Principles of scholarly freedom and scholarly responsibility

Researchers should be free to pursue lines of inquiry and the communication of knowledge and ideas without fear of repression or censorship. At the same time, they have the ethical obligation to uphold intellectual integrity and avoid preventable harms that may arise in the course of research or its communication.

Benefits and harms of research

Research should respect the dignity and rights of human research participants; of individuals or groups connected either with the research participants or the research topic; and of the communities in which research is carried out. Research should also respect the rights of non-human life, tangible and intangible heritage, natural resources, and the environment.

Harms can arise as a direct result of the conduct of research – for instance, injury to human participants in the course of participating in a research project; unnecessary suffering of non-human animals as a result of experimentation; material compromise of tangible heritage; ecosystem disruption etc. Harms can also arise indirectly, as a result of the publication of a research project or a piece of scholarly communication – for instance, stigmatization of a vulnerable human group or potential use of the results of research for unintended purposes (e.g., public policies that undermine human rights or misuse of information to threaten public health).

Non-maleficence and beneficence are two fundamental principles in research ethics requiring the maximization of benefits and minimization of potential harms. These principles form a core part of general frameworks for the ethical conduct of research across the sciences and humanities (for example, The World Medical Association Declaration of Helsinki; The Belmont Report; the International Ethical Guidelines for Health-related Research Involving Humans; Ethics in Social Science and Humanities).

Advancing knowledge and understanding is a public good and, as such, a key benefit of research, even when the research in question does not have an obvious, immediate, or direct application. Although the pursuit of knowledge is a fundamental public good, considerations of harm can occasionally supersede the goal of seeking or sharing new knowledge, and a decision not to undertake or not to publish a project may be warranted.
Consideration of risks and benefits (above and beyond any institutional ethics review) underlies the editorial process of all forms of scholarly communication in our publications. Editors consider harms that might result from the publication of a piece of scholarly communication, may seek external guidance on such potential risks of harm as part of the editorial process, and in cases of substantial risk of harm that outweighs any potential benefits, may decline publication (or correct, retract, remove or otherwise amend already published content).

Research on human populations

For studies involving humans categorized by race, ethnicity, national or social origin, sex, gender identity, sexual orientation, religion, political or other beliefs, age, disease, (dis)ability, socio-economic status, or other socially constructed or socially relevant groupings, authors should:

- Explicitly describe their methods of categorizing human populations
- Define categories in as much detail as the study protocol allows
- Justify their choices of definitions and categories, including for example whether any rules of categorization were required by their funding agency
- Explain whether (and if so, how) they controlled for confounding variables (eg socio-economic status, nutrition, environmental exposures) in their analyses

Additionally, we require that all content submitted for publication be respectful of the dignity and rights of individuals and human groups. We expect researchers to have carefully considered the potential implications (including inadvertent consequences) of research on human groups defined by attributes of race, ethnicity, national or social origin, sex, gender identity, sexual orientation, religion, political or other beliefs, age, disease, (dis)ability or other status, to be reflective of their authorial perspective if not part of the group under study, and contextualise their findings to minimize as much as possible potential misuse or risks of harm to the studied groups in the public sphere.

Finally, authors should use inclusive, respectful, non-stigmatizing language in their submitted manuscripts. Authors should ensure that writing is free from stereotypes or cultural assumptions. We recommend avoiding the use of descriptors that refer to attributes such as race, ethnicity, national or social origin, sex, gender identity, sexual orientation, religion, political or other beliefs, age, disease, (dis)ability or other group descriptors unless they are relevant. We advise that authors writing in English follow the guidance on bias-free language provided by the American Psychological Association when preparing their manuscripts for submission.

Regardless of content type (research, review or opinion) and, for research, regardless of whether a research project was reviewed and approved by an appropriate institutional ethics committee, editors reserve the right to request modifications to (or correct or otherwise amend post-publication), and in severe cases refuse publication of (or retract post-publication):

1. Content that is premised upon the assumption of inherent biological, social, or cultural superiority or inferiority of one human group over another based on race, ethnicity, national or social origin, sex, gender identity, sexual orientation, religion, political or other beliefs, age, disease, (dis)ability, or other socially constructed or socially relevant
groupings (hereafter referred to as socially constructed or socially relevant human groupings).

II. Content that undermines – or could reasonably be perceived to undermine – the rights and dignities of an individual or human group on the basis of socially constructed or socially relevant human groupings.

III. Content that includes text or images that directly or indirectly disparage a person or group on the basis of socially constructed or socially relevant human groupings.

IV. Submissions that embody singular, privileged perspectives, which are exclusionary of a diversity of voices in relation to socially constructed or socially relevant human groupings, and which purport such perspectives to be generalisable and/or assumed.

For clarity, we define two concepts:

Socially constructed: A social construct or construction is the meaning, notion, or connotation placed on an object or event by a society, and adopted by inhabitants of that society with respect to how they view or deal with the object or event.

Intersectionality: An analytical framework for understanding how aspects of a person's social and political identities combine to create different modes of discrimination and privilege. Although this concept is not a key element of the statement below, it can be a relevant consideration in applying these principles and guidance.

Race, ethnicity and racism

Race and ethnicity are sociopolitical constructs. Humans do not have biological races, at least based on modern biological criteria for the identification of geographical races or subspecies.

Studies that use the constructs of race and/or ethnicity should explicitly motivate their use. Race/ethnicity should not be used as proxies for other variables – for example, socioeconomic status or income. For studies involving data collected from human participants, researchers should explain:

- who provided the classification terms (the participants, the researchers or third parties);
- what the classification terms are;
- how racial/ethnic identity was determined (by the participants, the researchers or third parties).

Biomedical studies should not conflate genetic ancestry (a biological construct) and race/ethnicity (sociopolitical constructs): although race/ethnicity are important constructs for the study of disparities in health outcomes and health care, empirically established genetic ancestry is the appropriate construct for the study of the biological aetiology of diseases or differences in treatment response. If race/ethnicity are used in the context of disease aetiology due to the unavailability of genetic ancestry data, this should be done with caution and clarification.

Racism is scientifically unfounded and ethically untenable. Editors reserve the right to request modifications to (or correct or otherwise amend post-publication), and in severe cases refuse publication of (or retract post-publication), racist content. Editors use the guiding criteria I-IV in
the section Research on human populations (see above) to identify content that potentially undermines the equal dignity and rights of humans of all races/ethnicities.

Sex, gender (identity/presentation), and sexual orientation

This section relates to the following types of content:

a) that which is overtly *about* sex, gender identity, sexuality and related structural or other (in)equity and

b) that which concerns gender within research and academia, e.g., sexist practises or lack of equitable sex and/or gender balance within specific disciplines

c) that which concerns sexual orientation within research and academia, e.g. anti-LGBTQ practices or inadequate representation of LGBTQ people within specific disciplines

We note that the word ‘sexuality’ is not included here, but advise that this term requires distinction from ‘sex’ (as can more often be used in biological, medical, physiological and psychological perspectives).

SAGER guidelines
Researchers are encouraged to follow the ‘Sex and Gender Equity in Research – SAGER – guidelines’ and to include sex and gender considerations where relevant (overview can be found here).

Working definitions (adopted/adapted from the SAGER guidelines and other sources):

Sex - refers to currently understood biological differences between females and males, including chromosomes, sex organs, and endogenous hormonal profiles. Sex is usually categorized as female or male, although there is variation in the biological attributes that constitute sex.

Gender - refers to socially constructed and enacted roles and behaviours which occur in a historical and cultural context and vary across societies and over time. Gender is usually incorrectly conceptualized as a binary (man / woman or feminine/masculine) factor. In reality, there is a spectrum of gender identities and expressions defining how individuals identify themselves and express their gender

Gender identity - an individual's conception of self as being a man, woman, masculine, feminine, nonbinary, ambivalent, etc., based in part on physical, psychological and social factors. It is the internal experience of a gender role. There is a broad range of gender identities including, but not limited to, transgender, gender-queer, gender-fluid, non-binary, gender-variant, genderless, agender, nongender, bi-gender, trans man, trans woman, trans masculine, trans feminine and cisgender

Gender presentation- how a person publicly expresses or presents their gender identity. This can include behaviour and outward appearance such as dress, hair, make-up, body language and voice. A person’s chosen name and pronouns are also common ways of expressing gender. Others perceive a person’s gender through these attributes. Another term is “gender expression.”
“Gender” refers to a set of cultural norms and expectations and not a “biologically defined variable”. Such norms are not fixed but evolve across time and space. As such, definitions will require frequent revisiting, as the exercise of defining gender (and sexuality) is under constant flux and evolution, as is the area of study in itself.

The study of differences among individuals and human groups is fundamental for health, peace, equality, justice and better standards of life for all. However, Springer Nature reserves the right to refuse publication of (or to retract, remove, correct, include disclaimers, or otherwise amend) content on consideration of criteria I-IV in the guidance on ‘Research on human populations’ (see above), specifically:

I. is premised to draw harmful conclusions that would affect the dignity and rights of the target population based on that population’s sex, sexual orientation, gender identity or presentation.

II. undermines - or could reasonably be perceived to undermine - the rights and dignities of an individual or human group on the basis of sex, sexual orientation, gender identity, and/or gender expression.

III. contains sexist, misogynistic and/or anti-LGBTQ+ hate speech - that is, speech that directly or indirectly denigrates a person or group on the basis of attributes such as sex, sexual orientation, gender identity, and/or gender presentation, regardless of the author’s personal, cultural, religious or political beliefs.

IV. takes an approach or contains language that disregards, excludes, ignores, or overlooks the intersecting structural inequalities faced by women of color and/or LGBTQ+ people of color.

Regardless of content type (research, review or opinion) and, for research, regardless of whether a research project was reviewed and approved by appropriate ethics specialists, editors may raise with the authors concerns based on these criteria; engage external ethics experts to provide input on such issues as part of the peer review process; or request modifications to (or correct or otherwise amend post-publication), and in severe cases refuse publication of (or retract post-publication) sexist, misogynistic, and/or anti-LGBTQ+ content.

Additional considerations for researchers and editors:

- Researchers are encouraged to carefully consider the potential implications (including inadvertent consequences) of research on human groups defined by attributes of sex, sexual orientation, gender identity, and/or gender presentation, and contextualize their findings to minimize as much as possible potential misuse or risks of harm to the studied groups.

- In the practice and publishing of their work, researchers are encouraged to promote gender equality in their academic research which by nature should be grounded on the recognition of merit, competences and creativity, regardless of any other personal feature or orientation [see bibliographic source 11].

- Research that could potentially be utilized to undermine the dignity or rights of individuals or human groups on the basis of sex, sexual orientation, gender identity, and/or gender presentation must have explicitly considered such risk, as well as ways to mitigate it - and this should be reflected in the submitted article.
Sources that have informed this guidance

Benefits and harms of research; Research on human populations


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Secretariat of the Convention on Biological Diversity (2011) Nagoya protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization to
the convention on biological diversity: Text and annex. Convention on Biological Diversity
https://www.cbd.int/abs/. Accessed 5 March 2022

Perspectives on human dignity: A conversation. Springer, Dordrecht

Social Research Association (2021) Research ethics guidance


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the Social Sciences, Humanities, Law and Theology.

https://www.globalcodeofconduct.org/. Accessed 5 March 2022

UN General Assembly (1948) Universal Declaration of Human Rights.

UN General Assembly (1972) Declaration of the United Nations Conference on the Human

UN General Assembly (1992) Rio declaration on environment and development.


United States (1978) The Belmont Report: Ethical principles and guidelines for the protection of
human subjects of research. The Commission, Bethesda, MD

https://worldarch.org/code-of-ethics/ Accessed 5 March 2022

Human Remains and Sacred Objects.
Race, ethnicity and racism


Bonham VL, Green ED, Pérez-Stable EJ (2018) Examining how race, ethnicity, and ancestry data are used in biomedical research. JAMA 320:1533–1534


Collins F (2004) What we do and don't know about 'race', 'ethnicity', genetics and health at the dawn of the genome era. Nat Genet 36:S13–S15


Sex, gender (identity/presentation), and sexual orientation


Global Citizen. “There’s Finally an Internationally Agreed Upon Definition of Sexism. Here’s Why That Matters.”

Human Rights Watch


