

Representation of Vulnerable Groups in Dutch Climate Crisis News: An Analysis of Mainstream Narratives

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Abstract

The present study provides an empirical analysis of how different vulnerable groups (migrants, children, women and gender minorities, older adults, and people experiencing poverty) are included in Dutch climate crisis reporting. These groups are often disproportionately affected by climate developments, yet empirical research on their media representation in this context is limited. By utilising computational methods for text analysis, this research provides a critical-empirical exploration of framing practices on a large volume of news articles ($N = 17,550$) retrieved from seven major news outlets published between 2014 and 2023. The findings show dominant media frames in Dutch climate crisis reporting, with distinct patterns emerging depending on the vulnerable groups under consideration. The analysis explores the extent to which these groups are portrayed as active agents or passive victims in news media reporting. The study contributes to broader societal debates on equity and inclusion, offering insights that can inform more inclusive climate communication.

Keywords

climate crisis; computational methods; news media frames; vulnerable groups

1. Introduction

Globally, the climate crisis is recognised as a fundamental societal challenge. However, even in countries where public discussions shift from debating its reality to governance questions, climate discourses are dominated by political, economic, and scientific-ecological considerations (Guenther et al., 2021; Hase et al., 2021; McAllister et al., 2024). Arguably, impacts on vulnerable groups remain a side-show (Pearson et al.,

2017). This is a crucial gap in the public understanding of the climate crisis, as it can have detrimental effects, especially for vulnerable groups, such as children, older adults, women, migrants and refugees, and people experiencing poverty. Examples include extreme weather damaging low-income families' homes, droughts diminishing agricultural production and worsening food insecurity, and air pollution increasing health risks. Negative climate effects distribute unevenly across social groups. Yet public discussions linking the two are limited (Craig et al., 2021). News media play an important role here as pillars of public discourse with a critical function for public epistemology. Previous research shows that climate issues are more visible in news agendas (Bohr, 2020; Guenther et al., 2021), but they are often approached as science communication challenges, emphasising ecological dimensions or as polarising political issues (Bolsen & Shapiro, 2018; Chinn et al., 2020).

Analysing climate news coverage featuring vulnerable groups is insightful for several reasons: First, it allows exploring the extent to which news media cover concrete climate effects on specific social groups. Second, scoping media representation of different social groups can unearth biases. Third, it unfolds what climate news framing can reveal about the sensitivity of public discourses in relation to social effects. The present study analyses Dutch climate news reporting and media representation of vulnerable groups therein from a comparative angle. In the Netherlands, the climate crisis is a widely discussed topic. According to a 2023 survey (Centraal Bureau voor de Statistiek, 2023), 76% of Dutch adults worry that the climate crisis threatens future generations. Dutch news media often scrutinise governmental climate policies, echoing public sentiment: 63% of Dutch adults (Pew Research Center, 2020) think that the government should prioritise environmental protection, and about half (52%) believe it is not doing enough. Dutch news media provide an insightful empirical case for uncovering framing trends and biases in a societal context where the reality of climate change seems generally accepted.

To explore news framing and media representation, the present article utilises computational methods for text analysis on a large volume of climate news articles ($N = 17,550$) retrieved from seven major national Dutch news outlets. The automated content analysis reveals dominant media frames and scopes to what extent vulnerable groups are visible and how they are portrayed. The findings serve to critically assess current journalistic practices regarding the representation of vulnerable groups in relation to climate justice.

The article is structured as follows: First, definitions for media framing and vulnerable groups are derived by drawing on scholarship on the climate crisis and media communication. Next, the computational research design is introduced, outlining the combination of text analytical approaches that implement an automated media discourse and media representation analysis. The results are presented by comparing different vulnerable groups. Finally, the discussion summarises the key findings that inform a broader critique of news framing practices and media representation imbalances.

2. Media Framing of the Climate Crisis

The present study builds on an extensive body of research on media framing (D'Angelo, 2017) and primarily focuses on emphasis framing (Chong & Druckman, 2007), i.e., what aspects of complex issues deemed newsworthy are highlighted in media texts to contextualise them from specific angles. Previous scholarship on framing and the climate crisis examined the political, scientific, and environmental dimensions of climate communication (Boykoff, 2011; Chinn et al., 2020). Studies on news framing show that it can influence lay

audiences' perception of the severity of climate developments and their underlying causes (Weathers & Kendall, 2016). Climate issues have become more prominent in news agendas over time (e.g., Guenther et al., 2021) and some news outlets shifted tonality to highlight the perceived urgency and negative impact of climate developments, e.g., by referring to the “climate crisis” or “climate emergency” rather than the neutral sounding “climate change” (Feldman & Hart, 2021). This has led to a more negative and partly fatalistic framing of climate topics, though recent studies observe yet another shift towards an optimistic outlook centred on sustainability (Guenther et al., 2021).

Several previous studies applied computational methods for large-scale content analyses of climate news. For example, Meier and Eskjær (2023) analysed over 63,000 articles from 1990 to 2021 for the Danish context. They identify 91 topics and show that, next to ecological and scientific issues, especially politics and economics are prominent in Danish climate news. Notably, what the authors describe as “climate skepticism” seemed to have disappeared from Danish news agendas over time, corresponding with findings for the Dutch context (van Eck et al., 2024). Using a similar method and taking a comparative view, Hase et al. (2021) analysed 71,674 articles from 10 countries representing the Global South and Global North for the period between 2006 and 2018. The authors identify 85 topics in global climate news coverage and observe increasing emphasis on societal dimensions, especially governance, politics, and education, though this does not necessarily indicate a stronger focus on vulnerable groups.

Climate news reporting seems to have transitioned from discussions about the scientific reality of climate change to governance questions (van Eck et al., 2024). In the Netherlands, for instance, the public conversation has moved from “is it real?” to “how do we solve it?” indicating a new form of political polarisation around climate solutions. Political rifts dominate climate discourses in countries such as the USA, where climate news reporting is shaped by political actors that exacerbate partisan divides (Chinn et al., 2020). Socio-political and cultural differences between discursive contexts (e.g., USA vs. Europe) as well as between news organisations factor into climate framing trends. Importantly, in their meta-study on climate journalism, Schäfer and Painter (2021) find that, globally, journalists operate under “more strenuous conditions,” with fewer specialist reporters and a potentially growing influence of non-scientific actors from industries and politics.

Fewer studies explore how vulnerable groups are portrayed in mainstream media in the context of the climate crisis (van Eck et al., 2024). Arguably, limited media attention is placed on the differential impacts of climate developments across social groups. Media representations focused on politics, economics, and science can fail to adequately highlight how marginalised populations are disproportionately affected, overlooking the human dimension of climate (in)justice. This links to the general invisibility of marginalised groups in news media reporting, which has been well documented by previous research on media representation (e.g., Merskin, 2011). Agenda-setting processes guided by editorial news values often prioritise societal elites (Harcup & O'Neill, 2017), contributing to a lack of representation of groups considered to be at the margins of society (Jamil & Retis, 2022). Critically, rendering marginalised groups invisible in news reporting is not a mere reflection of existing social exclusion mechanisms in society but, arguably, actively contributes to it (Merskin, 2011), which suggests that increasing visibility in the media can also influence public perceptions (Stever, 2025). As such, media representation can have drastic consequences for marginalised groups in terms of how policies are developed that affect them based on stereotypes and ignorance (Kurtulmuş & Kandiyali, 2023).

3. Vulnerable Groups and the Climate Crisis

The present article adopts the European Commission's definition of vulnerable groups: "a population within a country that has specific characteristics that make it at a higher risk of needing humanitarian assistance than others or being excluded from financial and social services" (Marin-Ferrer et al., 2017, as cited in Kuran et al., 2020, p. 1). Such groups are often disproportionately affected by climate developments and have fewer resources or opportunities for adaptation compared to other social groups (Donger et al., 2025).

In conceptualising media representation, the present study draws from framing theory to examine three interrelated dimensions: contextualisation, agency, and valence (Scheufele & Tewksbury, 2007). Contextualisation concerns the narrative settings in which vulnerable groups are included (e.g., coverage of extreme weather or public health risks). This links to emphasis framing in news texts. Agency addresses whether these groups are portrayed as passive victims or as active participants with voice and capacity to influence outcomes (Roosvall & Tegelberg, 2015). Valence refers to the evaluative tone of coverage, including whether these groups are framed sympathetically, as deserving of assistance, or problematically in ways that may legitimise exclusionary policies (Booth et al., 2025).

Critically, vulnerable groups are often represented episodically rather than thematically, focusing on immediate events and not structural causes (Huang et al., 2022). Episodic framing risks depoliticising climate justice issues by individualising responsibility and downplaying systemic inequities (Trott et al., 2023). This is an outcome of event-driven journalism geared towards short-term news coverage that may fail to present complex, longitudinal developments holistically (Cottle, 2006). Overall, vulnerable groups' perspectives are underrepresented and, in some cases, simply absent from climate discussions (van Eck et al., 2024).

Previous studies on vulnerable groups highlight recurring framing patterns. For instance, children and youth are often portrayed as emblematic victims at risk from heatwaves, air pollution, or displacement, or as moral agents leading climate activism (Donger et al., 2025). While moral leadership frames can be empowering, fear-based imagery risks engendering feelings of helplessness among both portrayed groups and audiences (O'Neill & Nicholson-Cole, 2009). Elderly populations are most visible in health-related coverage, particularly as victims during extreme heat events (Falchetta et al., 2024). Notably, these portrayals often omit social support systems and the structural inequalities that compound these risks. Low-income households are frequently presented in relation to energy poverty and housing precarity (Yoon & Hernández, 2021). Further, migrants and climate-affected mobile populations are framed through securitisation narratives, depicting them as challenges to receiving societies, particularly in the context of broader migration debates (Raimi et al., 2024). Human rights-oriented framings, which foreground dignity and adaptation capacities, remain comparatively rare (Sakellari, 2024).

Framing choices are not merely descriptive but normative. They influence how audiences understand the causes and consequences of the climate crisis, as well as which policy responses they support (Huang et al., 2022). Negative or fatalistic framing, when unaccompanied by agency, can lead to disengagement (O'Neill & Nicholson-Cole, 2009), while justice-oriented, solution-focused frames may strengthen public support for equitable climate policies (Clayton, 2018).

Based on the above considerations, the present study aims to address the following research question: How do Dutch mainstream news media frame vulnerable groups in their coverage of the global climate crisis?

Empirically, a computational content analysis was applied to a large corpus of Dutch climate crisis news articles to explore media frames and news framing practices around vulnerable groups. Focus was placed on six social categories considered as vulnerable groups: (a) children and youth, (b) migrants and refugees, (c) women and gender minorities, (d) older people, and (e) people experiencing poverty. Examining different vulnerable groups comparatively reveals whether there are systematic patterns in representation (e.g., the prioritisation of some forms of suffering over others) or whether certain populations are consistently marginalised. Three sub-questions guide the empirical analysis:

SQ1: To what extent are vulnerable groups represented in Dutch climate crisis news?

SQ2: How do dominant media frames differ across these vulnerable groups?

SQ3: Are certain key themes of the climate crisis in Dutch media coverage associated with specific vulnerable groups but not others?

4. Data and Method

4.1. Data Collection and Curation

The computational methods for media frame analysis include topic modeling via BERTopic (Grootendorst, 2022), named entity recognition (NER) via SpaCy (Honnibal et al., 2020), and normalised word counting. The dataset was retrieved via the Nexis archive and includes all articles mentioning the keywords “climate change” (*klimaatverandering*) or “climate crisis” (*klimaatcrisis*), published between January 2014 and December 2023 for seven major Dutch news outlets. These were selected for their reach and reputation as widely read legacy news outlets along the centre-left to centre-right ideological spectrum. A computational content-analytic approach was adopted to systematically examine long-term trends and contextual patterns in the visibility and invisibility of vulnerable groups. This approach suits large news corpora, as it allows detecting both dominant framing patterns and low-frequency but meaningful signals. The analytical rationale is inspired by cultural-analytic work in which computational methods are used to identify patterns that may be rare yet still substantively significant within extensive textual datasets (Manovich, 2020).

Initially, 26,839 news articles were collected, of which 24,397 were kept after removing duplicates. To ensure the articles centred on climate-related issues—rather than mentioning keywords incidentally—an additional filtering process was applied. An elaborate keyword list was compiled to indicate climate coverage (Supplementary File 1). A simple threshold was then set: An article had to contain a keyword once in the title or twice in the main text. Articles meeting this criterion were marked as “climate-related” using a regex-based classifier. Manual inspection of a random 250 articles by a single researcher showed a satisfactory classification accuracy of 92.8% (simple agree/disagree with the classifier). Additionally, an intercoder reliability score was calculated for two human coders and the algorithm on a random sample of 35 articles of that subset, yielding KALPHA = 0.80 (Hayes & Krippendorff, 2007). This yielded a final dataset of $N = 17,550$ climate-related articles (Supplementary File 2). A similar filtration pipeline was then applied to

N to identify news articles that mention vulnerable groups (Supplementary File 3). Again, a random 200 articles were manually inspected to assess classification accuracy, which reached 93% after eliminating false positives for ambiguous terms. KALPHA scores reached at this stage 0.88 (for 35 randomly selected articles). This yielded a subsample of $n = 3,582$ focusing on vulnerable groups in climate-related news articles, representing 20.4% of N (Supplementary File 4).

For topic modeling and word embeddings, the news texts underwent several preprocessing steps, such as lowercasing, removal of special characters, tokenisation, stop word removal, and part-of-speech tagging using a combination of hand-coded preprocessing steps and the Spacy library (model `nl_core_news_lg`).

4.2. Computational Text Analyses for Exploring Media Frames

Media frames are defined as thematic emphasis frames that highlight selected aspects of complex social realities (Chong & Druckman, 2007). For example, climate change can be primarily presented as an ecological, economic, or political issue. Methodologically, natural language processing (NLP) techniques in combination with text clustering can unearth emphasis frames through the analysis of frequently co-occurring words (Nguyen & van Es, 2024). If several news articles share dominant keywords such as “CO2,” “emissions,” and “regulation,” then this can be considered as the emphasis frame “CO2 governance” by human annotators, which implies a political and governmental focus.

BERTopic served this purpose, which utilises transformer-based embeddings to create dense document representations (Grootendorst, 2022). These representations are then clustered to identify text clusters that can be interpreted as emphasis frames. For the present study, the GroNLP BERT-base Dutch (cased) model was selected for generating contextual embeddings, as it is optimised for Dutch texts (de Vries et al., 2019). Importantly, topics were generated for each year to mitigate bias potentially stemming from using one global model for the entire dataset. To ensure stability, the BERTopic pipeline was run five times per year with different random seeds to capture variation in the outputs (Supplementary File 5). The yearly results were compared for interpretability, and the median model was selected for further analysis.

Model stability was also assessed using a multi-metric procedure as suggested for reliability approaches in topic-modelling research (Maier et al., 2018). For all 5×10 randomly seeded models per year, Jaccard similarity, cosine similarity, and Jensen–Shannon distance were calculated on the top-30 words per topic (Supplementary File 6). The resulting stability scores underline the robustness of the procedure, with an overall mean Jaccard similarity of 0.58 and higher cosine (0.69) and Jensen–Shannon values (0.69), indicating consistent overlap in topic structures across seeded runs.

The labelling of the results as emphasis frames followed a qualitative coding process as inspired by Saldaña (2021), where the bags-of-words representations (BOWs) from the BERTopic output served as the primary text material. In the first coding, the BOWs were labelled by interpreting the different individual words for a given text cluster and inspecting a random 10% of each text cluster’s assigned documents. For example, the text cluster sharing dominant keywords “drinking water, water, drinking water company, groundwater, drinking water service, tap, water company, litre, seawater, desalination” (translated from Dutch) was labelled as the emphasis frame “drinking water supply.” Both coders did so independently before discussing and consolidating labels. In this process, text clusters that could not be interpreted and labelled were excluded, reducing the overall number of clusters to 626.

In a second coding, the 626 emphasis frames were grouped into 17 thematically related meta-frames to provide a bird's-eye view of framing trends (Supplementary File 2). The emphasis frame “drinking water supplies” was grouped with other similar emphasis frames under the meta frame “water management.” The process aimed for balancing nuance with efficiency, with attention paid to keeping thematic emphases distinct that were considered particularly relevant for the climate crisis discourse (e.g., keeping “combustion fuels and natural resources” as well as “alternative/renewable energy and sustainability” apart and not subsuming them under “industries, markets, and technologies,” which captures more diverse commercial contexts).

Finally, NER served for determining the most frequently mentioned persons and organisations to explore what societal actors dominate the Dutch climate discourse.

5. Results

5.1. The Climate Crisis in Dutch News Media

Climate coverage grew in all outlets from 2014 to 2023, yet still forms only a small portion of total news (Supplementary File 7, Figure 1). Four outlets out of seven had all news articles, regardless of topic, available in the Nexis archive. All seven outlets were included in the climate-centric news analysis, but some news brands were removed from the archive before we could compare climate-related articles to the total news items per brand. In the case of *AD*, it is a mere 0.7% on average over the entire period. However, as of 2018, the volume of climate-related articles increased considerably from less than 1% for most outlets to over 2%-5% in 2023. Only in the case of *Telegraaf* did it never exceeded 1%. Climate issues are part of Dutch news agendas, but they constitute a small portion of overall news output, limiting the visibility of vulnerable groups from the outset. Though the term “climate crisis” appeared more frequently from 2018 onwards, it never surpassed 20% of all climate-centric articles; “climate change” stayed dominant (Supplementary File 7, Figure 2).

Examining framing trends over time indicates shifts around 2019, characterised by partially fluctuating yet sustained reporting on “climate politics and policies,” “environmental harm and natural disasters,” “economy and finance,” “biodiversity, nature, and science,” and “national politics” (Figures 1 and 2). Over the years, news coverage has mostly focused on climate summits, international and national climate policies, and climate activism. This is supplemented by reporting on diverse negative environmental effects and disasters, such as wildfires, floods, and droughts, as well as coverage of climate science and natural ecosystems. Macro-economic trends and various industry-specific developments—especially around fossil fuels and alternative energy—form another dominant thematic focus. National politics concern local and national political bodies and representatives, with a broader focus than just climate policies (e.g., elections, party politics). Societal discussions and climate as a subject of cultural discourses are visible, too, albeit to a lesser extent.

Dutch climate news reporting mostly features international or national politicians and experts for climate developments (Supplementary File 8, Figure 1) as well as political parties and transnational governance bodies (Supplementary File 8, Figure 2), suggesting an elite focus that is characteristic of mainstream outlets' definition of “news values” (Harcup & O'Neill, 2017).

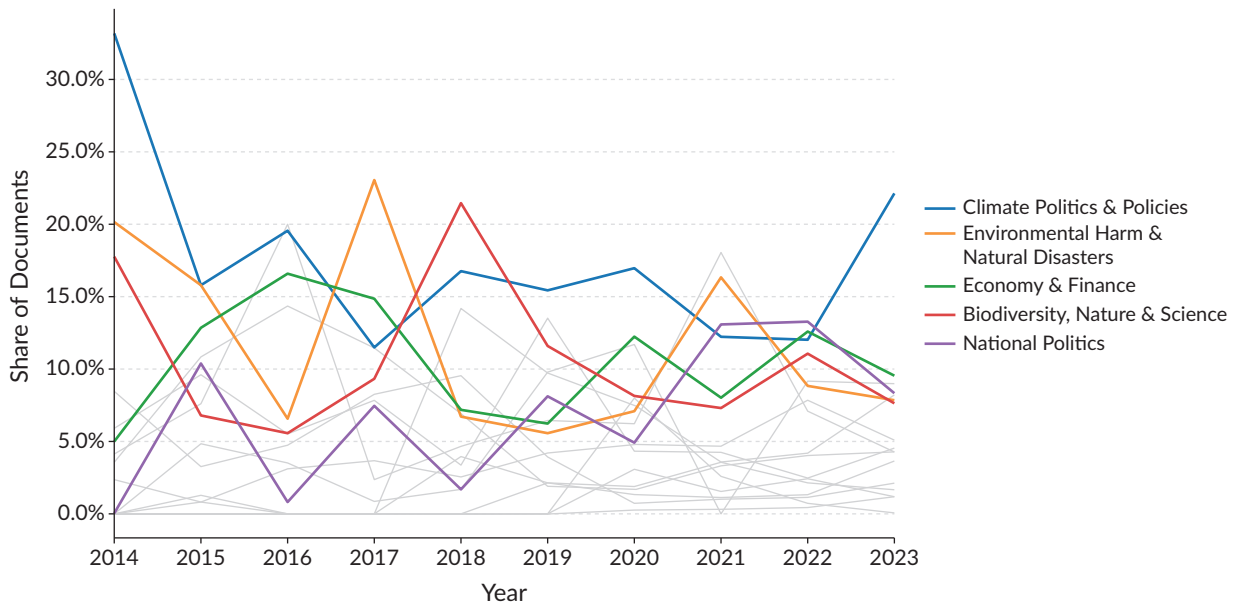


Figure 1. Top five meta-frames over time.

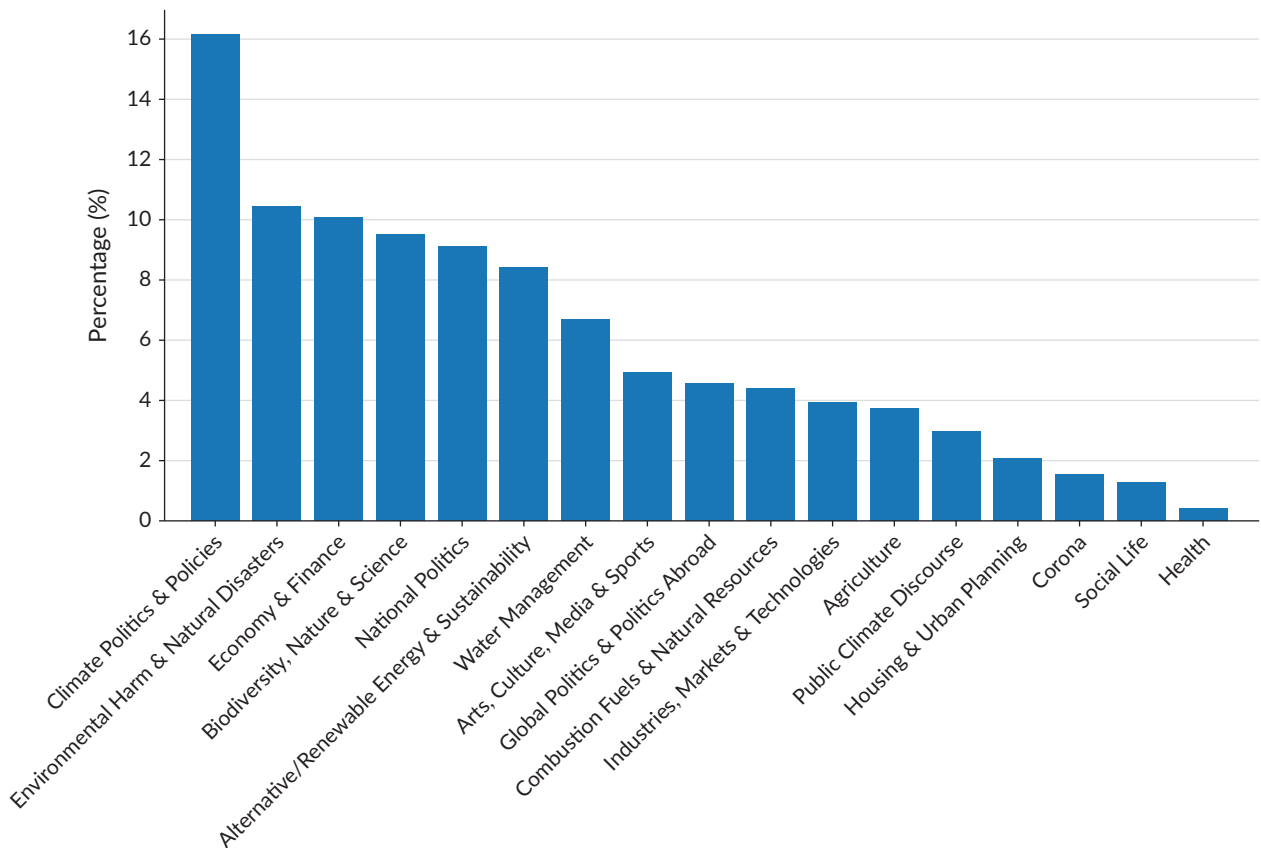


Figure 2. Top 10 most frequent meta-frames.

5.2. Representation of Vulnerable Groups in Dutch Climate Crisis News

Within climate-related news articles, 17.2% ($n = 3,088$) cover vulnerable groups. There are considerable differences in the visibility between these groups. Children and youth feature in 2060 articles, while most other groups do not occur in more than 290 to 370 articles. “Migrants and refugees” form the second largest category, followed by “women and gender minorities,” “older people,” and “people experiencing poverty.” Notably, “people with disabilities” are nearly invisible in Dutch climate news reporting. These patterns remain persistent over time, with notable peaks mostly emerging for the already relatively dominant group of children and youth (Figure 3). The sharp increase for this group in 2019 is linked to increased media coverage of youth-driven climate protest movements and the emergence of the influential climate activist Greta Thunberg (“School Strike for Climate”) as well as the rise of Extinction Rebellion. For the remaining groups, the volume of articles remains relatively stable, rarely exceeding 2.5% of the total. An exception is the group “migrants and refugees,” for whom visibility in climate-related news articles peaked between 2015 and 2016, likely linked to migration movements triggered by conflicts in the Middle East.

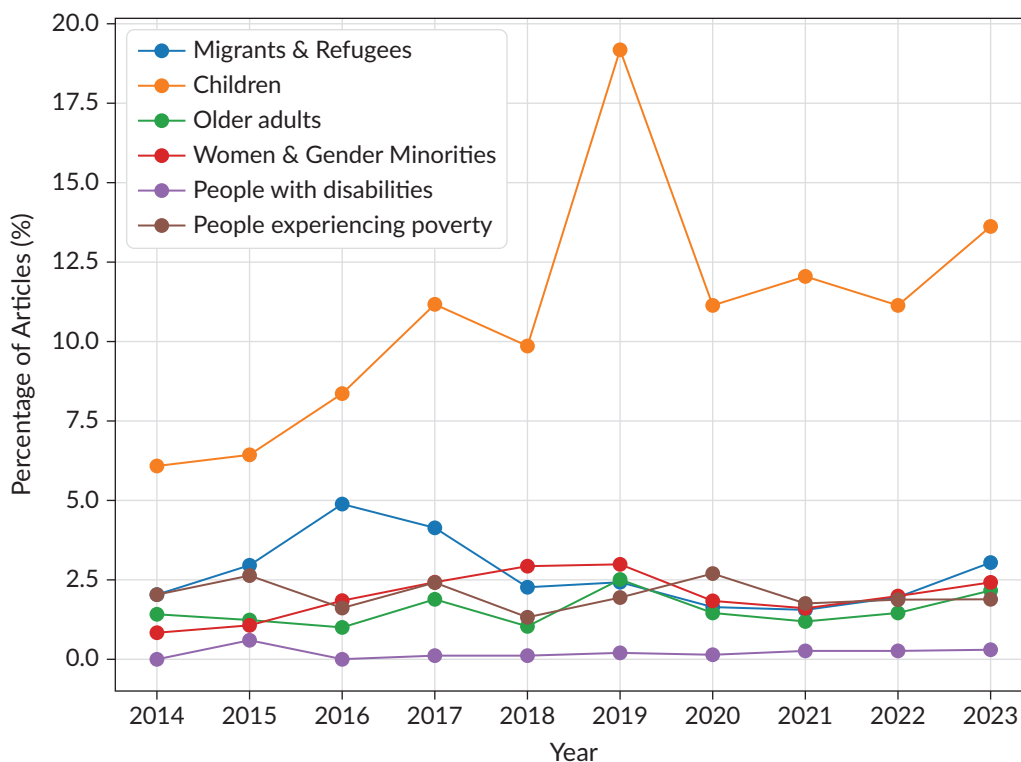


Figure 3. Proportion of articles featuring a vulnerable group (2014–2023).

5.2.1. Children and Youth

The category “children and youth” featured in 12.3% of all articles (2,160 out of $N = 17,550$). These articles mostly cover “climate politics and policies” (18.8%), “national politics” (13.3%), followed by “biodiversity, nature, and science” (8%) and “arts, culture, media, and sports” (7.3%; $\chi^2(20) = 739.58, p < .001$). Young people and children are more frequently mentioned in media frames that focus on future-oriented climate policies, social impacts of climate change, and activism (Figures 4 and 5).

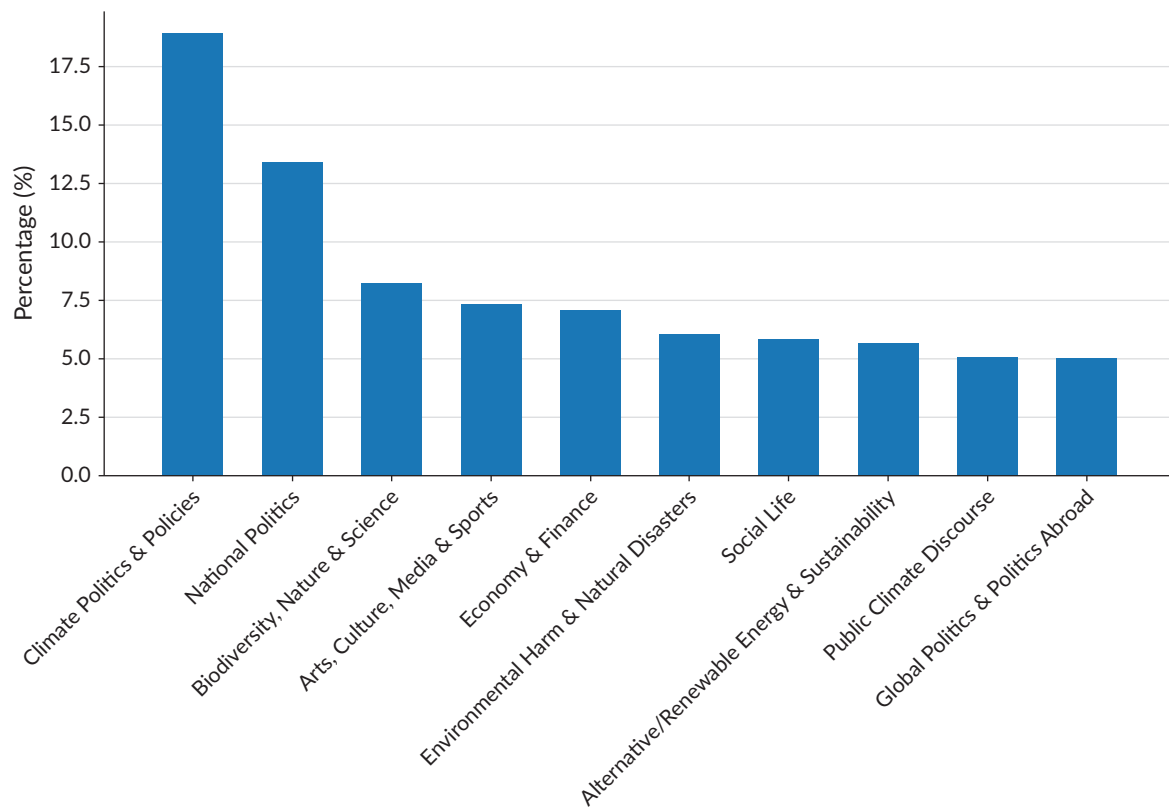


Figure 4. Top 10 meta frames for “children and youth.”

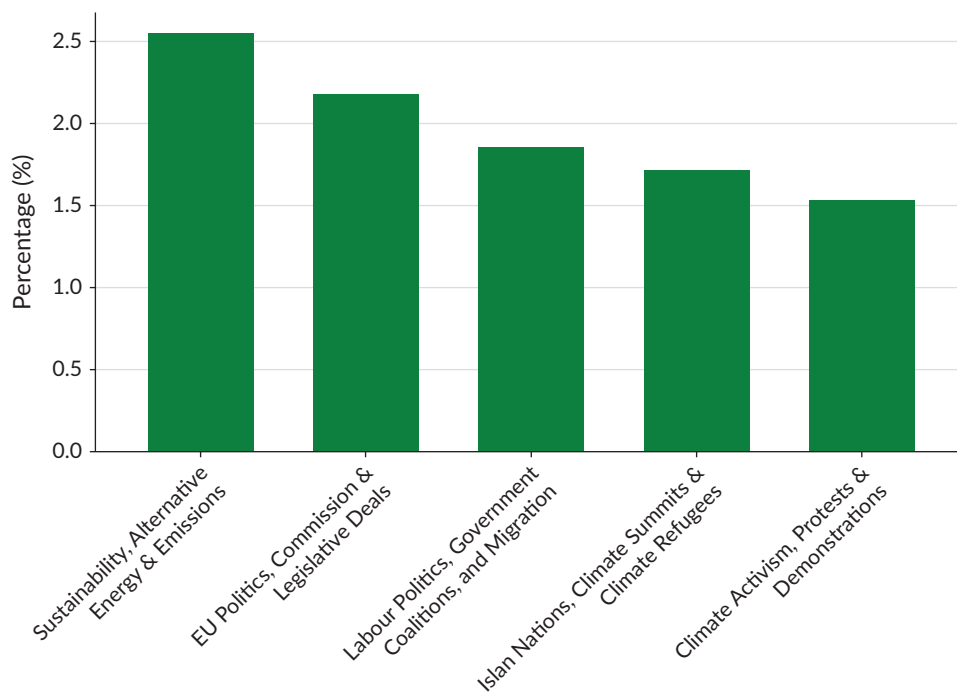


Figure 5. Top five specific frames for “children and youth.”

Climate news reporting portrays children and youth as victims, the future generation, or proactive political agents through activism. An example of the first type of media representation is the news article “Hunger Consumes Lives: 1 to 5 Young Children Die of Malnutrition” (Supplementary File 9, Table 1, A), where the climate crisis is portrayed as a cause for hunger, especially in the Global South. The second type is evoked in articles that point to the future implications of current climate trends and policymaking, often underlining a moral obligation towards children as the bearers of the future (see Supplementary File 9, Table 1, B). The third type assigns political agency to children and youngsters through activism (Supplementary File 9, Table 1, C).

This tripartite media representation of victimhood, political agency, and the future of society can be activated all at once within the same article, where children and youth are presented as directly affected by the climate crisis, taking political action, and inheriting the future. For example, the article “A Serious Hollowing Out of Democracy” (Supplementary File 9, Table 1, D) describes how Portuguese youngsters take their own and other countries’ governments to the European Court of Human Rights for lack of democratic representation of minors in political decision-making about climate policies, triggered by extreme heat negatively affecting them in the present and threatening their future.

5.2.2. Migrants and Refugees

Migrants and refugees were mentioned in 2.3% of all articles (413 out of $N = 17,550$). These articles centre on “national politics” (22.7%), “climate politics & policies” (15%), “economy & finance” (9.4%), and “environmental harm and natural disasters” (6.7%; $\chi^2(16) = 160.70, p < .001$; see Figures 6 and 7).

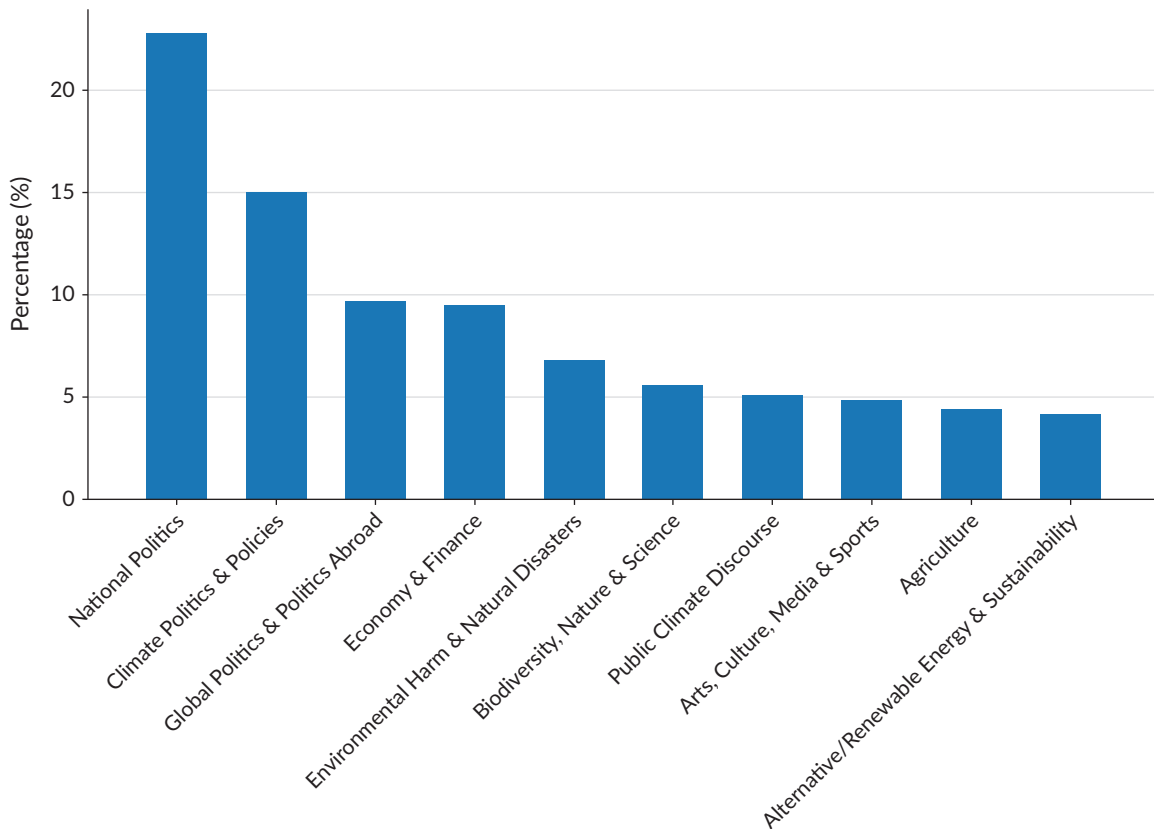


Figure 6. Top 10 meta frames for “migrants and refugees.”

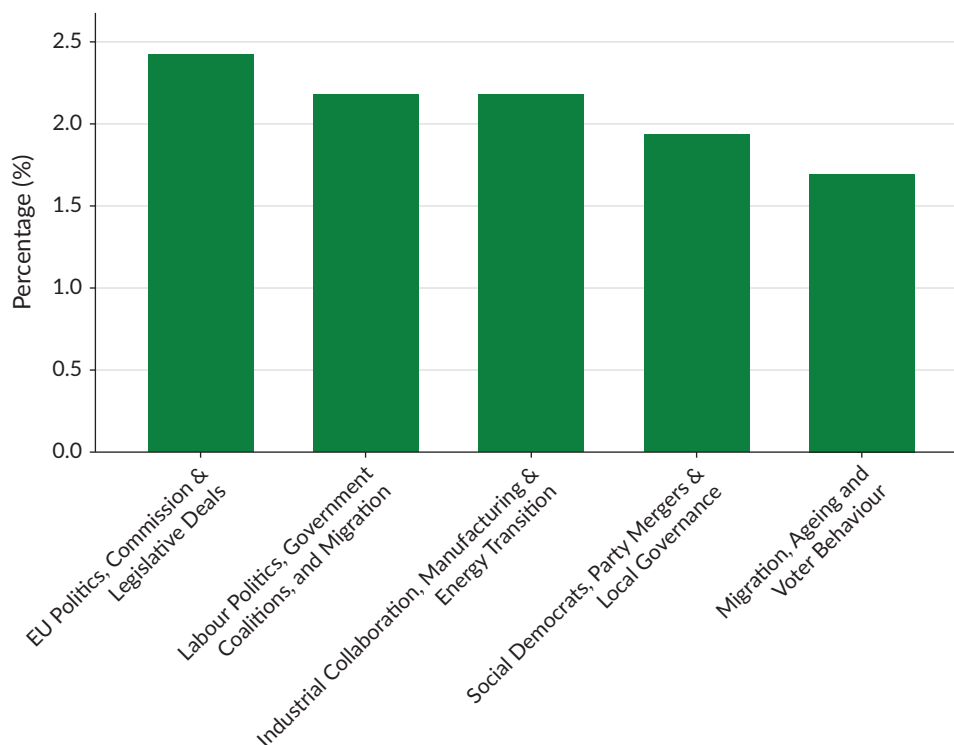


Figure 7. Top five specific frames for for “migrants and refugees.”

News articles often portray migration as a distinct societal challenge separate from the climate crisis. Respective frames take a broader view on diverse current issues that warrant public attention and political intervention (see Supplementary File 9, Table 1, E). This implies that migration is not always considered as a direct effect of climate developments but rather as another point on the public agenda. Critically, this presents migrants and refugees as a societal problem without human agency, which gives it an abstract and, arguably, dehumanising notion.

However, some articles establish a causal link between migration and the climate crisis by specifically discussing climate refugees (see Supplementary File 9, Table 1, F). In direct comparison to “children and youth,” media representation of migrants and refugees appears less nuanced and almost binary: either (a) migration is presented as a “faceless” societal challenge or problem next to or loosely associated with the climate crisis or (b) migrants and refugees are seen as victims of the climate crisis. This suggests that migrants and refugees rarely have agency in their news representation, since they are either framed as an abstract societal development or in the context of victimhood. Few articles unpack the intersectionality of vulnerable groups by, e.g., discussing how refugee children or women suffer most from the climate crisis.

5.2.3. Women and Gender Minorities

Women and gender minorities are referenced in 2.3% of all articles (370 out of $N = 17,550$). These articles tend to cover “climate politics and policies” (15.9%), “arts, culture, media, and sports” (12.1%), and “national politics” (10.5%; $\chi^2(16) = 111.80, p < .001$; see Supplementary File 10, Figures 1 and 2). Importantly, gender minorities are nearly invisible, so this category mostly concerns women. Their media representation shifts back and forth between (a) women as victims of climate crisis developments, (b) women as political stakeholders who should

assume more influence on climate policies, and (c) women and population growth as a factor in the climate crisis. The first type of representation centered on victimhood and impact is conveyed in news articles such as “Women Are Disproportionately Affected by Climate Change” (Supplementary File 9, Table 1, G), while the second is expressed in titles like “Should Women Lead the Energy Transition? ‘The Familiar Male Approach No Longer Works’” (Supplementary File 9, Table 1, H). The third category includes articles like “Population Growth as the Enemy of the Planet: Fewer, Fewer?” (Supplementary File 9, Table 1, I).

Like with children and youth, climate news mentioning women indicates their political under-representation and acknowledges their (potential) for agency in climate developments, while linking this to particularly high stakes for them as expressed in news stories centred on a victim/impact frame. That sets them apart from migrants and refugees, who are either presented as a structural challenge or victims only. Occasionally, articles address the intersectionality between gender and poverty (see Supplementary File 9, Table 1, J, reporting on how women in the Global South may face additional abuse in competition for scarce resources).

5.2.4. Older Adults and People With Disabilities

Older adults occur in a mere 1.66% of all articles (292 out of $N = 17,550$). These mostly cover “climate politics and policies” (14%), “environmental harm and natural disasters” (12.3%), “national politics” (12.3%), and “economy and finance” (10.3%; $\chi^2(17) = 59.11, p < .001$). Older adults are linked to health challenges caused by extreme heat or intergenerational political conflicts. They are either victims of climate developments, especially rising temperatures, or are positioned as political voices in climate debates (Supplementary File 10, Figures 3 and 4). The overall media representation pivots between victimhood and political agency, but there are important differences regarding children and youth, as well as women and gender minorities.

Examples for the victimhood framing are articles like “A Warmer Earth Takes Its Toll: Higher Mortality Among Seniors, Lower Productivity Due to Heat” (Supplementary File 9, Table 1, K). However, the framing of older people as political stakeholders presents them in opposition to younger generations due to different attitudes towards climate issues. For the Dutch case, the highly polarising discussion around nitrogen and agriculture is exemplary of this generational rift and somewhat sarcastically addressed in news headlines like “A Fun Experiment for the Climate and Nitrogen: Stop Letting Elderly People Vote” (Supplementary File 9, Table 1, L). This touches upon the perception that, especially older voters, may block progressive climate policies. Relatedly, other stories point to different habits that are environmentally harmful, such as flying and meat consumption (Supplementary File 9, Table 1, Q).

People with disabilities are virtually invisible, with only 44 articles mentioning this vulnerable group (often just in passing). In these articles, they are loosely associated with other vulnerable groups, and journalists argue that they should receive more public attention in climate discussions, with people who have mental disabilities presented as being unable to have a say on climate policies (Supplementary File 9, Table 1, P).

5.2.5. People Experiencing Poverty

People experiencing poverty occur in 1.9% (347 articles) of N . These articles cover “national politics” (22.7%), “economy and finance” (19%), “climate politics and policies” (9.2%), and “environmental harm and natural

disasters” (2.4%; $\chi^2(17) = 169.40, p < .001$; see Supplementary File 10, Figure 5). Importantly, poverty is not always directly linked to climate developments but, like migration, positioned next to these. Examples are news articles about different political agendas and general overviews of what current issues dominate public discourse, especially with a focus on economic implications. The poor are often connected to climate issues in discussions about energy transition, taxation, and costs of heating (Supplementary File 10, Figure 6). For instance, the column “Cold” (Supplementary File 9, Table 1, M) argues that the unemployed in the Midwest USA would prefer that government policy resumed coal mining over alternative energy. Relatedly, the same news outlet published an article arguing that the current Dutch system puts pressure on households with low incomes to drastically reduce their CO₂ emissions, while the rich would be less inclined to do so (Supplementary File 9, Table 1, N). This is echoed by *FD*, which cites a Danish political scientist:

The costs of climate policy fall disproportionately on the poor, primarily because access to cheap energy is restricted. This is because energy makes up a relatively larger share of the income of the poor. (van Dijk, 2020, authors’ translation)

The economic and political focus when discussing poverty, low-income, and unemployment is reflected in the dominant frames for this vulnerable group (Supplementary File 10, Figures 5 and 6). The media representation of the poor is, in some respects, similar to that of migrants and refugees, highlighting that poverty and economic unfairness can be broader societal challenges next to the climate crisis, or that the poor as a group are particularly prone to suffer from additional costs of climate policies. In either case, they are mostly “talked about” rather than having a voice of their own in the climate discourse, which is, except for children and youth, largely the same for all vulnerable groups.

6. Discussion

This research set out to explore how Dutch mainstream news media frame vulnerable groups in their coverage of the climate crisis. The results suggest that the representation of vulnerable groups is delimited in two important dimensions: (a) their relative invisibility due to low frequency of explicit news coverage in the climate crisis context, and (b) their lack of representation as active discourse participants. First, climate news reporting rarely seems to focus on specific social groups. While the number of such articles is increasing, it remains a mere fraction for most groups in climate news, which is by itself a fraction of Dutch news media’s overall output.

Generally, the findings resonate with previous research that observes a global shift in climate news towards societal issues (Hase et al., 2021), but for the Dutch context, this realigned outlook appears mostly focused on politics, elite discussions, and debates about broader present and future societal challenges. In Dutch legacy news media, relatively limited media attention is placed on vulnerable groups, possibly reflecting systemic biases with historical roots in society (Craig et al., 2021). Zoning in on different vulnerable groups from a comparative angle reveals that media attention has indeed started to shift towards the societal dimension of the climate crisis, yet critical imbalances persist that contribute to creating social blind spots in climate discourses, possibly perpetuating existing patterns of ignorance and marginalisation (e.g., Arguedas et al., 2023). In other words, a shift towards societal questions does not per se come with more concrete and frequent news reporting about negative effects on marginalised social groups.

Second, shortcomings related to media representation concern assigned political agency and humanisation. What all vulnerable groups share in their media representation is an emphasis on their vulnerability to climate crisis effects and limited possibilities to influence climate politics. Media framing contributes here to a mostly victimhood-centric portrayal of vulnerable groups that risks over-emphasising (potential) suffering and indirectly deprives them of agency in their representation (Rothenberger & Schmitt, 2024). Notable differences between vulnerable groups emerge here: Some vulnerable groups seem to have more agency and thus receive a more concrete, humanised media portrayal than others. The contrast between children and youth and migrants and refugees is exemplary for this imbalance against the background of a generally under-representation of most vulnerable groups. Furthermore, media representation of vulnerable groups often remains abstract, with few articles applying a human-interest angle. Arguably, children and youth are to some extent an exception, as they are more likely to be portrayed as active political agents in climate activism. However, activism does not equate to full political inclusion, as climate policy remains in the hands of political elites (Armeni & Lee, 2021). The findings show that established national and transnational political actors continue to dominate the wider climate crisis discourse, which resonates with previous research (e.g., Wetts, 2020). In addition, intersectionality is rarely addressed, reducing representation of complex individual identities of members of vulnerable groups one-dimensionally, which further impedes a more agency-centered media portrayal. A more agency-centric representation would first need to acknowledge the complex and fuzzy social realities that people at the societal margins experience.

Further, vulnerable groups are referred to and talked about, rather than talked to, with few instances where their voices are given a limited platform in news reporting. Most of them virtually lack any assigned agency and human interest framing as relatable individuals. Instead, they remain general references to abstract challenges. This is especially noticeable for migrants and refugees and the (economic) poor. As such, these framing practices perpetuate dehumanising tendencies in migration discourses more generally (Sakellari, 2021). Critically, problem-centric framings of migrants and refugees show that news reporting tends to position some vulnerable groups as standing next to the climate crisis rather than underlining causal relationships. This may, to some extent, merely reflect common perceptions in political discourse, but it also points to a missed opportunity for critical journalism to overcome the perceived abstractness of climate change by grounding news coverage more around concrete social effects. The causal link between climate developments and, e.g., migration patterns or the exploitation of women, respectively, is established only in rare instances. Arguably, the interdependency of societal crises and the intersectionality of demographic identities are largely ignored in climate crisis reporting, which tends to emphasise elite discourses in politics, business, and science. While more recent news articles do establish links between, for example, migration and the climate crisis, the problem of limited media representation persists—there is more conversation about, for example, “climate refugees,” but representative individuals do not get to speak for themselves.

A closer look at vulnerable groups reveals the complexity of the societal impacts of the climate crisis, which presents a duality problem for journalism. Our analysis is limited to scoping the extent and types of media representation. As such, it can merely offer a basis for further critical reflection and research into factors that can explain these observations with a critical eye on the dynamics of the news business and wider public agenda-setting processes. Arguably, the high complexity of climate crisis issues can pose a challenge to news reporting that cannot be easily captured in journalistic formats designed for a fast-paced market. Moreover, reporting about the negative social consequences of the climate crisis through the lens of vulnerable groups offers the potential to make climate issues more tangible and relatable to audiences.

Critically reviewing prevalent framing practices in climate crisis reporting can offer a starting point to shift journalistic climate narratives. There is a structural blindness to the manifold social side-effects of the climate crisis. This is most strikingly underlined by the observation that there is almost complete invisibility of disabled people in climate news.

The present study points to notable negligence among Dutch news media towards vulnerable groups in the climate crisis context. If they are present, their media representation appears ambiguous, with clear differences between different groups. The findings suggest that providing vulnerable groups with more visibility and agency through more balanced representation in public discourses is crucial, and climate news reporting plays a critical role here that can support addressing societal biases. It is important to acknowledge that the climate crisis is an immensely complex societal challenge and highly politically contested. Unsurprisingly, political, economic, and environmental angles dominate the discourse. However, over-focusing on political voices and economic trends contributes to negligence of the social dimension, which is intrinsically linked to and affected by ecological transformations and climate governance. Providing vulnerable groups with more visibility and agency in climate news reporting—and climate communication more generally—can support enhancing public epistemology about the climate crisis’s very concrete societal impacts by increasing relatability to its diverse developments. This can help with making its complexity more understandable to lay audiences by highlighting the intricate interdependencies of political, ecological, economic, and social factors. At the same time, it contributes to fostering solidarity with those most critically affected by climate developments and greater climate justice. Practically, turning from event-driven to more holistic and continuous news coverage is a potential step in this direction.

7. Conclusion

This study offered a critical-comparative analysis of news framing and media representation of vulnerable groups in climate crisis reporting. It addressed an important yet under-researched dimension of the wider climate discourse: the extent and manner in which vulnerable groups are visible in coverage of climate developments. Drawing on a computational analysis of a decade of Dutch news articles, it provides new empirical insights into media representation, journalistic practices, and crisis discourses.

Several limitations should be noted. First, the sample is restricted to national news coverage from a single country and a limited number of mainstream news outlets. It excludes other domains of public communication, such as social media, television broadcasting, parliamentary debates, or governmental messaging. Future research could broaden the scope by incorporating a wider range of climate-related communication across countries to capture transnational and global dynamics. Second, the analysis operates at a descriptive–quantitative level. This provides a robust bird’s-eye view of how vulnerable groups are distributed across thematic contexts within a sizeable news text corpus. Yet capturing higher-order meta-frames based on topic modelling results requires interpretive decisions when labelling and aggregating topics. Such decisions inevitably involve a degree of researcher judgement, particularly in relation to pre-processing choices and topic interpretation. While the quantitative findings about framing patterns are valid and generated in a transparent way, this indicates the interpretive boundaries of topic modelling as a method. Future research could therefore build on these results by triangulating topic-model outputs with complementary qualitative analyses or alternative modelling approaches to further refine the identification and interpretation of framing practices. In addition, the dictionary-based classification of vulnerable

groups prioritises explicit references and may not capture more implicit or context-dependent forms of vulnerability.

To gain a deeper understanding of how specific groups are portrayed, follow-up research should adopt a more granular focus, involving qualitative methods for discourse analysis. This could zoom in on individual categories—such as migrants, children, or the elderly—to examine their media representation in greater detail. Importantly, follow-up research may expand its scope to vulnerable groups not covered in this analysis, such as indigenous groups or socio-economic and cultural classes not captured here (e.g., urban vs rural populations). Future work might also track how representations of specific groups evolve over time—both in terms of frequency and framing. This is especially relevant given the dual challenge of underrepresentation and misrepresentation that many groups face. Migrants, for instance, are a particularly illustrative case: They are not only marginal in terms of media visibility but also often denied discursive agency within climate narratives.

Despite these limitations, the present study provides an important step toward contextualising how vulnerable groups are represented in climate crisis reporting. It foregrounds the need to not only increase the volume of coverage (quantitative visibility) but also to improve the way these groups are framed (qualitative depth) within broader public discourse around this pressing societal issue.

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Conflict of Interests

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Data Availability

Data can be shared based upon reasonable request.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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