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Themed Section: Health Equity: Methods and Measures for Equity Informative Evaluations

Strengthening Methods and International Evidence on Health Inequality Aversion

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ABSTRACT

Objectives: This article summarizes areas of methodological agreement about health inequality aversion and proposes a research agenda to strengthen methods and international evidence to inform priority setting.

Methods: This article arises from a workshop in November 2024 that brought together methodologists and applied researchers from 12 countries, including ethicists, physicians, epidemiologists, and health economists. The workshop comprised methods and research application presentations culminating in a guided discussion to gain consensus on methods and research agenda.

Results: Participants agreed that (1) the magnitude of health inequality aversion may depend on the concept of inequality used; (2) both the concept and magnitude of aversion may vary by decision-making context; (3) pre-existing preferences are often incomplete or internally inconsistent; (4) comparisons across broad ordinal categories of inequality aversion are more robust than point estimates; (5) underlying social value judgments should be clearly communicated to decision makers and the public; (6) health inequality aversion is relevant across a wide range of social decisions; and (7) an international database of estimates would facilitate data sharing and comparability. The proposed research agenda prioritizes investigation into (1) the nature and shape of inequality aversion; (2) how the choice of health measure influences responses; (3) interactions among multiple dimensions of social disadvantage; (4) cultural variation in the understanding of health inequality; (5) reasons underpinning quantitative responses; (6) framing effects; and (7) the validity and representativeness of elicited preferences.

Conclusions: There are substantial opportunities to advance methods so that estimates of health inequality aversion can routinely inform decision making. Progress will require interdisciplinary collaboration beyond health economics, medicine, and ethics, drawing on disciplines such as political science, psychology, and sociology, and application across a wider range of settings.

Keywords: health equity, health inequality aversion, research agenda, stated preferences elicitation, welfare economics.

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Highlights

- Evidence is emerging about strength of concern for reducing health inequality in different countries.
- Following an international workshop, we summarize areas of methodological consensus and research priorities in this field.
- There is widespread concern to reduce health inequality, but strength of concern remains hard to quantify, and methodological progress will require broader interdisciplinary collaboration.

Introduction

Health inequality aversion refers to the strength of concern for reducing health inequality held by an individual, decision-making body, or stakeholder group. Specifically, it reflects the extent to which one is willing to trade off overall health for a more equitable distribution of health. There is a growing body of quantitative survey evidence about health inequality aversion in a range of countries, which aims to inform decision making when trade-offs arise between reducing health inequality and other policy objectives.¹ This evidence includes health inequality aversion parameter values and equity weights, which can be used not only to assess the general relevance and importance of health inequality as a policy issue but also as specific benchmarks for adjusting standard cost-effectiveness metrics to account for the

value of health inequality impacts. This means going beyond the stage of using distributional cost-effectiveness analysis to measure health inequality impacts and assess their magnitude—as recommended, for example, by the United Kingdom National Institute for Health and Care Excellence²—to the next stage of valuing those impacts by assigning weights to health outcomes.

Health inequality aversion elicitation relies on measures from welfare economics, typically elicited through online stated preference surveys of the public. Many methods have been used to elicit health inequality aversion parameters, such as benefit trade-off (BTO),³ level trade-off (LTO),⁴ and constrained resource allocation,⁵ which differ in focus, complexity, and framing. The availability of different methods and concepts of inequality raises questions about their respective characteristics and properties, the comparability of the results, and what the implications are for

their use in facilitating distributional cost-effectiveness analysis and supporting health policy decision making generally.

To address these questions, we convened a workshop titled Strengthening International Evidence on Health Inequality Aversion⁶ funded by the Brocher Foundation to advance the field by exploring the current evidence, the different methodological approaches developed, the empirical and cultural challenges, and the applicability of the findings in policymaking. The workshop brought together methodologists who have published extensively in this nascent research area, as well as emerging researchers currently working on these methods. Participants were selected from 12 different countries to ensure regional diversity and included ethicists, physicians, epidemiologists, and health economists ([Appendix](#) in [Supplemental Materials](#)).

This commentary aims to (1) summarize areas of methodological consensus and (2) propose a research agenda to advance

methods and strengthen international evidence on health inequality aversion to inform priority setting.

Areas of Methodological Consensus

The workshop comprised methods and research application presentations culminating in a guided discussion to gain consensus on methods and research agenda. Some perspectives diverged on nuances, but participants found common ground on several fundamental aspects of health inequality aversion research ([Fig. 1](#)).

- (1) The measurement of health inequality aversion should align with the health equity concern relevant to the context of application. There are 2 main aspects to this. First, the underlying health distribution of focus should reflect the equity concern. At least 2 distinct concepts of health inequality

Figure 1. Key areas of consensus and research priorities in health inequality aversion.

Box 1: Consensus Areas

1. The magnitude of health inequality aversion may depend on the concept of inequality.
2. The appropriate concept and magnitude of health inequality aversion depends on the decision-making context.
3. Individuals do not have complete and consistent pre-existing value judgements about health inequality.
4. Broad ordinal classifications of inequality aversion (e.g. positive or negative; low or high) are more robust and comparable than point estimates.
5. Complex technical methods are acceptable so long as their underlying social value judgements are clearly communicated to decision makers and the public.
6. Health inequality aversion is relevant to a wide range of social decisions affecting health
7. Establishing an international database on health inequality aversion would facilitate data sharing

Box 2: Research Priorities

1. Nature and shape of health inequality aversion
2. Choice of health metric influences the health inequality aversion parameters elicited
3. The interaction of social disadvantage characteristics shapes inequality aversion
4. Cultural differences in understanding health inequality
5. Using qualitative studies to understand quantitative results
6. Understanding and addressing framing effects
7. Response validity and representativeness

- aversion are commonly encountered in the literature: (i) aversion to health variation per se (ie, “pure” or “univariate” health inequality), regardless of whether that inequality is systematically related to another attribute of persons or populations,⁷ and (ii) aversion to health variation that is systematically related to equity-related attributes of persons or populations, such as social status, whereby more disadvantaged social groups experience higher rates of premature morbidity and mortality (also known as “social inequality in health”).⁸ The former concept is narrower from an analytical perspective because it focuses on only 1 variable, but it is broader from an ethical perspective because it attempts to incorporate concerns for prioritizing health improvement for different groups, such as children, severely ill people, and disabled people, as well as socially disadvantaged people. Second, the measure of aversion chosen should align with the values and equity concerns applicable to the context. Different measures of inequality focus on different aspects of the health distribution and the appropriate measure should match the decision-maker’s equity objective—for example, absolute versus relative inequality, level-dependent versus rank-dependent inequality, and lower tail inequality among the worse off versus upper tail inequality among the better off.⁹ Health inequality aversion concepts thus vary in terms of both the nature of the relevant distribution (“inequality among whom?”) and the pattern of priority weights given to people in different parts of that distribution (“inequality summarized how?”).
- (2) Participants agreed that the relevant magnitude of health inequality aversion and the equity weights to apply might differ depending on the specific context and decision. This may depend on the specific interventional context as well as the general institutional decision-making context and consequent high level policy decisions about the relevant health distribution and standard inequality aversion index to be used. For example, an institution might set a standard benchmark range of values reflecting “high,” “medium,” and “low” levels of health inequality aversion in a specific decision-making context, such as pricing decisions about new pharmaceuticals, or health and safety regulations. Decision makers might then appropriately choose a “high” level of aversion in some contexts but a “medium” or “low” level in others, so long as appropriate justifications are given. For example, they might bring in special considerations of equity relating to personal responsibility or historical discrimination that would not be fully incorporated by simply choosing the midpoint of the standard range of benchmark values.
 - (3) Individuals lack complete and consistent pre-existing preferences about health inequality.^{10,11} These preferences are developed and refined through the process of completing the survey. Thus, the questions, their framing, and the administration process influence the preferences elicited. The tasks used to elicit health inequality aversion are cognitively demanding for respondents, which may be linked to observed inconsistency in responses. Such inconsistency creates confusion for researchers in interpreting their responses and determining whether they represent true preferences or stem from misunderstandings, fatigue, or other factors that deviate from the assumption of rational decision making.
 - (4) Comparison of findings between contexts based on broad ordinal categories of health inequality aversion are more robust than comparisons of point estimates. Respondents may not have a precise health inequality aversion parameter value that can be discovered independently of the value elicitation process. Ordinal categories allow for a certain variability without requiring precise numerical estimates. It is also important to note that altering the “choice architecture”—the context in which choices are presented—has an impact on the results obtained. For example, the BTO approach tends to yield higher inequality aversion parameters than the LTO and constrained resource allocation approaches.^{3,5} Although the reasons are not entirely clear, this difference may partly stem from the number of groups presented (eg, typically 2 in BTO versus 3 to 5 in LTO) and the most salient reference point level of inequality or locus of attention. With fewer groups, attention may focus more on inequality gaps, whereas more groups could shift focus to the average level.
 - (5) The methods used to elicit inequality aversion are often complex and challenging for a nonspecialist to understand. The integration of inequality aversion into decision making does not require that the decision makers have a full understanding of those methods. However, it is essential that decision makers understand key underlying value judgments, normative assumptions, and the trade-offs embedded in those elicitation methods, as well as the measures presented and how to interpret their implications for the decisions at hand. A recent National Institute for Health and Care Excellence modular update on health inequalities prioritizes transparent assumptions, justified scenario analyses, and interpretable outputs.^{12,13}
 - (6) Health inequality aversion, although often discussed in the context of health policy and health technology assessment, is also relevant to broader social decision making across multiple policy domains, and its use aligns with broader international efforts to address social determinants of health.¹⁴ This concept turns “equity as a principle” into transparent, testable scenarios, and clarifies what is being traded-off (efficiency loss vs disparity reduction). It informs a broad range of public health policies, such as tobacco control, obesity prevention, and vaccination, as well as guides resource allocation in health systems and broader environmental and social policies, such as housing.
 - (7) Different types of elicitation techniques have been conducted across the world, focusing on different equity-relevant dimensions and different outcomes, for example, studies in India, Thailand, Japan,¹⁵ and Australia¹⁶ in the Asia Pacific; the United Kingdom,^{3,5} Spain,¹⁷ and Norway¹⁸ in Europe; Uganda¹⁹ in Africa; and the United States²⁰ and Canada^{4,21} in North America. The establishment of an international database on health inequality aversion would help empirical research by, for example, increasing understanding of the methodological challenges and the heterogeneity of preferences across and within countries and over time. It could also serve as a platform for predicting health inequality aversion in countries for which no data exist.
- ### Research Priorities
- Identifying and prioritizing key research areas is crucial for deepening our understanding of health inequality and informing policies that effectively balance efficiency and equity based on societal preferences (Fig. 1). We emphasize areas characterized by diverse perspectives and methodological judgements, in which additional evidence and analysis can resolve uncertainties and sharpen policy-relevant guidance.
- (1) One key area for further research is the appropriate nature and shape of the Social Welfare Function to better understand how it affects interpretation, application, and

communication: (a) the use of a single parameter approach versus a multi-parameter approach, (b) concern for aversion to inequality among individuals versus groups, (c) the shape of weighting function, and (d) concern for expected lifetime health or realized lifetime health.

- (2) Different measures of health may elicit different measures of health inequality aversion. Concern for health inequality may depend on whether health impacts relate primarily to length of life or quality of life.²² Some studies have used life expectancy at birth and others health-adjusted or quality-adjusted life expectancy at birth. Because the baseline health distribution depends on the chosen health metric, the magnitude (and sometimes the ranking) of subgroup gaps may differ, which, in turn, influences the degree health inequality aversion elicited.
- (3) Understanding the extent to which inequality aversion varies depending on the measure of social disadvantage and the overlap between multiple aspects of social disadvantage—such as income, ethnicity, urban-rural location, disability, loneliness, caring responsibilities, and other equity-relevant variables. Different equity-relevant variables can interact and moderate one another in complex ways at different stages of the life course to generate different overall levels of social disadvantage and illness. Identifying the most important and policy-relevant interactions may differ by setting and requires not only looking separately at different equity-relevant variables but also exploring how overlaps between them interact to shape inequality aversion.
- (4) More research is needed on how cultural differences in understanding health inequality influence survey responses. This encompasses variations in social norms and values that can affect how health disparities are perceived. This complex issue relates to linguistic differences across cultures. For example, in Japan, the term “health equity” does not exist and therefore is translated into different phrasing.¹⁵
- (5) Qualitative research is needed to understand the reasons for the quantitative responses in health inequality aversion studies. Approaches that combine surveys with deliberation could capture the underlying motivations, values, and contextual factors driving these preferences. They can also provide information on participants’ understanding of the exercise, and the policy implications of their responses. Think-aloud and cognitive interviewing techniques, widely used in health-state valuation and related literatures,²³ can be embedded to refine instruments design and strengthen the credibility of elicited parameters and their interpretation.
- (6) Understanding and addressing framing effects is essential. One important step is to conduct systematic studies that document how framing influences responses, drawing on insights from behavioral sciences and psychology. Although there may not be a single “best” framing, it may be possible to narrow down the range of reasonable approaches and perhaps develop a standardized framing checklist, harmonizing how studies interpret these approaches. It would increase awareness of the main biases and allow for consideration on how these should be interpreted and addressed in the design and interpretation of studies. A further step is to conduct studies that provide opportunities for reflection and deliberation, including group discussion and consideration of practical implications for social decision making. These kinds of studies are sometimes referred to as “citizen’s juries” or deliberative opinion polls. They may help to address unintended framing effects.
- (7) Another priority is ensuring response validity, reliability, and representativeness. Inequality aversion studies involve

unfamiliar concepts that are hard for people to understand, usually involve bespoke social experiment samples and designs, often administered online. As such, it is important to assess whether the responses accurately capture the intended constructs and represent the population diversity. Further research should investigate potential causes of nonresponse and invalid response and find ways of meaningfully including a more representative set of population groups.

Conclusion

Health inequalities are both an ethical and policy concern. The availability of robust evidence on health inequality aversion provides a means to capture public and stakeholders’ values and incorporate them into resource allocation and policy choices. Advancing this field is essential and this evidence is required to support the use of quantitative approaches to equity informative economic evaluation and health technology assessment. There are numerous challenges, addressing which will require interdisciplinary collaboration, the application to a wider range of settings including low- and middle-income countries, and continuous dialog between all stakeholders.

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Author disclosure forms can be accessed below in the [Supplemental Material](#) section. Dr Devlin is an editor for *Value in Health* and had no role in the peer-review process of this article.

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