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Not here, not now, not me: how distant are climate futures represented in journalistic reporting across four countries?

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Abstract

Among the reasons why climate change is not a major cause for concern for some members of the public is its psychological distance. Since journalistic media are important sources of information about climate change, this article analyzed how distant climate futures are portrayed in journalistic media across four countries (Germany, India, South Africa, and the United States; $n = 1,010$). Findings show that there are only few differences across countries; representations of distance rather varied with the type of climate future scenario portrayed. The most frequent scenarios in journalistic reporting were distant — especially regarding the temporal, spatial, and social dimensions.

Keywords

Environmental communication; Risk communication; Science and media

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Context and objective

Although climate change is one of the defining topics of our time [Ki-moon in United Nations Framework Convention on Climate Change, 2008], for many members of the public and policymakers alike, it is (still) not a major cause for concern [e.g., Bell, Poushter, Fagan & Huang, 2021; Carmichael, Brulle & Huxster, 2017]. Although global concern has grown since 2013, there are differences in levels of concern across countries. For instance, in Germany, 71% see climate change as a major threat but in the United States (US) and South Africa, this number sits at 59% [Fagan & Huang, 2019]. There are many reasons why climate change is not a top priority for some, and part of the reason identified by researchers is that climate change impacts [i.e., climate change-related future scenarios or *climate futures*; see Guenther, Brüggemann & Elkobros, 2022] are often perceived as *psychologically distant*. That means that they are not seen as personally affecting individuals, are spatially and temporarily abstract, and uncertain [e.g., Carvalho, 2010; Duan, Zwickle & Takahashi, 2017; Jones, Hine & Marks, 2017; O'Neill & Nicholson-Cole, 2009].

Climate futures can be defined as situations, which — from a point of reference — lie in the future, carry an evaluation, and are related to the impacts of climate change [Kosow & Gaßner, 2008; see also Guenther, Brüggemann & Elkobros, 2022]. They can be based on scenarios that are often used in expert/scientific projections (e.g., most famously the *Intergovernmental Panel on Climate Change* (IPCC) reports), but also on political ideas (e.g., the *Green New Deal*), or in some cases even science fiction. There is more to them than just describing "threats of chaotic disruptions to ecological, political and economic systems" [Iossifidis & Garforth, 2022, p. 248]; rather, climate futures project possible, probable, and sometimes even desirable scenarios. However, no matter whether climate futures are doomsday scenarios or desirable outlooks [e.g., Fløttum, Gjesdal, Gjerstad, Koteyko & Salway, 2014; Kumpu, 2013], in line with *construal level theory* [Trope & Liberman, 2010], their psychological distance may not motivate people to act on negative scenarios or work towards desirable ones [e.g., Duan et al., 2017; Duan, Takahashi & Zwickle, 2021].

In this context, journalistic media are still the main sources of information about climate change for many members of the public [e.g., Guenther, Reif, De Silva-Schmidt & Brüggemann, 2022; Murali, Kuwar & Nagendra, 2021; Newman, Fletcher, Schulz, Andı & Nielsen, 2020], connecting this global issue to the lives of audiences [e.g., Nisbet et al., 2018]. Thus, the way climate futures are represented in journalistic media affects how audiences understand them [e.g., Carmichael et al., 2017; Ruiu, 2021; Schäfer & Painter, 2021], including how psychologically distant they perceive them to be [e.g., Duan et al., 2017]. For instance, (visual) representations of climate change as a distant threat and out of individual control can positively affect feelings of powerlessness [e.g., O'Neill & Nicholson-Cole, 2009] and negatively affect topic engagement [e.g., Ruiu, 2021]. Based on a lack of research on the content-perspective of distance, this study assesses how distant climate futures are represented in journalistic media, by taking both Global North and Global South countries into account (i.e., Germany, India, South Africa, and the US). This allows for a more complete picture of how (distant) journalistic media in different countries portray a global topic: future scenarios of climate change.

Climate change and its psychological distance

To study the psychological distance of climate change, *construal level theory* has often been applied [e.g., Jones et al., 2017; Scannell & Gifford, 2013]. This theory proposes that if an event (or object, person, place) is perceived as psychologically distant, then individuals develop rather abstract and general mental representations, which lack details, and are described as a higher level of construal [e.g., Trope & Liberman, 2010]. The more concrete an event is perceived to be, the lower the level of construal. Psychological distance concerns the link between events and individuals' (direct) experiences; usually categorized as a temporal, spatial, social, and hypothetical dimension [e.g., Liberman, Sagristano & Trope, 2002; Trope & Liberman, 2003].

These four dimensions can be seen as a continuum between psychologically proximate and distant. The *temporal dimension* relates to the distance between a perceiver's now and the time of an event (e.g., a specific climate future). The *spatial dimension* relates to the geographical location of a perceiver and the location where an event will happen, which can be near or far away. The *social dimension* relates to the extent to which the event is familiar to the perceiver [e.g., between the self and

individuals/social groups associated with the event; see also Duan et al., 2017]. The *hypothetical dimension* concerns the probability of an event occurring, with uncertain events seen as more distant.

Studies on this topic that relate to climate change communication are usually framing effect studies, which manipulate the distance of climate change impacts [see also Duan et al., 2017]; in turn, this is then linked to the concept of psychological distance. The (visual) studies mentioned earlier [e.g., O'Neill & Nicholson-Cole, 2009] can also be considered here. Although researchers assume that messages/visuals with local/proximate content, and thus those that should trigger a low level of construal, are more effective compared to those with rather distant content when it comes to concern about climate change, (personal) relevance, or intentions to engage in actions — and found some support for this [e.g., Jones et al., 2017; Song & Bruning, 2016; Wiest, Raymond & Clawson, 2015] — overall, the evidence is mixed [e.g., Altinay, 2017; Shih & Lin, 2017; Spence & Pidgeon, 2010; van Valkengoed, Steg & Perlaviciute, 2023], or may be dependent on certain frames [e.g., Chu & Yang, 2020], or only be applicable to certain audience segments [e.g., Halperin & Walton, 2018]. A typical example in support of this assumption is Scannell and Gifford [2013], who found that representing local climate change impacts, compared to global ones, increases audience engagement with the issue.

Despite some effort made on this topic in (framing) effect studies, in line with the goal of the present study, there are only a few content analytical approaches relying on (or implying) a construal level perspective. Here, as is often stated, a lack of congruence between content and effect studies is present [e.g., Guenther, Jörges, Mahl & Brüggemann, 2023]. Furthermore, the studies that focus on (aspects of) how distant[1] climate change and climate futures are represented indicate mixed findings. Duan et al. [2017], with a focus on US newspaper images, found that climate change is portrayed as relatively concrete and with a high level of specificity. In contrast, O'Neill's [2013] study found an abstract, distancing visual frame in journalistic images. This is also supported by the fact that often politicians and thus elites are shown visually. Climate change has also often been represented as a global issue [e.g., Rebich-Hespanha et al., 2015], which adds to the perceived level of abstraction. Future expectations about climate change in journalistic media are often undefined [e.g., Hellsten, Porter & Nerlich, 2014]. Some researchers find apocalyptic, global doom scenarios [e.g., Fløttum et al., 2014; Kumpu, 2013], sometimes also called *impact*, *consequences*, or *Pandora's Box* frames that paint negative outlooks and lack reporting on subsequent actions [e.g., Feldman, Hart & Milosevic, 2017]; hence, they are also seen as showing a distant reporting. In contrast, desirable, sustainable future imaginations, sometimes referred to as *opportunity* or *sustainability* frames [e.g., Pan, Opgenhaffen & Van Gorp, 2019], seem to be less distant because they paint more concrete scenarios and ask people to act (including individual behavior).

As emphasized earlier, in this study, we specifically focus on climate futures. Such futures usually include a path description and emphasize elements of a possible future, which is in line with construal level theory as they commonly employ a time frame, have a spatial scope, include (social) actors, and contain

[1] Since the concept of 'psychological distance' describes a subjective concept that is not suitable when describing media content, we rather refer to 'distance' in this context.

hypothetical/plausible elements [Kosow & Gaßner, 2008; see also Guenther, Brüggemann & Elkobros, 2022]. Since there are only a few studies that apply the concept of (psychological) distance to journalistic content on climate futures (or can be interpreted as such), since they predominately focus on Western countries (especially the US), and since they show mixed findings, the first research question (RQ1) of this paper is: *How distant do journalistic media across four countries (i.e., Germany, India, South Africa, and the US) report on climate futures?*

When answering this question, we propose comparing across countries and across types of scenarios (e.g., ecological, economic), for several reasons.

First of all, taking a comparative perspective on countries in the Global North and Global South is more inclusive, as it acknowledges that media systems and (national) journalistic cultures differ, as do the resources available to dedicate coverage to climate change-related issues [e.g., Comfort, Tandoc & Gruszczynski, 2020; Nguyen & Tran, 2019; Schäfer & Painter, 2021].[2] For instance, Hase, Mahl, Schäfer and Keller [2021] found that countries of the Global South show a tendency to report less frequently on climate change than Global North countries; at the same time, they focus more on societal dimensions of the issue, such as challenges and implications for society. For Indian newspapers it was found that climate change is often linked to national contexts and events [e.g., Billett, 2010]. Findings like these could mean that journalists in the Global South report less distantly compared to countries of the Global North. Nevertheless, there are aspects of climate change reporting that seem similar around the globe, such as when it comes to the attention given to climate change or the events that trigger reporting [e.g., Conferences of the Parties (COPs), IPCC reports; e.g., Painter & Schäfer, 2018]. Due to the transnational nature of climate change and its research and policy, there could be strong similarities in reporting on climate futures across countries [e.g., Guenther, Brüggemann & Elkobros, 2022; Wessler, Wozniak, Hofer & Lück, 2016]. However, although countries in the Global South are supposed to be more vulnerable to climate change [e.g., Eckstein, Künzel & Schäfer, 2021], there is a lack of research on them — especially in a comparative perspective [see also Comfort et al., 2020, p. 327; Metag, 2016; Nguyen & Tran, 2019; Schäfer & Painter, 2021; Schäfer & Schlichting, 2014]. Thus, the second research question (RQ2) is: *Do media across four countries (i.e., Germany, India, South Africa, and the US) differ regarding how distantly they report on climate futures?*

Secondly, taking on a comparative perspective across types of scenarios accounts for the fact that most research that focusses on representations of climate change only takes changes in the ecosystem (e.g., rising temperatures, increase of extreme weather events) into account. Climate futures are, however, not just rooted in science (e.g., IPCC reports with their representative concentration and shared socioeconomic pathways), but also in socio-political (e.g., social (in)equality, migration, or a nation's political system), economic (e.g., strategies of companies/industry, or a nation's economy), or even individual ideas (e.g., individual habits or lifestyles) [see also Iossifidis & Garforth, 2022], especially since the Paris Agreement in 2015 which helped broaden the topic [see also Guenther, Brüggemann & Elkobros, 2022]. Such scenarios could rely on different bases of knowledge and provide different evaluations. Accounting for different types of

[2] Besides media contexts, social contexts (e.g., political and economic systems, number of people denying climate change) need to also be considered in country comparisons.

scenarios thus allows for a more thorough assessment of how distantly climate futures are represented journalistically. Consequently, the third research question (RQ3) is: *What is the connection between types of scenarios and distant reporting on climate futures?*

Method

Sample selection and description

To answer the RQs, the present paper mainly relies on a quantitative content analysis. To achieve an inclusive sample selection, for the Global North, we chose Germany and the US, and for the Global South, we chose India and South Africa. These four countries — representatives of four continents — differ in many aspects [e.g., developed vs. developing countries; for climate risks vulnerability, see Eckstein et al., 2021; for concern about climate change, see Fagan & Huang, 2019], but they seem comparable due to their democratic and media systems, global power, and high emissions [see also Brüggemann & Engesser, 2017]. Germany and the US are two leading Western countries; India and South Africa are part of the BRICS group and thus among the world's fast-growing economies. For each country, due to their (combined) reach [e.g., Newman et al., 2020; see also Murali et al., 2021] and availability in databases, we chose between eleven and fifteen media outlets per country: including print quality newspapers, print regional newspapers, tabloid newspapers, weekly newspapers/magazines, and online newspapers (see Table 1, for an overview). An effort was made to select leading outlets [see also Hase et al., 2021] based on their reach, including different ideological leanings [see also Duan et al., 2017] where applicable. For the regional newspapers, geographic spread was considered (i.e., east, north, west, and south regions of the respective countries). The German media comprise German-language outlets (as this is the official language of the country), the other countries comprise English-language outlets. It should be mentioned that in each of the other countries, the English language and English-language media have a prominent place, although there are media available in other languages (e.g., Spanish, Hindi, Afrikaans, Zulu). Most importantly this is the case for India and South Africa. However, the general availability of English-language media was part of why these countries were chosen in the first place.

To download relevant content, i.e., coverage on climate change, validated search strings were used, which were based on literature reviews and search term mining [for detailed information, see Mahl, von Nordheim & Guenther, 2023]: the search strings were "atleast2 climat* change AND (climat* change OR global warm* OR greenhouse effect OR greenhouse gas*)" (precision = .80; recall = .80; F1 = .80) for English and "Klimawandel* OR globale Erwärmung OR Treibhauseffekt* OR Erderwärmung OR Klimakrise" (precision = .79; recall = .97; F1 = .87) for German outlets. Since we worked with two languages, two different search strings had to be used: a simple translation from one language into the other did not yield appropriate values for precision and recall. Hence, the two search strings are not equivalent, but the same method to generate and validate them was applied [see Mahl et al., 2023].

Due to the large number of media outlets included in this study, we relied on several databases (i.e., Factiva, LexisNexis, FAZ Bibliotheksportal, Sabinet SA Media, and the Online Media Monitor) and considered January 2017–December

2020 (i.e., four years) a relevant time frame in which climate change gained high visibility in the media (for instance, due to the aftermath of the Paris Agreement and global climate protests). After checking for duplicates, the sample contained 56,394 articles. The articles were not spread equally across countries and media outlets (see Table 1). This finding was to be expected, since tabloid newspapers or media in countries such as South Africa report less often on climate change [see also Hase et al., 2021].

Table 1. Sample and study sample description.

Media	*Full sample* ($N = 56\,394$)		*Study sample* ($n = 1\,010$)	
	n	%	*n*	%
Germany	32 642	58	243	24
Print quality newspapers				
Süddeutsche Zeitung	5 618	17	20	8
Welt	2 241	7	3	1
taz	2 964	9	15	6
Frankfurter Allgemeine Zeitung	3 049	9	37	15
Print regional newspapers				
Leipziger Volkszeitung	1 514	5	17	7
Hamburger Abendblatt	1 897	6	24	10
Allgemeine Zeitung	2 156	7	9	4
Stuttgarter Zeitung	3 221	10	7	3
Tabloid newspapers				
Bild	201	1	1	.4
Weekly newspapers/magazines				
Spiegel	696	2	5	2
Zeit	1 151	4	/	/
Online newspapers				
spiegel.de	2 223	7	39	16
bild.de	831	3	13	5
sueddeutsche.de	1 361	4	14	6
welt.de	3 519	11	39	16
India	7 416	13	267	26
Print quality newspapers				
Hindustan Times	968	13	27	10
Times of India	1 151	16	46	17
Hindu	774	10	36	14
Print regional newspapers				
Pioneer	588	8	4	2
Deccan Herald	176	2	11	4
Telegraph	316	4	12	5
Tabloid newspapers				
Mumbai Mirror	50	1	1	.4
Weekly newspapers/magazines				
Sunday Standard	50	1	1	.4
India Today	43	1	1	.4
Online newspapers				
hindustantimes.com	1 117	15	54	20
indianexpress.com	1 975	27	69	26
thehindu.com	208	3	5	2

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Table 1. *Continued from the previous page.*

Media	*Full sample* ($N = 56\,394$)		*Study sample* ($n = 1\,010$)	
	n	%	*n*	%
South Africa	2 568	5	232	23
Print quality newspapers				
Star	349	14	36	16
Sowetan	20	1	1	.4
Print regional newspapers				
Cape Times	383	15	43	19
Herald	55	3	3	1
Pretoria News	204	2	6	3
Daily Dispatch	68	8	5	2
Tabloid newspapers				
Daily Sun	4	.2	1	.4
Weekly newspapers/magazines				
Sunday Times	76	3	5	2
Online newspapers				
mg.co.za	163	6	4	2
news24.com	669	26	86	37
iol.co.za	577	22	42	18
United States	13 768	24	268	27
Print quality newspapers				
New York Times	2 253	16	18	7
Wall Street Journal	509	4	6	2
Washington Post	1 424	10	16	6
Print regional newspapers				
Boston Globe	1 002	7	19	7
Star Tribune	230	2	3	1
Austin American Statesman	85	1	2	1
Salt Lake Tribune	294	2	6	2
Tabloid newspapers				
USA Today	219	2	20	8
Weekly newspapers/magazines				
New Yorker	153	1	/	/
Newsweek	39	.3	/	/
Online newspapers				
nytimes.com	4 008	29	54	20
huffpost.com	2 792	20	81	30
usatoday.com	760	6	43	16

Content analytical approaches

This article reports on research that was conducted as part of a larger project; here we focus mainly on findings of our manual content analysis.
A dictionary-derivation approach was applied to identify articles that likely contained a climate change-related future scenario [for more information, see Guenther, Meyer, Kleinen-von Königslöw & Brüggemann, 2023]: we started with qualitative coding and extraction of climate future text passages of a random sample of 700 articles (across countries). The most common words (1,000 for English and 2,000 for German articles) were assessed and evaluated by two

individuals involved in the research project. Work of colleagues [e.g., on journalists' use of temporal references or reporting on climate change; Baden & Stalpouskaya, 2015; Wozniak, Wessler, Chan & Lück, 2021] and translations of words between the two languages included were considered when developing the dictionaries. The two dictionaries (191 English and 210 German (combinations of) words) were tested, evaluated, validated, and normalized; they assigned a relevance-score to each article, based on the matches regarding each dictionary term (which were not weighted; each occurrence was counted once per article; for more information, see Guenther, Meyer et al. [2023]). Hence, the dictionaries determined the ranking of articles per country. With the goal to manually code 1,000 articles, at the end, in total, $n = 1,010$ articles were coded.

The codebook used for the actual analysis contained formal (e.g., *type of article*, *broad topic*) and content-related categories. The latter assessed climate future scenario(s) presented in the articles: either climate/ecosystem (e.g., rising temperatures, increase of extreme weather events), economic system (e.g., companies, industry (sectors), economy of a nation (in general), socio-political system (e.g., social (in)equality, migration, or political system of a nation in general), or individual scenarios (e.g., individual habits or lifestyles). For each identified scenario, evaluations (e.g., none, negative, ambivalent, or positive) and categories with a reference to (psychological) distance [see also Duan et al., 2017][3] were integrated:

- the *time frame* (i.e., unclear or on a continuum between near (this or next year) and distant (50+ years), related to *temporal distance*),
- the *scope* (i.e., unclear or on a continuum between near (regional/local) and distant (global), related to *spatial distance*),
- the *actors* associated with this scenario (e.g., for all actors present: distant/elite actors such as scientists or political actors and close actors such as citizens/individuals, related to *social distance*),
- and the *plausibility* (i.e., unclear or on a continuum between very unlikely to very likely, related to *hypothetical distance*).

We allowed for more than one scenario to be present in an article; hence, all evaluations and categories with a reference to (psychological) distance could be coded several times in an article. The codebook used in this study is available online in Guenther, Meyer et al. [2023].

Three coders were thoroughly trained in ten training sessions over four months, to use the codebook. During that time, the codebook was adjusted to increase understanding and assure that all coders used it the same way. A number of articles were coded in these sessions, first together, then independently, with exhaustive comparisons and discussions. Intercoder reliability was assessed after 45 articles were coded in additional sessions, with two random samples of 15 and 30 articles, respectively. Using Krippendorff's Alpha (and Holsti, as a check), the

[3] In contrast to many of the categories in Duan et al. [2017], who focused on visuals, we did not just assess if information about these dimensions was given but also to what degree it can be assessed on a continuum between close or distant.

coders reached satisfactory results, with the average scores for the formal ($\alpha = .93$; CR = .97) and the content-related categories (scenarios and categories: $\alpha = .85$; CR = .90; actors: $\alpha = .83$; CR = .93) in an acceptable range. The authors are aware that they detached from the 10% criterion for testing intercoder reliability; however, they still assured that the training was complex, thorough, and successful. After intercoder reliability was established, there were regular check-ins, to discuss progress and problems.

Results

Most of the articles in the sample were published in 2019 ($n = 329$; 33%), fewer were published in 2018 ($n = 252$; 25%), 2017 ($n = 217$; 22%), and 2020 ($n = 212$; 21%). As Table 1 indicates, the largest share of articles was from online newspapers ($n = 544$; 54%), with print quality newspapers ($n = 261$; 26%) and print regional newspapers ($n = 171$; 17%) as second and third. Furthermore, most articles in the sample were coded as an original journalistic article ($n = 891$; 88%), having consequences of climate change ($n = 687$; 68%), mitigation ($n = 193$; 19%), or adaptation ($n = 80$; 8%) as a broad topic. In total, in the 1,010 articles, 1,262 future scenarios were reported on.

Regarding RQ1 (see also Table 2), climate/ecosystem scenarios such as rising temperatures, sea level rise, an increasing number of extreme weather events, or habitat loss of plant and animal species were most dominant (in all countries), followed by economic scenarios such as those referring to individual companies, industry sectors (e.g., agriculture, tourism), or a nation's economy in general and socio-political scenarios (e.g., social (in)equality, migration (climate refugees), supply of drinking water and food). There were only a few individual scenarios; hence, scenarios that address individual habits or lifestyle. Most scenarios were negatively evaluated. When it came to the time frame, it was usually unclear or far in the future (i.e., more than 50 years) — indicating a high level of distance. Regarding the geographic scope, this was most commonly global or distant, again indicating a high level of distance. For social distance, many frequent actors were rather distant (i.e., scientific or political actors) while some were less distant (i.e., citizens/individuals). Lastly, the media in the sample predominantly assessed climate futures' plausibility as (very) likely, showing the lowest level of distance across the four dimensions.

Regarding RQ2, there was little variation across countries. In all countries, climate/ecosystem scenarios were most common; economic and socio-political scenarios were slightly more frequent in Indian and South African, compared to US and German, media (for values and statistical tests, see Table 2). The tendency of most scenarios to be negatively evaluated was less dominant in South African media. The countries only slightly varied regarding the time frame, but there was a weak tendency of German and US media to report with more temporal distance than those in India and South Africa (for a visualization of categories related to distance, see Figure 1). There was more variation regarding the geographic scope, which more so in German media was most commonly global or distant. US media seemed to include citizens/individuals more often than the other countries. At the same time, however, US media — as with the other countries — also most frequently included the perspectives of scientific actors, which are seen as rather socially distant. Hence, Figure 1 shows that there are not many differences between

Table 2. Type of future scenarios and categories of distance across the sample.

	Sample		*Germany*		*India*		*South Africa*		*United States*	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Type of future scenario[a] ($\chi^2 = 21.066$; $df = 12$; $p < .05$)[b]										
ecosystem	754	59.7	196	68.3	202	56.3	153	53.7	203	61.3
economic	271	21.5	57	19.9	77	21.4	71	24.9	66	19.9
socio-political	215	17.0	30	10.5	72	20.1	55	19.3	58	17.5
individual	17	1.3	3	1.0	7	1.9	4	1.4	3	.9
Evaluation ($\chi^2 = 17.331$; $df = 9$; $p < .05$)										
none	107	8.5	26	9.1	36	10.0	27	9.5	18	5.4
negative	983	77.9	229	79.8	280	78.0	203	71.2	271	81.9
ambivalent/mixed	76	6.0	14	4.9	17	4.7	24	8.4	21	6.3
positive	96	7.6	18	6.3	26	7.2	31	10.9	21	6.3
Time frame ($\chi^2 = 30.426$; $df = 15$; $p < .05$)										
unclear	564	44.7	128	44.6	168	46.8	124	43.5	144	43.5
within the current or next year (nearest future)	45	3.6	6	2.1	12	3.3	10	3.5	17	5.1
up to the next five years (near future)	22	1.7	5	1.7	6	1.7	7	2.5	4	1.2
more than 5, up to 30 years (within one generation)	202	16.0	45	15.7	54	15.0	52	18.2	51	15.4
more than 30, up to 50 years (distant future)	147	11.6	22	7.7	56	15.6	39	13.7	30	9.1
more than 50 years (most distant future)	282	22.3	81	28.2	63	17.5	53	18.6	85	25.7
Geographic scope ($\chi^2 = 96.877$; $df = 15$; $p < .001$)										
unclear/indistinguishable	44	3.5	10	3.5	4	1.1	9	3.2	21	6.3
local (< nation = the whole respective country) (nearest)	169	13.4	30	10.5	66	18.4	24	8.4	49	14.8
national (near)	227	18.0	31	10.8	100	27.9	40	14.0	56	16.9
own part of the world (continent)	104	8.2	33	11.5	31	8.6	30	10.5	10	3.0
other part of the world (distant)	233	18.5	57	19.9	39	10.9	68	23.9	69	20.8
global	485	38.4	126	43.9	119	33.1	114	40.0	126	38.1
Distant actors										
scientific actors ($\chi^2 = 17.563$; $df = 3$; $p < .001$)	903	71.6	222	77.4	245	68.2	184	64.6	252	76.1
local/nat. political actors ($\chi^2 = 11.289$; $df = 3$; $p < .05$)	643	51.0	125	43.6	183	51.0	165	57.9	170	51.4
internat. political actors ($\chi^2 = 3.044$; $df = 3$; $p =$ n.s.)	199	15.8	47	16.4	52	14.5	54	18.9	46	13.9
economic actors ($\chi^2 = 2.670$; $df = 3$; $p =$ n.s.)	187	14.8	41	14.3	55	15.3	49	17.2	42	12.7
(journalistic) media actors ($\chi^2 = 2.064$; $df = 3$; $p =$ n.s.)	31	2.5	8	2.8	6	1.7	6	2.1	11	3.3
Close actors										
NGOs/activists ($\chi^2 = 2.611$; $df = 3$; $p =$ n.s.)	89	7.1	23	8.0	21	5.8	25	8.8	20	6.0
civil society ($\chi^2 = 2.309$; $df = 3$; $p =$ n.s.)	24	1.9	5	1.7	4	1.1	8	2.8	7	2.1
citizens/individuals ($\chi^2 = 15.836$; $df = 3$; $p < .01$)	510	40.4	97	33.8	137	38.2	113	39.6	163	49.2
Plausibility ($\chi^2 = 31.280$; $df = 12$; $p < .001$)										
unclear/indistinguishable	7	0.6	/	/	2	.6	4	1.4	1	.3
very unlikely/will (probably) not occur	6	0.5	1	.3	1	.3	2	.7	2	.6
somewhat/rather unlikely	31	2.5	9	3.1	5	21.4	9	3.2	8	2.4
likely, will probably occur	706	55.9	187	65.2	201	56.0	129	45.3	189	57.1
very likely, certain	512	40.6	90	31.4	150	41.8	141	49.5	131	39.6

Note. [a] There were five more scenarios coded as "other"; due to their low frequency, findings for them will not be reported. [b] Values concern country comparisons; due to low frequencies, in all cases, Fisher's exact was used in R with the *simulate.p.value* function.

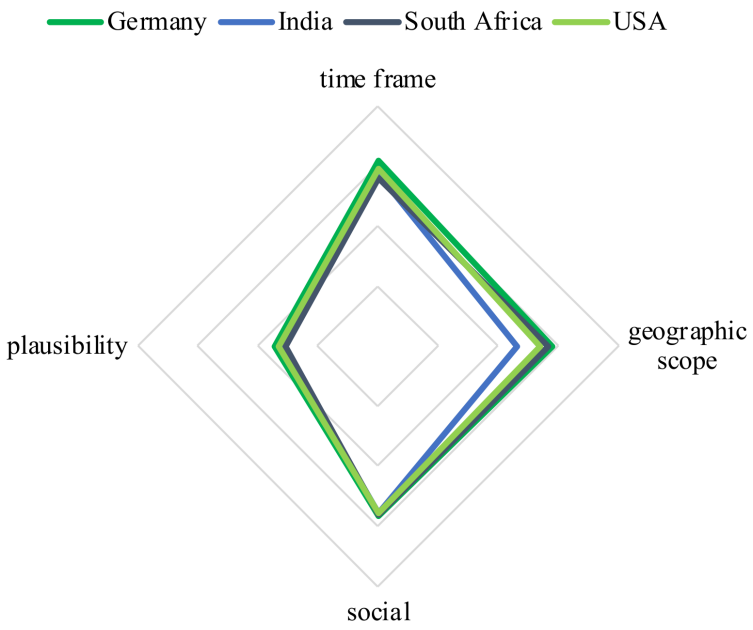

Figure 1. Distance across countries. *Notes.* The outer the layer, the more distance is present. Categories recoded into 4-points (excluding "unclear" coding; time frame: current–5 years, more than 5–30 years, more than 30–50 years, more than 50 years; geographic scope: local/national, continental, other part of the world, global; social: number of social distant actors (e.g., scientists, politicians) minus number of social close actors (e.g., citizens) — and recoded; plausibility: very unlikely, somewhat/rather unlikely, likely, very likely/certain).

countries overall. Nonetheless, across all countries, media assessed climate futures' plausibility as (very) likely, but slightly more so in Indian and South African media.

With reference to RQ3, while there was little variation across countries, how distant media reported on climate futures seemed to be slightly more dependent on the type of scenario (see Table 3 and Figure 2 for the categories related to distance). For the climate/ecosystem scenarios, which were mostly negative scenarios, the time frame was often either unclear or far in the future (50+ years), the scope was often on other parts of the world or was global, and the plausibility was most frequently likely (i.e., use of the conjunctive). The main actors associated were scientists. In total, climate/ecosystem scenarios were thus the most distant (and thus in Figure 2, they represent the outer circle). The economic scenarios were not as distant: their evaluation was more mixed, with negative ones most common but ambivalent and positive evaluations were also present. The time frame was often unclear or concerned the next 5–30 years, the scope was frequently local or national (while still most often global), and the plausibility assessed as likely and, more often, very likely. Hence, all these categories showed, at least to some degree, a slightly lower level of distance. The most dominant actors associated with these scenarios were nevertheless distant: local/national or international political actors, scientists, and economic actors.

Similarly, socio-political scenarios were not as distant as climate/ecosystem scenarios. Although they had the highest frequency of negative evaluations and unclear time frames, often a focus on other parts of the world or a global scope, and were assessed as rather likely, these scenarios more often than before included citizens/individuals as actors. However, the least distant, but at the same time least

Table 3. Categories of distance across types of future scenarios.

	Ecosystem scenarios		*Economic scenarios*		*Socio-political scenarios*		*Individual scenarios*	
	n	%	*n*	%	*n*	%	*n*	%
Evaluation ($\chi^2 = 187.750$; $df = 12$; $p < .001$)[a]								
none	59	7.8	39	14.4	7	3.3	2	11.8
negative	637	84.5	137	50.6	193	89.8	11	64.7
ambivalent/mixed	36	4.8	33	12.2	6	2.8	1	5.9
positive	22	2.9	62	22.9	9	4.2	3	17.6
Time frame ($\chi^2 = 152.330$; $df = 20$; $p < .001$)								
unclear	334	44.3	94	34.7	126	58.6	7	41.2
within the current or next year (nearest future)	41	5.4	2	.7	1	.5	/	/
up to the next five years (near future)	13	1.7	7	2.6	2	.9	1	5.9
more than 5, up to 30 years (within one generation)	78	10.3	85	31.4	33	15.3	5	29.4
more than 30, up to 50 years (distant future)	69	9.2	53	19.6	23	10.7	2	11.8
more than 50 years (most distant future)	219	29.0	30	11.1	30	14.0	2	11.8
Geographic scope ($\chi^2 = 55.307$; $df = 20$; $p < .001$)								
unclear/indistinguishable	23	3.1	13	4.8	5	2.3	2	11.8
local (< nation = the whole respective country) (nearest)	124	16.4	22	8.1	21	9.8	2	11.8
national (near)	102	13.5	74	27.3	46	21.4	5	29.4
own part of the world (continent)	67	8.9	15	5.5	21	9.8	/	/
other part of the world (distant)	143	19.0	49	18.1	37	17.2	3	17.6
global	295	39.1	98	36.2	85	39.5	5	29.4
Distant actors								
scientific actors ($\chi^2 = 146.890$; $df = 4$; $p < .001$)	627	83.2	134	49.4	132	61.4	7	41.2
local/nat. political actors ($\chi^2 = 19.849$; $df = 4$; $p < .001$)	364	48.3	168	62.0	105	48.8	5	29.4
internat. political actors ($\chi^2 = 10.186$; $df = 4$; $p < .05$)	99	13.1	56	20.7	40	18.6	3	17.6
economic actors ($\chi^2 = 93.785$; $df = 4$; $p < .001$)	68	9.0	90	33.2	25	11.6	3	17.6
(journalistic) media actors ($\chi^2 = .827$; $df = 4$; $p =$ n.s.)	18	2.4	8	3.0	5	2.3	/	/
Close actors								
NGOs/activists ($\chi^2 = 1.928$; $df = 4$; $p =$ n.s.)	48	6.4	23	8.5	17	7.9	1	5.9
civil society ($\chi^2 = 2.767$; $df = 4$; $p =$ n.s.)	12	1.6	5	1.8	6	2.8	1	5.9
citizens/individuals ($\chi^2 = 147.970$; $df = 4$; $p < .001$)	251	33.3	82	30.3	160	74.4	14	82.4
Plausibility ($\chi^2 = 52.547$; $df = 16$; $p < .001$)								
unclear/indistinguishable	2	.3	3	1.1	1	.5	1	5.9
very unlikely/will (probably) not occur	3	.4	2	.7	/	/	1	5.9
somewhat/rather unlikely	18	2.4	11	4.1	1	.5	1	5.9
likely, will probably occur	447	59.3	118	43.5	133	61.9	5	29.4
very likely, certain	284	37.7	137	50.6	80	37.2	9	52.9

Notes. [a] Values concern comparisons across types of scenarios; due to low frequencies, in all cases, Fisher's exact was used in R with the *simulate.p.value* function.

frequently reported on, scenarios were the individual ones, which also showed mixed evaluations. They represented many different time frames, often with a local or national scope, mostly represented as very likely. These scenarios are the ones that most frequently linked to citizens/individuals and are thus not seen as distant as the other three types of scenarios.

Discussion

Although this varies across the globe [e.g., Fagan & Huang, 2019], climate change is (still) not a major cause for concern for many members of the public [e.g., Bell et al., 2021; Carmichael et al., 2017] — with psychological distance among the potential reasons for that. Since journalistic media are influential sources about the topic, this

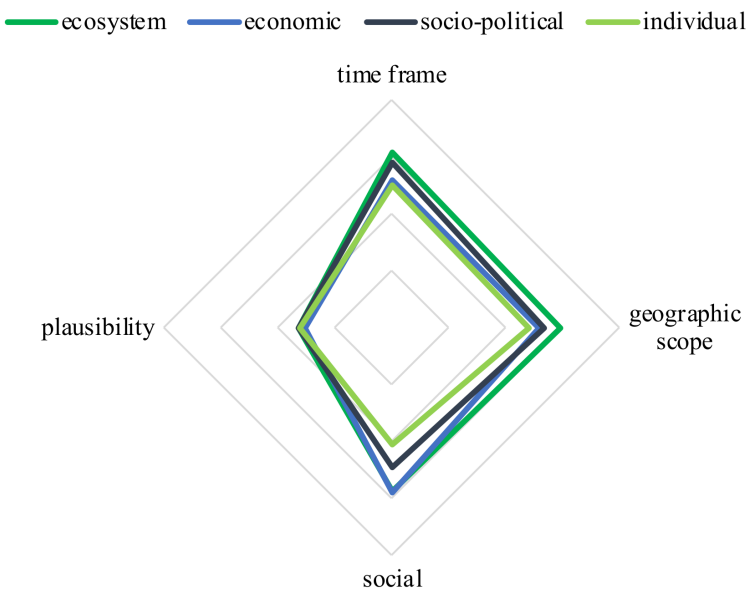

Figure 2. Distance across types of scenarios. *Notes*. The outer the layer, the more distance is present. Categories recoded into 4-points (excluding "unclear" coding; time frame: current–5 years, more than 5–30 years, more than 30–50 years, more than 50 years; geographic scope: local/national, continental, other part of the world, global; social: number of social distant actors (e.g., scientists, politicians) minus number of social close actors (e.g., citizens) — and recoded; plausibility: very unlikely, somewhat/rather unlikely, likely, very likely/certain).

article analyzed how distant media across four countries reported on climate futures.

This study found that in journalistic media across the Global North and Global South countries under investigation in this study, there was only little variation in how distantly they reported on the topic. Ecosystem scenarios dominated in all countries, but slightly more so in the Global North countries Germany and the US. Indian and South African media, hence those from the Global South, showed a slight tendency to more frequently cover economic and socio-political scenarios — probably also the reason why, in total, these two countries from the Global South had less distant reporting regarding time frames, scopes, and plausibility. Altogether, Global South countries show at least a tendency to exhibit less distant reporting on climate futures [see also Hase et al., 2021, for their findings on societal dimensions in Global South reporting]; however, the lack of more country-specific differences may also be related to the transnational character of climate change and climate policy [e.g., Guenther, Brüggemann & Elkobros, 2022; Wessler et al., 2016]. At the same time, the lack of cross-country differences may also be related to the codebook used in the present study, which may have used categories too broad to detect country differences. In total, nevertheless, climate futures portrayed in journalistic media seem to be presented rather distant, which could potentially complicate linking them to daily life experiences of members of the audience.

Comparing the countries, it seemed that the type of climate future scenario was connected to how distantly they were represented journalistically. Thus, not all climate change-related future scenarios are equally distant. References to the climate/ecosystem are the most distant. Due to their scientific base, they often refer to the years 2050 or 2100; due to their high frequency, they add to the perception

that climate futures are removed from the daily life experiences of individuals [for similar explanations, see Carvalho, 2010; Duan et al., 2017; O'Neill & Nicholson-Cole, 2009]. Such a reporting is possibly not beneficial for topic engagement [e.g., Ruiu, 2021], as it probably leads to abstract and general mental representations in individuals [e.g., Trope & Liberman, 2003, 2010]; however, these scenarios seem to follow the logic of scientific assessment most closely. Climate research rather draws scenarios for years such as 2050 or 2100, but less so for the immediate future to come.

A more concrete reporting was identified for both economic (e.g., closer scope and time frame) and socio-political (e.g., more certainty) climate futures; at the same time, they are not as frequently reported on as the climate/ecosystem scenarios. Individual scenarios are the least distant, but they are almost absent from coverage. Such scenarios, also due to their focus on individuals, could probably motivate people to act [e.g., Jones et al., 2017; Scannell & Gifford, 2013; Wiest et al., 2015] because they more strongly relate to everyday life. Hence, if journalists wanted to contribute to making climate change more of a priority to their audiences and make them act on negative scenarios or work towards desirable ones, reporting on climate futures could be altered along the temporal, spatial, and social dimensions of (psychological) distance — independent of the type of scenario represented. The hypothetical dimension is the only one that showed a low level of distance in this sample: climate futures are represented as (rather) certain. Naturally, journalists are dependent on their sources and information provided; nevertheless, they could hold those in powerful positions accountable and ask them to state, comment, or judge on the immediate climate future.

The findings of this study are to some degree in line with some earlier studies on (visual) representations of climate change and climate futures [e.g., Fløttum et al., 2014; Guenther, Brüggemann & Elkobros, 2022; Hellsten et al., 2014; Kumpu, 2013; O'Neill, 2013; Rebich-Hespanha et al., 2015], but to some degree in contrast to a study applying construal level theory to visuals in newspapers [e.g., Duan et al., 2017]. However, in the study by Duan et al. [2017], many categories assessed if information was given; in the present study, we assessed if this information can be seen as rather proximate or distant, on a continuum. Thus, we believe that the present study can be seen as an extension of the coding of textual content. We also added a comparison across countries.

Nevertheless, the present study also has some notable limitations. An effort was made to include several different media in countries of both the Global North and Global South; however, selecting only four countries, two languages, and focusing on print and online journalism is a limitation. Certainly, relying on human coders meant that only a small number of articles from a bigger sample could be analyzed in detail. Furthermore, including a variety of different journalistic media and using several databases meant the study had to rely on a rather small time frame. Not all media sources are represented equally (cf. Table 1) and certainly the low number of articles in tabloid media and weekly outlets is a further limitation. In addition, some operationalizations are still up for debate; for instance, who counts as a distant compared to a close actor (e.g., local and national political actors).

Future research could link the findings of this study back to audiences and test if real journalistic content coded as distant (as compared to manipulated stimuli) is

indeed leading members of the audience to assess climate change as an abstract topic on which they show limited intentions to act, as well as if representing information as less distant can counter this effect. A recent review [van Valkengoed et al., 2023] shows that distance may not be the key variable to explain climate (in)action; nevertheless, journalistic media still portray climate futures as *not here, not now, not me*, although extreme weather events such as draughts and heat waves already regularly affect people around the globe.

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