years ago showed that this trend is also occurring in bioethics. Borry and colleagues found that the average number of authors per paper in nine bioethics journals increased from 1.46 in 1990 to 1.85 in 2003. The authors also found a significant difference between empirical and conceptual papers. Empirical papers had an average of 2.97 authors, compared to 1.35 for conceptual papers. Borry and colleagues concluded that most of the increase in multiple authorship in bioethics can be accounted for by an increase in empirical research (Borry et al. 2006). Since Borry and colleagues did not include scientific or medical journals in their study, they may have underestimated the actual number of authors per paper in bioethics, as much of the bioethics literature is published in scientific and medical journals.

²We use the term “conceptual” research here to include research based on nonempirical methodologies used in many different fields in humanities. Other terms that might cover the same idea would be “theoretical,” “interpretive,” or “normative” research. We prefer the term “conceptual” because it emphasizes that the research is primarily about concepts or ideas, rather than empirical observations. We realize that this is not an absolute distinction, and that some papers combine both approaches, but it does capture some important differences between methodologies used in bioethics research.

While Borry and colleagues' research indicates that much of the increase in the numbers of authors per paper in bioethics is due to the rise in empirical research, many conceptual papers also have multiple authors today, a sharp contrast to earlier bioethics conceptual papers, which tended to be single-author or dual-author pieces (Jecker et al. 2007). Conceptual papers with numerous authors include articles on:

- Justice in stem cell research—18 authors (Faden et al. 2003).
- Managing incidental findings in research—21 authors (Wolf et al. 2008).
- Ethics of testing carriers for spinal muscular dystrophy—22 authors (Gitlin et al. 2010).
- Stem cell ethics and policy—29 authors (Caulfield et al. 2007).
- Ethical challenges to cell-based interventions for neurological conditions—32 authors (Duggan et al. 2009).

All five of these articles were produced by research groups, which met several times to discuss the issues and developed recommendations concerning ethics and policy. Some of these papers are consensus statements, while others are authored by those who contributed to discussion groups.

There may be nothing wrong with including 32 authors on a conceptual paper in bioethics, but this practice does raise ethical questions (Master 2011; Resnik and Master, 2011). What did each individual do to merit authorship? Is participation in a group discussion of a bioethics issue and reviewing the manuscript sufficient for authorship? Multiple authorship in conceptual research is ethically problematic in bioethics (and potentially other disciplines) because very few journals provide any guidance on this issue. To prevent unethical authorship practices, it is important to develop authorship guidance for conceptual research.

FAIRNESS AND ACCOUNTABILITY IN AUTHORSHIP

Authorship guidelines can help to uphold two key ethical values—fairness and accountability—by clearly stating the conditions for authorship (Resnik 1997; Rennie et al. 1997). It is important to allocate authorship fairly, because people deserve recognition for their contributions. In scientific and scholarly research, authorship is linked to career advancement, status, and other rewards. Universities and other research organizations consider a person's publication record when hiring, when determining tenure and promotion, and when making decisions pertaining to grants, scholarships, awards and prizes. Refusing to grant authorship to someone who has made a significant contribution to a paper can have a negative impact on that person's career. Conversely, awarding authorship to someone who does not deserve it can inflate their publication record and benefit them unfairly (Shamoo and Resnik 2009).

Authorship also confers various intellectual property rights on authors and their institutions, such as copyrights (Resnik 2003). Authors (and institutions) may relinquish their copyrights to a publisher as a condition of publication. Although copyrights may be surrendered at some point to publishers, authors maintain the right to claim recognition for their role in a discovery, finding, or result described in their paper. Authors also have the right to approve the final version of a paper and to concur with the conclusions reached in a paper. Authors who do not agree with the conclusions of a paper may stop publication or remove their name from the paper.

Accountability is an important consideration to authorship attribution, because authors should be able to address concerns, such as error, bias, or potential misconduct, related to

their work. Accountability is not usually an issue in single-authored papers because only one person has done all of the work. Accountability becomes more of an issue in multi-authored works. For example, suppose that a paper has 10 different authors involved in various aspects of the research, such as data collection and research design. If an outside party reanalyzes data reported in the paper and finds that there is a problem with some data in the publication that may be due to error or misconduct, then it is important for the institutions involved in the research to determine who is responsible. Accountability is just as important in conceptual papers. If someone reads a conceptual paper with 10 authors and discovers that a passage may have been plagiarized, it would be important for the institutions involved in the research to be able to determine who wrote the passage.

AUTHORSHIP GUIDELINES

Authorship guidelines can help to deal with the ethical issues related to multiple authorship by ensuring that only individuals who make significant contributions to the paper are named as authors. For example, the International Committee of Medical Journal Editors (ICMJE) *Uniform Requirements for Manuscripts Submitted to Biomedical Journals* states:

Authorship credit should be based on 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3. (ICMJE 2010)

The ICMJE criteria could be applied to empirical bioethics research, because individuals involved in this type of research usually perform at least one of the different roles referred to in this guideline, such as conception and design, or the acquisition of data. Several bioethics journals have adopted authorship criteria similar to the ICMJE standard (Resnik and Master 2011). For example, the *American Journal of Bioethics* Instructions for Authors states:

Each author should have participated sufficiently in the work to take public responsibility for the content, with authorship credit based only on substantial contributions to: conception and design, or analysis and interpretation of data; drafting the article or revising it critically for important intellectual content; and final approval of the version to be published. All these conditions must be met. (American Journal of Bioethics 2011)

AUTHORSHIP GUIDELINES FOR CONCEPTUAL RESEARCH IN BIOETHICS

The ICMJE criteria are difficult to apply to conceptual bioethics publications because conceptual research in bioethics is fundamentally different from empirical research (Master 2011). What constitutes a significant contribution to a paper is a function of the methodology used in the research. In empirical bioethics research, authors collect, record, analyze, and interpret data. Data may be derived from experiments or other tests conducted for the study, or the data may already exist. Authors may use the data to prove or disprove hypotheses about attitudes, behaviors, opinions, and beliefs related to an ethical issue. Some empirical bioethics research is not hypothesis-driven, but aims to explore a new area of investigation. Authors also help to design experiments, tests, surveys, or procedures, and draft, revise, and edit the manuscript.

Since the methodologies employed in conceptual bioethics research are different from those used in empirical research, what counts as a significant contribution to conceptual research also differs. Conceptual bioethics research does not involve the acquisition of data, experimentation, or hypothesis testing. Conceptual research essentially involves reading, thinking, and writing about a topic, problem, or issue. The primary methods used in

conceptual bioethics research include: (1) identifying a topic, problem, or issue to study; (2) reviewing and interpreting the relevant literature; (3) formulating, analyzing, and evaluating arguments that support one or more theses; (4) responding to objections and counterarguments; and (5) drafting the manuscript and approving the final version (Sugarman and Sulmasy 2001; Jecker et al. 2007). Authorship criteria for conceptual research should be based on these different contributions. Guidelines developed by journals should require authors of conceptual papers to participate substantially in at least two of these research roles. Guidelines should also state what does not count as a substantial contribution, such as editing the paper for grammar, participating in a meeting, or providing funding or supervision, while not making any other contribution.

Some bioethics papers may employ empirical and conceptual methodologies. When this occurs, it may be difficult to determine whether to apply empirical (such as the ICMJE guidelines) or conceptual criteria (such as those just discussed). Since the criteria specify what it means to make a substantial contribution to a paper, authorship in papers that employ empirical and conceptual methodologies should be based on contributions to the empirical or conceptual work (or both) performed for the paper. For example, if a paper presents data on attitudes and opinions pertaining to a bioethics issue, and also includes an ethical analysis of the issue, a person could be named as an author for making a substantial contribution to the collection, analysis, or interpretation of data, or to the ethical analysis, or to helping draft the manuscript and approving the final version.

Sometimes it may be difficult to determine whether an individual has made a significant contribution to a bioethics paper. Authorship guidelines are just that—guidelines. They are meant to provide guidance on what generally constitutes significant contributions warranting authorship and what contributions may be acknowledged. They are not hard rules from which there is no deviation. The responsible conduct of research demands discussing authorship at the conception of the research, establishing clear roles, and showing mutual respect for colleagues involved in a collaborative project. As new aspects in the process of research arise, individuals involved should maintain transparency and an open mind.

In February 2006, a group of editors from bioethics journals met in San Francisco to formulate publication guidelines. The guidelines address conflict of interest, authorship, redundant publication, human subjects protections, and other issues (Cambridge Quarterly of Healthcare Ethics 2008). The guidelines distinguish between authorship in empirical papers and authorship in philosophical, legal, theological, historical, and other theoretical papers. The journals that contributed to the formulation of these guidelines included the *American Journal of Bioethics*, *Bioethics*, *Cambridge Quarterly of Healthcare Ethics*, *Kennedy Institute of Ethics Journal*, *Nursing Ethics*, and *Theoretical Medicine and Bioethics*. Only *Theoretical Medicine and Bioethics* has posted the group's authorship guidelines for theoretical papers on its website (Theoretical Medicine and Bioethics 2011). The *Theoretical Medicine and Bioethics* guidelines state that the ICMJE criteria apply to authorship on empirical papers. For theoretical research, an author should:

- (a) Thoroughly understand the argument of the paper, (b) Agree with the argument and its conclusions at least at the level of a consensus among the authors, and (c) Have been substantially involved in the writing of the article, generally understood to include at least two of the following: (i) Generating the idea for the paper (ii) Outlining the argument (iii) Supplying the abstract (iv) Actual writing of parts of the paper's text (v) Substantial critiquing and editing of drafts. (Theoretical Medicine and Bioethics 2011)

These guidelines address most of the major roles that an author might undertake in conceptual research. However, they do not include review and interpretation of the

literature, which is an essential part of research in law, philosophy, ethics, humanities, and policy. Under these guidelines, a student or research assistant could put in a substantial amount of work reviewing and interpreting the literature and not receive authorship credit, if he or she does not also satisfy two of conditions (i)–(v). The guidelines also include a role—supplying the abstract—that does not seem to be especially relevant to a conceptual research article. Abstracts usually summarize the paper and the conclusions reached and do not make a substantial addition to the work undertaken in conceptual publications. Despite these shortcomings, the guidelines provided by *Theoretical Medicine and Bioethics* are a worthy attempt at developing guidelines for authorship in conceptual papers, and other bioethics journals should consider these and our guidelines when developing their authorship policies.

Authorship criteria for conceptual and empirical publications need to be supplemented with other strategies to help guarantee fair and ethical authorship practices. Many journals also now require authors to state their specific contributions to a paper when they submit it for publication. Listing specific contributions can help promote responsible authorship in conceptual research by requiring authors to affirm that they meet the criteria for authorship (Rennie et al. 1997). For example, the Journal of the American Medical Association (2011) requires authors to sign a form in which they state their contributions to manuscript, verify that they have made a substantial contribution to the research, disclose conflicts of interest, and endorse the data and conclusions (Journal of the American Medical Association 2011). Only two bioethics journals include similar guidance in their instructions for authors (Resnik and Master 2011). For example, the *Journal of Empirical Research on Human Research Ethics* requires authors of multi-authored papers to state the specific role they played in the research. However, it is unclear whether outlining each author's contribution is an effective deterrent against unethical authorship, and the use of this requirement merits further study (Ilakovac et al. 2007; McDonald et al. 2010).

CONCLUSION

Bioethics has undergone significant changes in the last 40 years. Empirical approaches and multiple authorship have become increasingly common. There are well-established criteria for authorship in empirical bioethics research, but not for conceptual research. It is important to develop criteria for authorship in conceptual papers to prevent undeserved authorship and uphold standards of fairness and accountability. Authorship in conceptual research should be based on making a substantial contribution to: (1) identifying a topic, problem, or issue to study; (2) reviewing and interpreting the relevant literature; (3) formulating, analyzing, and evaluating arguments that support one or more theses; (4) responding to objections and counterarguments; and (5) drafting the manuscript and approving the final version. Authors of conceptual papers should participate substantially in at least two of areas (1)–(5). To date, only two bioethics journals have developed authorship guidelines that address conceptual research. Other journals should consider adopting similar guidelines to promote integrity in bioethics research.

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