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Value-aware nutrition science: building credibility through reflexivity

Bart Penders^{1,2}, Alessandra Bordonì³, Hannelore Daniel⁴, Elvira Larqué Daza⁵, Kirsi Laitinen⁶, Federico J.A. Perez-Cueto^{7}; on behalf of FENS WG2*

1 Käte Hamburger Kolleg “Cultures of Research” (CoRE), RWTH Aachen University, Germany

2 Department of Health, Ethics & Society, School of Public Health and Primary Care (CAPHRI), Maastricht University, the Netherlands

3 Department of Agricultural and Food Sciences, Alma Mater Studiorum – Università di Bologna, Italy

4 School of Life Sciences, Technical University of Munich, Germany

5 Department of Animal Physiology, Universidad de Murcia, Spain

6 Nutrition and Food Research Center and Institute of Biomedicine, Integrative Physiology and Pharmacology Unit, Faculty of Medicine, University of Turku, Turku, Finland

7 Research Group Sustainable Food Transitions, Department of Food, Nutrition & Culinary Science, University of Umeå, Umeå, Sweden

* Corresponding author: armando.perez@umu.se

Abstract

Purpose | Values can influence various aspects of scientific research, including research questions, methodologies, interpretations, and applications of scientific knowledge. Instead of pursuing value-free science, the scientific community recognizes the importance of value-aware science, which acknowledges the role of values in scientific inquiry but emphasizes transparency and accountability. Conflicts of interest statements often focus only on financial ties. **Methods** | We argue for the inclusion of positionality statements in nutrition science, similar to practices in the social sciences and humanities. Positionality statements highlight the influence of the researcher's position, background, and values on scientific inquiry, promoting transparency, reflexivity, and dialogue within the scientific community. We advocate for a shift towards a perspectival epistemology that recognizes the value of diverse perspectives and contributes to a more robust and reliable scientific knowledge. **Results** | We include case studies demonstrating different styles of positionality statements and addresses potential critiques of

positionality, including concerns about subjectivity and equating individuals with their social identities. Conclusion | Overall, we conclude that embracing value-awareness and positionality can lead to a more credible and socially engaged nutrition science.

Keywords: values, positionality, conflicts-of-interest, nutrition science, trust

Conflict of interest statement: Our paper deals in full with conflicts of interest and as such, the whole text amounts to an analysis of conflicts of interests, our suggestion to replace it by positionality, as well as own positions. In the text, these positions are given at length.

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Author ORCIDs:

Bart Penders	0000-0002-2661-9181
Alessandra Bordoni	0000-0003-4579-1662
Hannelore Daniel	0000-0002-9858-1485
Elvira Larqué Daza	0000-0001-6805-3449
Kirsi Laitinen	0000-0002-5710-5570
Federico J.A. Perez-Cueto	0000-0003-1270-2678

62 *Introduction*

63 The Federation of Nutrition Societies (FENS) has organised three working groups to improve
64 the standards of the field of nutrition [1]. Working Group 2 (WG2) deals with organisation,
65 capabilities and funding, with particular focus on issues of credibility due to contradictory
66 messages often resulting from financial conflicts of interest. This paper further discusses other
67 potential sources of conflict, in response to wider calls for higher level consensus on standards
68 that would provide venues for more transparent reporting in the field of nutrition [2, 3][2, 3].
69 Furthermore, trust in nutrition science is crucial for achieving desirable collective behaviours,
70 such as healthier diets [4].

71

72 In WG2, nutrition science is understood as “an integrative science that bridges disciplines and
73 actors that work around the understanding of the relation between food intake and its effects
74 on the human body, human health on individual and population level.” Nutrition is therefore a
75 “comprehensive science that considers the production chain and its effect on the environments
76 where humans of all ages and backgrounds live, and understands food consumption as the result
77 of an intricate network of determinants, from individuals, social and national levels”¹.

78

79 While science is often thought of as a value-neutral pursuit, values play a significant role in the
80 practice of science, both in shaping the scientific process and in influencing scientific
81 outcomes. These values need not corrupt or negatively influence inquiry and many of them
82 fortify the path towards objectivity, depending on how we define this term. Mertonian values
83 (previously often called Mertonian Master Norms) are widely known in the global scientific
84 community [5–7]. More recent are a number of global and European value statements on

¹ Drawn from Perez-Cueto, Brennan, Daniel, et al., forthcoming.

research integrity, evaluation and governance [8–11]. More local are national codes of conduct for research integrity and research ethics and discipline-based guidelines [12]. Each of these form interrelated value systems under which scientists continuously operate.

The idea of value-free science, also known as the value neutrality or the myth of value-free science, suggests that scientific inquiry can and should be conducted without any influence from personal, social, or cultural values. According to this perspective, scientific knowledge should be derived solely from objective observations and logical reasoning, free from any subjective biases or values [13–15]. The Mertonian value “disinterestedness” is often invoked to support this position.

However, it is widely acknowledged that complete value neutrality in science is impossible to achieve [16, 17]. Values can influence various aspects of scientific research, including the choice of research questions, methodologies, interpretations, and applications of scientific knowledge. Scientists themselves hold individual values that shape their research interests and priorities. Instead of pursuing value-free science, the scientific community generally recognizes the importance of value-aware science. While the label “value-aware” is not so prominent [18], the practice is widespread and acknowledges that values can and should play a role in scientific inquiry while emphasizing the need for transparency and accountability about which these values are and what they do. Value-awareness does not excuse researchers from conducting work rigorously and from sharing all the results of all of their studies – it supplements rigour, but does not compensate for it.

In the current paper, we discuss how nutrition science can operationalise this perspective towards values in science. In its broadest sense, that is an all-encompassing question, so for the

benefit of this paper we will focus specifically on how nutrition science can implement value-awareness in its publication processes and most notably how it handles conflicts-of-interest in its scientific reporting processes. This is a conceptual paper, and as a result it does not contain a methodology section. We draw from studies in the history, philosophy and sociology of science in general and nutrition science in particular to present a logically consistent argument. Our argument, when accepted, would change reporting practices in the field. When (and if) it does, those changes can – and should – be empirically documented and evaluated, but that lies beyond the ambition of this text.

Interests and Publication

When it comes to scientific reporting, the most obvious and visible way that values come to light is in the conflict-of-interest statement that many funders and publishers now request from authors [e.g. 19]. Conflicts of interests seek to build transparency about the interests at play in the research reported. These interests are in most cases only financial or economical, reports of funds received from private or other actors that are active in a certain field, such as food or pharma.

When a conflict of interests is reported, those judging the merits of the work - editors, reviewers and readers - are expected to take them into account when doing so. In practice every reported interest is considered a risk. The desirable situation is that one does not have to report a conflict of interest and the default position is that no such conflict is reported. While a risk, conflicts of interest are not considered fundamental objections. Mecca et al [20], for instance, reports that most researchers feel that disclosure suffices.

Also, the focus on “interests” hides that not the direct financial gain, or stock prices are at stake, but the values that drive scientific inquiry. In fact, the Mertonian value of disinterestedness suggests that scientists should pursue research for the sake of knowledge and discovery rather than personal gain or vested interests. Conflicts of interest can undermine disinterestedness if they create a bias toward particular outcomes or if financial or personal considerations influence the research process. Consider, for instance, the efforts of various industries to promote the value of “free-market fundamentalism”, which served their direct commercial interests [21], or some governments rejecting values of equity and inclusion. In the field of nutrition, there is extensive documentation that financial support often biases the reporting of results [2, 3, 22] and that it even influences national nutrition recommendations [23–26].

Conflicts of interest are often, but not always, restricted to financial ties. These financial relationships, sponsorships, or funding received by researchers, can be counted or measured and have been shown to influence the conduct and outcome of research [27]. However, this focus is under constant critique [28, 29] and increasingly proposal to expand conflict of interest statements appear [30], sometimes under the banner of rephrasing them as, for instances, “confluences of interest” [31]. This last attempt suggests that there is more at play: values and interests are not always negative, not always a problem, and they intersect and require explanation.

From Interest to Position

Conflict of interest statements are by far the dominant form to attempt displaying value-awareness in science. However, across the social science and humanities alternative strategies exist. Given nutrition science’s multi-disciplinarity, it may be worthwhile to also embrace practices from social science and humanities. In qualitative social sciences and humanities,

researchers are expected to reflect on their own position actively. This includes disclosing prior relationships, but also more internal convictions that may enable or limit the study they report. In a way, one could say that the researchers themselves are instruments and both the strengths and limitations of those instruments need to be disclosed in the interest of fairness and transparency. These strengths and limitations include the values researchers hold. Position and positionality are usually written down in the form of dedicated *positionality statements* in published work [32, 33]. A nutrition-related field in which this practice is common, is Food Studies [cf. 34].

Positionality statements exemplify value-aware science by highlighting the influence of the researcher's position, background, and values on the scientific inquiry. They contribute to value-aware science in at least four ways. First, they *recognize subjectivity*. Positionality acknowledge that researchers have their own perspectives, beliefs, and experiences that can shape their approach to research. They recognize that complete objectivity is challenging to attain and that researchers bring their own subjectivity to the study. By acknowledging their positionality, researchers are upfront about their potential biases, enabling readers to consider the influence of the researcher's background and values on the research process. Second, they *enhance transparency*. Positionality statements promote transparency by providing readers with information about the researcher's background and potential biases. Researchers disclose their personal or professional affiliations, interests, or experiences that may impact the research process or findings and fits ongoing movements towards open science, extending openness beyond data and process into value systems [35]. This transparency allows readers to critically assess the research in light of the researcher's positionality. These assessments can go either way. For instance, Hicks and Lobato [36] found that researchers who report that they value public health are considered *more* trustworthy. Third, they *engage in reflexivity*. Reflexivity is

a process of self-awareness and critical examination of one's own assumptions, values, influences and biases. Positionality statements encourage, even force, researchers to engage in reflexivity, reflecting on how their personal and social position may shape the research design, data collection, analysis, and interpretation. In the process, researchers can identify potential biases, seek alternative perspectives, and consider the limitations of their study and their involvement in it [37]. Fourth, they encourage *dialogue between multiple perspectives*. Positionality statements invite conversations about the potential implications of the researcher's positionality and encourage the inclusion of diverse perspectives. Acknowledging positionality opens the door for considering alternative viewpoints and promoting inclusivity in scientific discourse.

Positionality statements, therefore, serve as a mechanism to promote transparency, reflexivity, and dialogue within the scientific community. By openly acknowledging the influence of the researcher's position and values, they contribute to a more robust and nuanced understanding of scientific research and encourage the consideration of diverse perspectives and interpretations. Positionality statements acknowledge that everyone has a position. Always. Every researcher relates to their diet, to their health, their autonomy, their career and so much more, and expresses those relationships through values. Positionality is not stable: people change their political views, their preferences and priorities in life, something that can also be achieved through education [38]. There is no default absence (as is the case for conflicts of interest), so every researcher has to engage with their own position regularly, while every reader will have to take those positions into account, removing the default position of *no conflict of interest*.

209 *Position and Credibility*

210 Value-aware nutrition science represents a shift from a rigid, positivist approach towards one
 211 that embraces values, perspectives, and positions. This aligns with perspectival epistemology,
 212 which acknowledges the influence of individual backgrounds on knowledge acquisition. It
 213 challenges the idea of a single objective truth, emphasizing the importance of diverse
 214 viewpoints. In this view, positionality becomes an asset, enriching knowledge production
 215 rather than hindering it. Researchers with varied perspectives offer unique insights, leading to
 216 a more comprehensive and contextual understanding of complex issues [39, 40]. This diversity
 217 and inclusion not only enhance the quality of science but also its fairness and credibility – for
 218 instance making knowable which biases can compensate for one another and even, to a certain
 219 extent, compensate for unknown tacit knowledge and decisions [68]. Recognizing the need for
 220 diverse voices in knowledge creation highlights the value of practices like stakeholder
 221 consultation and citizen science, integral components of meaningful knowledge-making, rather
 222 than mere obstacles or irrational fears.

223

224 We tend to trust those whose values we share [41–43] and often actively distrust those who
 225 claim to have or exhibit no values at all [40]. In fact, to not have values would mean to not be
 226 alive, to not be human. Post-human epistemologies geared towards mechanical interpretations
 227 of objectivity may be widespread among scientists [44–46], but they are ill-suited for the
 228 construction of public trust [47]. Trust, or better: trustworthiness, requires consensus among
 229 scientists [40]. When a broad consensus emerges within the scientific community on a
 230 particular issue, it signifies that a large majority of experts have independently evaluated the
 231 evidence and arrived at similar conclusions. Perspectival epistemology highlights the ways in
 232 which social factors, such as gender, race, and socioeconomic status, can influence the
 233 production and validation of scientific knowledge. By recognizing and valuing diverse

perspectives, promoting inclusivity, and challenging hierarchical structures, perspectival (feminist social) epistemology contributes to a more robust and reliable scientific knowledge. It also means that the consensus that emerges is a consensus shared across different researchers, who all may hold different values. If we trust those whose values we share, we can trust the scientific consensus they advocate or support.

An important consequence from perspectival epistemology is that to build a better and more credible science, science needs to become more social [48] and more value-aware and value-explicit: it matters who does the science [49]. Interestingly, this means that we can and must include industrial perspectives and values too – but only as part of a balanced collective.

Being aware of one's values, and actively building collectives that include multiple value-systems, does not excuse researchers from adhering to rigorous operating procedures. This means that being transparent about one's values cannot and should not replace transparency around data and methods and their responsible interpretation. In fact, in *Open Science* and *Scientific Reform*, which are all about enhancing rigorous practices in science, similar calls exists: to complement good methods with reflection [66, 67].

Case studies: our own positions

For those interested in how positionality looks like, what required ingredients are and which styles and forms exist to community values and value-systems through them, a vast amount of literature exists outside of nutrition science. To demonstrate how these can be translated into a form that is useful, feasible and valuable in nutrition science contexts, we include a small series of statements here that demonstrate our own positionality. Before we do so, we have to

acknowledge that across the many fields that use positionality statements, we can discern four different distinct styles of doing so.

First, the *personal reflection*: Some positionality statements take the form of a personal reflection where the author openly discusses their own background, experiences, and how these factors shape their research perspectives. This style often includes narratives that provide insight into the author's positionality. Second, a full *reflexive analysis*: In this style, authors engage in a more analytical and reflexive discussion of their positionality. They critically examine the social, cultural, economical or political factors that influence their research and explicitly address potential biases or assumptions that may arise from their position and values. Third, the *intersectional approach*: Intersectionality acknowledges the multiple dimensions of social identity and their interconnectedness. Positionality statements that adopt an intersectional approach acknowledge the ways in which various aspects of identity, such as race, gender, class, or sexuality, intersect and shape the author's research perspective. This style emphasizes the complex dynamics of power, privilege, and marginalization. Fourth, *collaborative positionality*: sometimes, positionality statements are co-authored or include contributions from multiple researchers. This style highlights the collective positionality of the research team and how their diverse backgrounds and perspectives inform the study, including how their diversity can enhance it.

We include examples from each style to show the breadth of what is possible. First, in a reflexive analysis style, Penders' positionality statement:

Three significant elements of my positionality deserve attention: my academic trajectory, my status as a first-generation student and academic, and my involvement with nutrition science

while having a personal passion for food and cooking. Firstly, my academic trajectory from the life sciences into science and technology studies has influenced my research lens. Coming from a neopositivist background, I have a solid foundation in scientific methodologies and an understanding of how research is traditionally conducted. However, my transition into science and technology studies enabled me to critically examine the social and cultural dimensions of scientific knowledge production and has diversified and broadened my epistemic preferences and take up a constructivist stance. This shift shapes my approach to research and allows me to question established norms and power structures within the scientific community. Secondly, being a first-generation student and academic influences my research and work. My experiences of navigating higher education without the guidance of family members or a familiar support network have instilled in me a deep appreciation for inclusivity, accessibility, and the democratisation of knowledge. I try to amplify underrepresented voices and address power dynamics in academia. Furthermore, my work on knowledge-production in nutrition science encounters my love for food and cooking: while I engage with the scholarly exploration of nutrition, I deeply recognise the cultural, social, and personal significance of food. This multitude of perspectives allows me to appreciate the complexities of food practices and challenge reductionist approaches to nutrition research.

Second, in an intersectional approach, Perez-Cueto offers his positionality:

In this intersectional statement, I critically reflect on the ways in which various aspects of identity intersect and shape my perspective. I am a Bolivian male mestizo, living in Europe and holder of EU passport; and as most academics, I have been privileged to obtain very high education and a career in research. I profess the Christian faith since my adolescence. My perspective is also influenced by the repeated experiences of different kinds of aggression resulting of being a foreigner in Europe. When it comes to nutrition, I have moved from a traditional Westernised dietary approach, both in personal and professional arenas, to a lifestyle based on the informed

belief that eating predominantly plant-based is good for human health, the environmental sustainability, and the ethicalness of the food system. Therefore, I am convinced that my lifestyle choices align with my faith and the scientific knowledge that is available now. I have done research with public funding.

Third, Bordoni (B), Larque (L) and Daniel (D) offer a personal reflection as a statement of positionality:

(B) Being a woman and Italian has led to particular attention to the Mediterranean diet and gastronomic traditions. This has led to an innate distrust of alternative foods, although scientifically I recognize their importance. I have to admit that this background of mine may have led to the emphasis or minimization of the differences between traditional Mediterranean foods and alternative foods.

(L) The good research practices start already from the early stages of my academic career. To perform solid experimental techniques, and to be very critical on the relevance of the results obtained has been essential to do high quality research with less possibilities to enter in conflict of interest discussions. These type of research experiments require a timeframe that need of consensus with the partners. It takes more time to produce results on research than to disseminate them by others in the social media. If industry is far away from the researchers the risk of confusion for consumers can be dramatic. From my research experience, industry always appreciated the experience and solid results published in good journals, but we are in a key moment for the interrelationship between industry and academia.

(D) Although I am a nutritionist from background, only in recent years I have been involved in diet-and-health issues in which conflicts of interest – and personal believes/convictions - become important. I moved early in my career into biochemistry and later into molecular- and cell-

biology and did very basic science for over 30 years such as identifying/cloning and characterising human nutrient transporters in model organisms and in humans. This expertise and the gained reputation brought me into some high-level advisory bodies (at national and international levels) which exposed me to the “political world” of food and diets at all levels of complexity in this relationship. What may characterise best my personal experiences in life, in the life and nutrition sciences is that everything is based on “grey values” with many pro’s and con’s and uncertainties and that we need to communicate this. Although this is becoming more difficult on daily basis in a fast moving world seeking concise and handsome easy solutions. I am known to be critical – even within our own discipline – but people (consumers or journalists or peers) appreciate this. I have given talks on food-diet-health issues to almost every stakeholder group and thousands of people over the years and I always state that my “scientific soul” is not “for sale”, even when I cooperate with or advise industry.

Fourth, and final, we offer a collective statement that serves to shows the positionality of the entire team of authors:

In this collaborative positionality statement within the domain of nutrition science, we, the authors, collectively acknowledge the profound impact of our individual backgrounds, experiences, and perspectives on our research endeavours. Through reflexive analysis, intersectional reflection, and personal introspection, we navigate the intricate interplay of cultural, academic, and personal influences that shape our understanding of nutrition and its broader implications.

From diverse academic trajectories, spanning life sciences and science and technology studies, to unique personal experiences as students and academics, we bring a multifaceted approach to the study of nutrition. These distinct vantage points equip us with the ability to critically examine the social and cultural dimensions of scientific knowledge production, broadening our epistemic preferences and prompting us to question established norms within the scientific community.

Furthermore, our cultural backgrounds and experiences as individuals residing in different regions and holding various identities have sensitized us to the nuances of dietary practices and their broader societal implications. This collective positionality enables us to appreciate the complexities of food practices, challenge reductionist approaches to nutrition research, and advocate for inclusivity, accessibility, and democratization of knowledge.

In recognizing and valuing the varied dimensions of our identities, we endeavour to conduct research that is not only scientifically robust but also culturally sensitive and socially aware. This collaborative approach strengthens the relevance and applicability of our work, contributing to a more comprehensive and nuanced understanding of nutrition science.

Positions on positionality

To those who are used to a (neo)positivistic view on science, in pursuit of mechanical objectivity, positionality statements can be seen as reinforcing subjectivity and relativism in research, risking its ‘impartiality’ [50]. Emphasizing the researcher's subjective position and background may undermine the perceived pursuit of objective knowledge and scientific inquiry. This critique suggests that positionality statements may prioritize personal experiences and perspectives over empirical evidence, compromising the objectivity of research. This limitation is strictly rooted in what we consider to be outdated epistemologies, but it needs to be mentioned nonetheless.

More substantial critiques on positionality exists as well, also in the disciplines that traditionally use positionality statements or value-reporting practices. For instance, they might contribute to reducing researchers to their identity categories and thereby may reinforce stereotypes. Phony positionality and “positional piety” refers to situations where closeness to participants is suggested or even faked to grant the researcher superior moral authority, in a sense self-stereotyping [51, 52]. Positionality statements can also place a disproportionate

burden on researchers from under-represented or marginalized communities. Expecting marginalized researchers to disclose their positionality repeatedly may perpetuate the burden of representation and tokenism, potentially placing additional stress on already marginalized individuals [53]. This means that we should expect those with the most power in our communities, whom we often refer to as Key Opinion Leaders (KOLs), to take the lead here. Their influence comes with the moral responsibility to be transparent about their values and we should hold them to the highest standards in transparency.

Care should be taken as more evidence appears regarding the negative role of current food systems on the health of people, animals and the environment in general [54, 55], it is likely that more scientists will share positionality statements that align with their beliefs and chosen lifestyles. Such positionality statements risk to be used as means to shift the attention away from financial conflicts of interest, and deflate the latter [56, 57].

Furthermore, positionality statements will never capture the full complexity and richness of researchers' positions and perspectives. If positionality takes the form of a brief statement, it may oversimplify the intricate web of values at play and how they influence research, leading to incomplete representation of researchers' experiences and potential biases [58, 59]. There is no standardized format or central guideline for writing positionality statements, as the breadth of styles to do so included above already shows. The lack of consistency may lead to confusion, varying expectations, and potential inconsistencies in how researchers approach and disclose their positionality [60]. While this lack of standardization may make it challenging for readers to interpret and evaluate the relevance and impact of positionality on research, at the same time it allows a broad range of options to best align form and content.

415 *Recommendations*

416 Financial conflicts of interest may undermine the trust and credibility of nutrition science [1,
417 3, 4, 61]. Subsequently, they undermine the public health nutrition efforts promoting healthier
418 and more sustainable diets and the prevention of non-communicable chronic diseases [25]. At
419 the same time, other conflicts can exist through experiences, beliefs, lifestyle choices that may
420 affect how nutrition science is shared. Therefore, as WG2 we offer the following
421 recommendations for addressing conflict of interest in the field of nutrition.

422

423 First, we recommend that nutrition science as a practice and as a community becomes more
424 value-aware. This, in line with our arguments above, means dealing with values and value-
425 conflicts with open sights in which the display of values in and of itself are not a risk or a threat
426 to nutrition science's credibility, but it does allow the community to monitor which values we
427 deem required or commendable, and which ones require scrutiny, auditing or at least a carefully
428 weighted evaluation of claims. This way, values build and support science and its credibility
429 as much as they present undesirable influence. In doing so, we move away from a conflict-of-
430 interest model that hides all values and expand our toolbox that helps us interpret contradictory
431 scientific claims. Box 1 illustrates how this move can be achieved.

432

433 Box 1 – Becoming more value aware

434 Trinquart et al [62] report a strong polarisation of scientific claims on the link between sodium intake
435 and clinical outcomes. They identify an absence of genuine scientific conversation, and no constructive
436 collaboration. If scientists do not agree on the facts, we must take a step back and ask why. If our
437 position influences how we see the facts, then disclosing that position can help everyone involved in
438 the 'sodium dispute' diagnose why they disagree, where the polarisation comes from, and (1) help us
439 decide between contradictory claims, and (2) restart the conversation on salt. In conclusion, value-

awareness allows us to move beyond ‘blaming and shaming’ and towards the meta-conversation about why we engage with the problem the way we do – opening up spaces for negotiation.

Second, in order to facilitate value-awareness, we must show value-awareness. This happens through teaching, mentoring and supervision, but we can also display it in the fruits of our labour: research publications and presentations. Our paper and the examples of positionality statements in this paper offer a starting point to do just that.

Third, we should support our community to participate in these experiments and teach them how to produce and consume positionality statements. Reading a positionality statement requires value-awareness. Without it, it is a meaningless diary entry. With it, it helps to position, weigh, evaluate and assess claims against existing and competing value systems. Similarly, writing positionality statements is a skill that requires instruction and practice, and it will take time for our community to settle on a specific preferred format.

Finally, value-awareness does not stop at positionality, nor does it stop at scholarly communication. It can help us shape the relationship between ourselves and our research subjects, the impact and influence we seek to achieve and can help us articulate clear moral agendas for the future. However, this lies far beyond the ambition of this paper.

What we propose is a real-world experiment [63, 64], including positionality statements in nutrition science work – starting with EJM, but expanding outward across the community. We are aware that such experiments are accompanied by many unknowns and can produce both desired and undesired effects. The current ambition towards a more value-aware nutrition science is limited to positionality, something other fields and specialisations have a lot of

experience with. However, that does not mean that the unique characteristics of nutrition science and its current epistemic and governance challenges [65] mean that the same effects will be reached.

Part of the real-world experiment will have to be that we take periodic inventory of its reach, its consequences and ultimately evaluate – together with the community at large – whether this road forward offers us what we seek, which is a consolidated or increased public perception of trust in our work.

In sum, we propose that positionality statements would become a routine for all nutrition scientists. Positionality statements should strengthen the role of nutrition scientists and contribute to increase the credibility of nutrition science within and beyond academia.

References

1. Calder PC, Feskens EJM, Kraneveld AD, et al (2020) Towards “Improved Standards in the Science of Nutrition” through the Establishment of Federation of European Nutrition Societies Working Groups. *Annals of Nutrition and Metabolism* 76:2–5.
<https://doi.org/10.1159/000506325>
2. Bes-Rastrollo M, Schulze MB, Ruiz-Canela M, Martinez-Gonzalez MA (2013) Financial Conflicts of Interest and Reporting Bias Regarding the Association between Sugar-Sweetened Beverages and Weight Gain: A Systematic Review of Systematic Reviews. *PLOS Medicine* 10:e1001578. <https://doi.org/10.1371/journal.pmed.1001578>
3. Cullerton K, Adams J, Forouhi N, et al (2019) What principles should guide interactions between population health researchers and the food industry? Systematic scoping review of peer-reviewed and grey literature. *Obesity Reviews* 20:1073–1084.
<https://doi.org/10.1111/obr.12851>
4. Plohl N, Musil B (2023) Assessing the incremental value of intellectual humility and cognitive reflection in predicting trust in science. *Personality and Individual Differences* 214:112340.
<https://doi.org/10.1016/j.paid.2023.112340>
5. Anderson MS, Ronning EA, De Vries R, Martinson BC (2010) Extending the Mertonian Norms: Scientists’ Subscription to Norms of Research. *The Journal of Higher Education* 81:366–393.
<https://doi.org/10.1353/jhe.0.0095>
6. Hosseini M, Senabre Hidalgo E, Horbach SP, et al (2024) Messing with Merton: The intersection between open science practices and Mertonian values. *Accountability in Research* 31:428–455. <https://doi.org/10.1080/08989621.2022.2141625>
7. Merton RK (1973) The Normative Structure of Science. In: Merton RK (ed) *The Sociology of Science: Theoretical and Empirical Investigations*. The University of Chicago Press, Chicago
8. ALLEA - All European Academies (2017) The European Code of Conduct for Research Integrity. c/o Berlin-Brandenburg Academy of Sciences and Humanities
9. Aubert Bonn N, Godecharle S, Dierickx K (2017) European Universities’ Guidance on Research Integrity and Misconduct: Accessibility, Approaches, and Content. *Journal of Empirical Research on Human Research Ethics* 12:33–44. <https://doi.org/10.1177/1556264616688980>
10. Aubert Bonn N, Pinxten W (2019) A Decade of Empirical Research on Research Integrity: What Have We (Not) Looked At? *Journal of Empirical Research on Human Research Ethics* 14:338–352. <https://doi.org/10.1177/1556264619858534>
11. Kleinert S (2010) Singapore Statement: a global agreement on responsible research conduct. *LANCET* 376:1125–1127. [https://doi.org/10.1016/S0140-6736\(10\)61456-0](https://doi.org/10.1016/S0140-6736(10)61456-0)
12. Hastings R, Labib K, Lechner I, et al (2022) Guidance on research integrity provided by pan-European discipline-specific learned societies: A scoping review. *Science and Public Policy* scac067
13. Daston L (1992) Objectivity and the Escape from Perspective. *Social Studies of Science* 22:597–618
14. Daston L, Galison P (1992) The Image of Objectivity. *Representations* 81–128.
<https://doi.org/10.2307/2928741>

- 519 15. Daston L (2002) *Saintly Resonances*. London Review of Books 24
- 520 16. Douglas H (2009) *Science, policy, and the value-free ideal*. University of Pittsburgh Press
- 521 17. Elliott KC (2017) *A tapestry of values: An introduction to values in science*. Oxford University Press
- 522
- 523 18. Fortun M (1998) Institutionalizing indirection: Science at the crossroads of scholarship and politics. *Science as Culture* 7:173–192. <https://doi.org/10.1080/09505439809526500>
- 524
- 525 19. Soares MJ, Müller MJ, Boeing H, et al (2019) Conflict of interest in nutrition research: an editorial perspective. *Eur J Clin Nutr* 73:1213–1215. <https://doi.org/10.1038/s41430-019-0488-8>
- 526
- 527 20. Mecca JT, Gibson C, Giorgini V, et al (2015) Researcher Perspectives on Conflicts of Interest: A Qualitative Analysis of Views from Academia. *Sci Eng Ethics* 21:843–855.
- 528 <https://doi.org/10.1007/s11948-014-9580-6>
- 529
- 530 21. Oreskes N, Conway EM (2022) From Anti-Government to Anti-Science: Why Conservatives Have Turned Against Science. *Daedalus* 151:98–123. https://doi.org/10.1162/daed_a_01946
- 531
- 532 22. Nestle M (2016) Corporate Funding of Food and Nutrition Research: Science or Marketing? *JAMA Internal Medicine* 176:13–14. <https://doi.org/10.1001/jamainternmed.2015.6667>
- 533
- 534 23. Mialon M, Serodio P, Crosbie E, et al (2022) Conflicts of interest for members of the U.S. 2020 Dietary Guidelines Advisory Committee. *Public Health Nutrition* 1–28.
- 535 <https://doi.org/10.1017/S1368980022000672>
- 536
- 537 24. Nestle M (2016) Food Industry Funding of Nutrition Research: The Relevance of History for Current Debates. *JAMA Internal Medicine* 176:1685–1686.
- 538 <https://doi.org/10.1001/jamainternmed.2016.5400>
- 539
- 540 25. Newton A, Lloyd-Williams F, Bromley H, Capewell S (2016) Food for thought? Potential conflicts of interest in academic experts advising government and charities on dietary policies. *BMC Public Health* 16:735. <https://doi.org/10.1186/s12889-016-3393-2>
- 541
- 542
- 543 26. Sasson AN, Scaffidi MA, Bansal R, et al (2019) Prevalence and relevance of financial conflicts of interest among clinical practice guidelines in nutrition. *Journal of the Canadian Association of Gastroenterology* 2:354. <https://doi.org/10.1093/jcag/gwz006.179>
- 544
- 545
- 546 27. Krinsky S (2019) *Conflicts of Interest in Science: How Corporate-Funded Academic Research Can Threaten Public Health*. Simon and Schuster
- 547
- 548 28. Shaw DM (2014) The prisoners' dilemmas: Authorship guidelines and impact factors: between a rock and a hard place. *EMBO Reports* 15:635–637
- 549
- 550 29. Shaw DM (2022) Withholding conflicts of interest: the many flaws of the new ICMJE disclosure form. *Journal of Medical Ethics* 48:19–21. <https://doi.org/10.1136/medethics-2020-106136>
- 551
- 552
- 553 30. Ioannidis JA, Trepanowski JF (2018) Disclosures in nutrition research: Why it is different. *JAMA* 319:547–548. <https://doi.org/10.1001/jama.2017.18571>
- 554
- 555 31. Cappola AR, FitzGerald GA (2015) Confluence, Not Conflict of Interest: Name Change Necessary. *JAMA* 314:1791–1792. <https://doi.org/10.1001/jama.2015.12020>
- 556

- 557 32. Bourke B (2014) Positionality: Reflecting on the Research Process. *The Qualitative Report*
558 19:1–9
- 559 33. Soedirgo J, Glas A (2020) Toward Active Reflexivity: Positionality and Practice in the
560 Production of Knowledge. *PS: Political Science & Politics* 53:527–531.
561 <https://doi.org/10.1017/S1049096519002233>
- 562 34. Bachórz A, Parasecoli F (2020) Why should we care? Two experiences in the politics of food
563 and food research. *Ethnologia Polona* 41:
- 564 35. Van Bouwel J (2021) Are transparency and representativeness of values hampering scientific
565 pluralism? In: *Science, freedom, democracy*. Routledge, pp 181–205
- 566 36. Hicks DJ, Lobato EJC (2022) Values disclosures and trust in science: A replication study.
567 *Frontiers in Communication* 7:
- 568 37. Field SM (2022) Charting the Constellation of Science Reform. Thesis fully internal (DIV),
569 University of Groningen
- 570 38. Simon S, Connolly J (2020) What Do Science Teachers Value? How Can Values Change
571 During Professional Learning? In: Corrigan D, Bunting C, Fitzgerald A, Jones A (eds) *Values*
572 *in Science Education: The Shifting Sands*. Springer International Publishing, Cham, pp 121–137
- 573 39. Longino HE (1990) *Science as social knowledge: Values and objectivity in scientific inquiry*.
574 Princeton university press
- 575 40. Oreskes N (2021) *Why trust science?* Princeton University Press
- 576 41. Bagci G, Bagci K, Varis D (2012) Relationship between Trust and Shared Values: A
577 Comparative Study of Turkish and European Union Countries' Students. *Procedia - Social and*
578 *Behavioral Sciences* 47:1817–1821
- 579 42. Huffman J (2003) The Role of Shared Values and Vision in Creating Professional Learning
580 Communities. *NASSP Bulletin* 87:21–34. <https://doi.org/10.1177/019263650308763703>
- 581 43. Kahan D (2010) Fixing the Communications Failure. *Nature* 463:296–297
- 582 44. Field SM, Derksen M (2020) Experimenter as automaton; experimenter as human: exploring the
583 position of the researcher in scientific research. *Euro Jnl Phil Sci* 11:11.
584 <https://doi.org/10.1007/s13194-020-00324-7>
- 585 45. Levine G (2002) *Dying to Know : Scientific Epistemology and Narrative in Victorian England*.
586 University of Chicago Press, Chicago, IL
- 587 46. Penders B (2022) Process and Bureaucracy: Scientific Reform as Civilisation. *Bulletin of*
588 *Science, Technology & Society* 42:107–116. <https://doi.org/10.1177/02704676221126388>
- 589 47. Penders B (2018) Why public dismissal of nutrition science makes sense: post-truth, public
590 accountability and dietary credibility. *British Food Journal* 120:1953–1964
- 591 48. Longino HE (2022) What's Social about Social Epistemology? *The Journal of Philosophy*
592 119:169–195. <https://doi.org/10.5840/jphil2022119413>
- 593 49. Thorp HH (2023) It matters who does science. In: *Science's Editor's Blog*.
594 <https://www.science.org/content/blog-post/it-matters-who-does-science>. Accessed 13 May 2023

- 595 50. Savolainen J, Casey PJ, McBrayer JP, Schwerdtle PN (2023) Positionality and Its Problems:
596 Questioning the Value of Reflexivity Statements in Research. *Perspect Psychol Sci*
597 17456916221144988. <https://doi.org/10.1177/17456916221144988>
- 598 51. Cousin G (2010) Positioning positionality: the reflexive turn. In: *New Approaches to*
599 *Qualitative Research*. Routledge
- 600 52. Macfarlane B (2022) Methodology, fake learning, and emotional performativity. *ECNU Review*
601 *of Education* 5:140–155
- 602 53. Massoud MF (2022) The price of positionality: assessing the benefits and burdens of self-
603 identification in research methods. *Journal of Law and Society* 49:S64–S86.
604 <https://doi.org/10.1111/jols.12372>
- 605 54. Prescott SL, Logan AC, Bristow J, et al (2022) Exiting the Anthropocene: Achieving personal
606 and planetary health in the 21st century. *Allergy* 77:3498–3512.
607 <https://doi.org/10.1111/all.15419>
- 608 55. Richardson K, Steffen W, Lucht W, et al (2023) Earth beyond six of nine planetary boundaries.
609 *Science Advances* 9:eadh2458
- 610 56. Lu Y, Jones DJ, Sharara N, et al (2017) Transparency ethics in practice: Revisiting financial
611 conflicts of interest disclosure forms in clinical practice guidelines. *PLOS ONE* 12:e0182856.
612 <https://doi.org/10.1371/journal.pone.0182856>
- 613 57. Moodie AR (2017) What Public Health Practitioners Need to Know About Unhealthy Industry
614 Tactics. *Am J Public Health* 107:1047–1049. <https://doi.org/10.2105/AJPH.2017.303861>
- 615 58. Lu H, Hodge WA (2019) Toward multi-dimensional and developmental notion of researcher
616 positionality. *Qualitative Research Journal* 19:225–235
- 617 59. von Vacano M (2019) Reciprocity in research relationships: introduction. *Affective Dimensions*
618 *of Fieldwork and Ethnography* 79–86
- 619 60. Sybing R (2022) Dead Reckoning: A Framework for Analyzing Positionality Statements in
620 Ethnographic Research Reporting. *Written Communication* 39:757–789.
621 <https://doi.org/10.1177/07410883221114152>
- 622 61. Rowe S, Alexander N, Clydesdale FM, et al (2009) Funding food science and nutrition research:
623 financial conflicts and scientific integrity. *The American Journal of Clinical Nutrition* 89:1285–
624 1291. <https://doi.org/10.3945/ajcn.2009.27604>
- 625 62. Trinquart L, Johns DM, Galea S (2016) Why do we think we know what we know? A
626 metaknowledge analysis of the salt controversy. *International Journal of Epidemiology* 45:251–
627 260. <https://doi.org/10.1093/ije/dyv184>
- 628 63. Gross M (2016) Give me an experiment and I will raise a laboratory. *Science, Technology &*
629 *Human Values* 41:613–634
- 630 64. Krohn W (2007) Realexperimente-Die Modernisierung der ‚offenen Gesellschaft‘ durch
631 experimentelle Forschung. *Erwägen Wissen Ethik* 18:343–356
- 632 65. Penders B, Wolters A, Feskens EF, et al. (2017) Capable and credible? Challenging nutrition
633 science. *European Journal of Nutrition* 56:2009–2012. [https://doi.org/10.1007/s00394-017-](https://doi.org/10.1007/s00394-017-1507-y)
634 [1507-y](https://doi.org/10.1007/s00394-017-1507-y)

66. Steltenpohl, C. N., Lustick, H., Meyer, M. S., Lee, L. E., Stegenga, S. M., Reyes, L. S., & Renbarger, R. L. (2023). Rethinking Transparency and Rigor from a Qualitative Open Science Perspective. *Journal of Trial & Error*, 4(1). <https://doi.org/10.36850/mr7>
67. Korbmacher, M., Azevedo, F., Pennington, C.R. *et al.* (2023) The replication crisis has led to positive structural, procedural, and community changes. *Community Psychology* 1, 3. <https://doi.org/10.1038/s44271-023-00003-2>
68. van Drimmelen, T., Slagboom, M.N., Reis, R. *et al.* (2024) Decisions, Decisions, Decisions: An Ethnographic Study of Researcher Discretion in Practice. *Science and Engineering Ethics* 30, 59. <https://doi.org/10.1007/s11948-024-00481-5>