SCORCHING REALITIES: ANALYZING NEWS ON INDIA'S HEATWAVES AMID CLIMATE CHANGE

1 INTRODUCTION

In the face of more frequent and persistent heat waves due to rising global temperatures, for this scenario, the need for climate adaptation policies that address the growing risks associated with climate change stands out (Gao *et al.,* 2023). In this context, Singh (2023) maps the vulnerability to heat in Indian urban centers, identifying areas at high risk of the occurrence of the climatic phenomenon and proposes adaptation measures, in addition, he projects an increase in the frequency of heat waves in India, and highlights that by the end of the last century, the south-central regions of India are identified as future hotspots of heat waves.

From this perspective, Song *et al.* (2024), investigate the intensification of heatwaves, showing how the interaction between soil moisture and sensible heat flux influences temperature distribution, resulting in more persistent and frequent heatwaves in India and other vulnerable regions. Future scenario models show an increase in the likelihood, duration, and extent of heatwaves, to mitigate this problem, there is a need for planning and adaptation measures beyond current short-term disaster plans to manage the impacts of these persistent and widespread heatwaves (Arulalan *et al.,* 2023).

In this sense, Chandel and Chauhan (2023) highlight that, among the measures to mitigate these climate actions, these factors need to be understood to improve vegetation recovery and climate resilience strategies in India. However, India faces droughts and the study of combating them should also be taken into account (Ganguli, 2023). In fact, Khetan *et al.* (2024), highlight measures taken by the most vulnerable population, such as nature-based solutions, such as trees and drinking water. Ramalho *et al.* (2024), report that these strategies need to be legitimate and Holanda *et al.* (2024), report that there needs to be public investment in environmental management.

In addition, there are plans to develop technologies that generate a heat wave action plan that includes adaptation and mitigation strategies to deal with heat extremes and make cities resilient to climate change (Goyal *et al.,* 2023). These technologies can utilize remote sensing data to improve urban heat management and cities' resilience to rising temperatures. In addition, simulate heatwave events, proposing improvements to better predict and mitigate their impacts in India (Gupta & Aithal, 2024; Gupta *et al.,* 2024).

Thus, the purpose of this article is to present how heatwaves in India are discussed by the media, to observe whether they are being related to climate change. As a result, there is a need for strategies to mitigate the problems caused by climate change (Norgate *et al.,* 2024; Rohini & Rajjeevan, 2023; Rouges *et al.,* 2023; Lala & Hagishima, 2023). Thus, Zander *et al.* (2023), present in their studies that social networks can be used for the population to discuss what is happening on climate issues. Media coverage on websites is an important measure to understand how this problem is being transmitted to society (Oliveira *et al.,* 2024).

2 METHODOLOGY

To carry out this study, 100 international news stories taken from Google News in several languages were selected. The news was first translated into English, using machine translation tools and, when necessary, manual revisions to ensure accuracy. News that did not have open access were disregarded to ensure the reproducibility of the study and the accessibility of the data. The selection covered a recent period of heatwave events in India, focusing on reliable and varied sources to capture a wide range of perspectives.

The KDD (Knowledge Discovery in Databases) methodology was used, which is a process of extracting useful knowledge from large volumes of data, composed of the steps: selection of relevant data, pre-processing for cleaning and preparation, transformation of data to appropriate formats, data mining to discover patterns and trends, and interpretation of results for validation and understanding, facilitating informed decision-making.

In addition, there was content analysis with the themes highlighted by the most frequent words in the corpus. The analysis of the coded data was performed to identify patterns, frequencies and relationships between the categories. Qualitative methods were used to interpret the data and identify how the news addresses the relationship between heat waves and climate change. The analysis included counting direct mentions to climate change, assessing the frequency of health and infrastructure impacts, and analyzing government responses and proposed solutions. In addition, the main sources cited were identified to understand the credibility and perspective of the information presented.

3 RESULTS AND DISCUSSIONS

Heatwaves in India are becoming more frequent and intense, increasing the need for planning and adaptation measures beyond current short-term disaster plans to manage the impacts of these persistent and widespread heatwaves. "The territory of India's capital, Delhi, sweltered to its highest temperature of 49.9 degrees Celsius (121.8 degrees Fahrenheit) on Tuesday as an oppressive heatwave forced authorities to impose water rationing." This excerpt from the corpus demonstrates the urgency pointed out by the authors regarding the need for planning and adaptation to deal with more severe heat waves (Arulalan *et al.,* 2023).

According to Gao *et al.* (2023), demonstrate that more frequent and persistent heatwaves are due to rising global temperatures, highlighting the need for climate adaptation policies to address the growing risks associated with climate change. "Extreme heat is becoming more common and intense in much of the world because of the human-caused climate crisis." The excerpt reinforces the authors' analysis by linking the intensification of heat waves to the human-caused climate crisis.

Maharana *et al.* (2024), project an increase in the frequency and intensity of heatwaves in India, which could lead to severe health consequences, including increased mortality and incidence of heat-related diseases. "One study found that heat waves have killed more than 24,000 people in the country since 1992." The evidence of deaths in the study cited by the corpus confirms the authors' predictions about the devastating impact of heat waves on public health. In this way, figure 1 illustrates a word cloud on the most recurrent topics in the news found in the field of heat waves.

Figure 1 – Word cloud over the heat wave news.

Continuing the studies on this topic, Singh (2023) maps the vulnerability to heat in Indian urban centers, identifying high-risk areas and proposing adaptation measures to mitigate the impacts of heat waves. "The Indian Meteorological Department (IMD) said the new record was measured in the suburb of Mungeshpur, surpassing Delhi's previous high of 49.2 degrees Celsius (120.5 degrees Fahrenheit) observed in May 2022." The observation of the temperature records in the corpus emphasizes the vulnerability and the need for adaptation identified by Singh.

Authors Chandel & Chauhan (2023), emphasize the importance of understanding climate and human factors to improve climate resilience strategies in India, especially in vulnerable urban areas. "Varanasi on May 30, 2024. Extreme temperatures across India are having their worst impact on the country's megacities, experts said on May 30, warning that the heat is quickly becoming a public health crisis. The public health crisis in Indian megacities mentioned in the *corpus* illustrates the relevance of the climate resilience strategies discussed by the authors.

The accuracy of the WRF model in simulating heatwave events, proposing improvements to better predict and mitigate the impacts of heatwaves in India. "Several people have died due to heat-related illnesses in the past 24 hours as temperatures continue to rise in North and Central India." The heat-related deaths mentioned in the corpus highlight the importance of accurate models to predict and mitigate these extreme events (Gupta *et al.,* 2024).

Kim *et al.* (2023), project future changes in extreme heatwaves in terms of intensity, frequency, and duration, highlighting the need for robust adaptation policies to manage the risks associated with increased heatwaves. "Hospitals in the region are seeing an increase in admissions due to heat-related illnesses." The increase in hospitalizations due to heat mentioned in the corpus reinforces the need for robust adaptation policies discussed by the authors. Figure 2 illustrates the relationship between the frequency of news related to heatwaves and temperatures in India and New Delhi.

Figura 2 – Frequência de termos relacionadas notícias de ondas de calor na Índia.
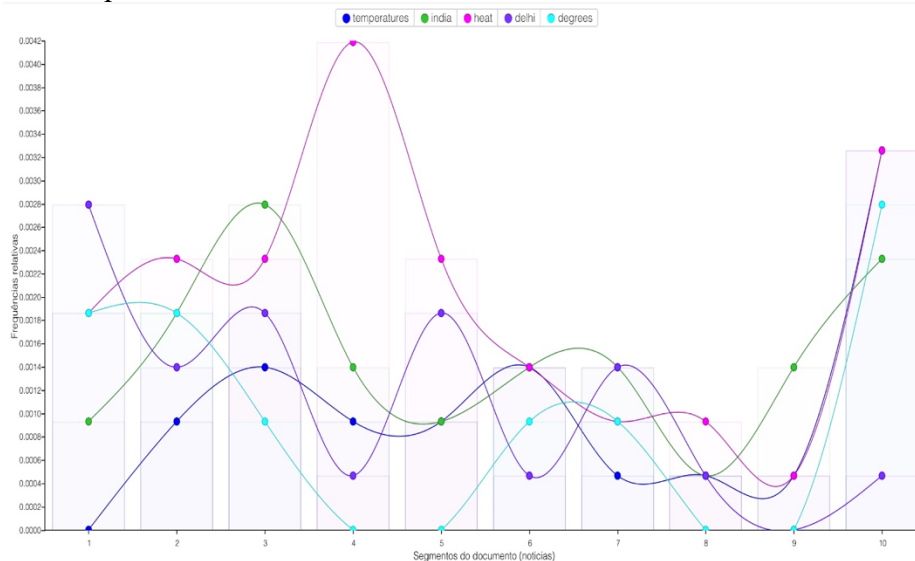
Thus, Khetan *et al.* (2024), explore adaptations to heat stress in vulnerable communities, revealing that nature-based solutions are the preferred coping strategies. "On

Thursday, a worker hospitalized with heatstroke died while receiving treatment at a hospital in Delhi." Death by heat stroke highlighted in the corpus demonstrates the need for adaptation strategies mentioned by the authors.

Ganguli (2023) analyzes the amplified risk of aggravated heat stress and drought periods in India, pointing to the need for adaptation strategies that consider the combined impacts of heat and drought. "India's National Centre for Disease Control calls heatstroke a 'life-threatening' condition, with a mortality rate of 40 to 64 percent." The severity of the heatstrokes mentioned in the corpus emphasizes the need for comprehensive adaptation strategies discussed by Ganguli. Thus, figure 3 illustrates the keywords that are in evidence in the period in which the data collection was carried out.

Figure 3 – Linked keywords.
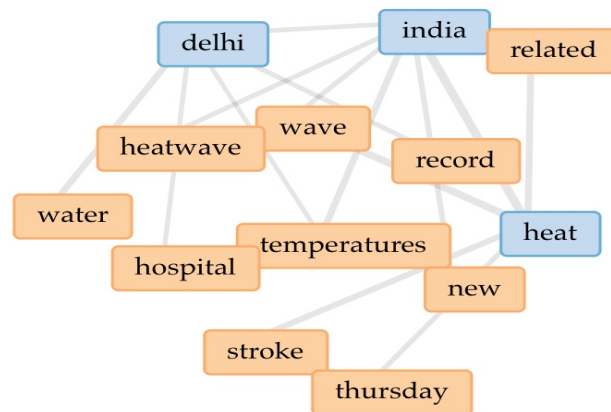
Source: Authors.

Heatwaves significantly increase emissions from thermal power plants in India, exacerbating air pollution during these events. "Several regions are facing severe water and electricity shortages due to increased consumption. The high temperatures have led to an increase in fires across India and authorities are employing drones to monitor bushfires in Jammu and Kashmir. The impact on infrastructure and services mentioned in the corpus reflects the environmental challenges exacerbated by the heatwaves identified by the authors (Liu *et al.,* 2024). As a result, the balance of the environment is essential for the survival not only of humans, but also of all other species. Therefore, harmonious interaction between humans and nature is key, and preserving the current standard of living while maintaining responsibility for future generations is critical (Lima *et al.,* 2024).

5 CONCLUSION

Analysis of international news content about India's heatwaves has revealed important insights into how these events are discussed by the media and their relationship to climate change. The results demonstrated that while climate change is often mentioned, the depth and context of these mentions vary. News tends to focus on the immediate health and infrastructure impacts, such as heat-related deaths, hospitalizations, and disruptions to water and electricity supplies. These depictions underscore the severity of the effects of heatwaves, but often lack further discussion of the underlying causes, such as climate change.

The government's responses are widely discussed, highlighting emergency and mitigation measures such as water rationing and short-term policies. However, there is less emphasis on long-term solutions and comprehensive adaptation strategies that can increase the

resilience of communities to future heatwaves. The diversity of sources cited in the news, including scientists, government officials, and citizens, reflects a wide range of perspectives, but also suggests the need for greater integration between scientific knowledge and public policymaking.

In sum, this analysis highlights the importance of more integrated and in-depth media coverage of climate change in the context of heatwaves. To improve public awareness and effective policymaking, it is crucial that the media not only report on immediate impacts, but also explore broader connections to climate change and promote dialogue on long-term adaptation and mitigation strategies. This can go a long way in better preparing society to face the growing challenges posed by climate change.

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