Linguistic Framing of Climate Change in *Dawn*:
A Corpus-assisted Critical Discourse Analysis
(Pembingkaian Linguistik terhadap Perubahan Iklim dalam *Dawn*:
Analisis Wacana Kritis Berbantukan Korpus)

SAQLAIN HASSAN HASSAN [1], WONG WEI LUN [2*], RIFFAT NAZEER[1] & WARID MIHAT [3]

[1] *Department of English Linguistics and Literature, Riphah International University,*
Gulberg Greens, Islamabad, Pakistan
[2] *Faculty of Education, Universiti Kebangsaan Malaysia,*
43600 UKM Bangi, Selangor, Malaysia
[3] *Academy of Language Studies, Universiti Teknologi MARA Kelantan Branch,*
18500 Machang, Kelantan, Malaysia

ABSTRACT

Over the past few decades, climate change has been a mainstream concern in global discourse due to its adverse long-term impacts on the environment. The current study aims to analyse the linguistic framing of climate change through modal constructions and evaluative words by examining a corpus of opinion articles from Dawn, a widely read Pakistani English-language newspaper, using certain features of Sketch Engine software such as concordance for retrieval of collocates, word sketch for examining collocational relationship, and wordlist for extraction of semantic roles, modal verbs, adjectives, and verbs. This study uses Corpus-Assisted Critical Discourse Analysis (CACDA) as a methodological approach, integrating quantitative corpus linguistics approach with qualitative Fillmore's Frame Semantics theory. After a thorough analysis of the collected corpus, it has been revealed that Dawn constructs an action-oriented frame of climate change, suggesting that the government and policymakers should protect the environment by implementing sustainable strategies and enacting concrete environmental laws. This action-oriented frame, which advocates that the government's role is pivotal for addressing social issues, is constructed through frequent use of modal constructions and evaluative words (adjectives and verbs). This study adds to the scholarly discourse in linguistics on climate change by shedding light on the role of linguistic choices in constructing the frames on this issue. In addition, the findings can provide valuable insights and evidence-based strategies to help policymakers take the necessary steps to adapt to and mitigate climate change.

Keywords: Climate Change; Corpus-Assisted Approach; Modal Constructions; Evaluative Words; Dawn

ABSTRAK

Sejak beberapa dekad yang lalu, perubahan iklim telah menjadi kebimbangan utama dalam wacana global yang disebabkan oleh kesan buruk jangka panjang terhadap alam sekitar. Kajian ini bertujuan untuk menganalisis pembingkaian linguistik terhadap perubahan iklim melalui binaan modal dan kata penilaian dengan meneliti korpus artikel ruangan pendapat dalam akhbar Dawn, iaitu sebuah akhbar berbahasa Inggeris negara Pakistan yang dibaca secara meluas. Kajian ini menggunakan ciri-ciri tertentu perisian Sketch Engine seperti konkordans untuk pencarian kolokasi, word sketch untuk meneliti hubungan kolokasi, serta senarai kekerapan kata (wordlist) untuk mengekstrak peranan semantik, kata kerja modal, kata adjektif dan kata kerja. Kajian ini menggunakan kerangka Analisis Wacana Kritis Berbantuan Korpus (CACDA) sebagai pendekatan kajian, yang mengintegrasikan pendekatan linguistik korpus kuantitatif dengan teori Semantik Bingkai Fillmore secara kualitatif. Setelah analisis mendalam dilakukan terhadap korpus yang dikumpul, hasil kajian menunjukkan bahawa akhbar Dawn membingkaikan tindakan terhadap

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* *Corresponding author:* colinw@ukm.edu.my

perubahan iklim yang mencadangkan bahawa pihak kerajaan dan penggubal dasar harus melindungi alam sekitar dengan melaksanakan strategi mampan serta menguatkuasakan undang-undang alam sekitar yang lebih konkrit. Bingkai berorientasikan tindakan ini yang menyokong bahawa peranan kerajaan adalah amat penting dalam menangani isu sosial dibina melalui jumlah kekerapan penggunaan binaan modal dan kata-kata penilaian (kata adjektif dan kata kerja). Kajian ini menyumbang kepada wacana ilmiah dalam bidang linguistik mengenai perubahan iklim dengan menjelaskan peranan pilihan linguistik dalam membina bingkai bagi isu ini. Selain itu, dapatan kajian ini dapat memberikan sudut pandangan dan strategi baharu berasaskan bukti untuk membantu pihak penggubal dasar bagi mengambil langkah-langkah yang perlu bagi mengadaptasi dan memitigasi perubahan iklim.

Kata Kunci: Perubahan Iklim; Pendekatan Berbantuan Korpus; Binaan Modal; Kata-kata Penilaian; Dawn

INTRODUCTION

Climate change stands out as a leading global issue of the present century, transcending all territorial boundaries. It refers to prolonged changes in global temperatures and weather patterns over an extended period of time (Adnan et al., 2024; Taufek et al., 2021), with impacts on water resources, agriculture, health, biodiversity, forests, and socio-economic sectors visible across the globe, and with developing and underdeveloped countries affected the most (Abbass et al., 2022; Hussain et al., 2020; Nhemachena et al., 2020; Patel et al., 2021). Effective communication and eco-awareness are the core strategies for avoiding such catastrophic events.

Language plays a critical role in shaping individuals' perceptions of global issues, with human understanding of the world significantly constructed by it. The conative function, one of the six vital linguistic functions, is the most notable as it highlights the effects of word choice on public behaviour (Jakobson, 1960). Hence, framing of global issues largely rests on the careful choice of words in media reports. Therefore, language used in media reports is of utmost importance because people's opinions on multiple issues are largely shaped by the media, which plays a pivotal role in disseminating information to the common masses and policymakers (Meikle, 2024). As proposed by the Sapir-Whorf hypothesis, language greatly influences human perception of the world; therefore, the media's lexical choices in covering various social issues can play a significant role in shaping people's perceptions of these issues. As a result, the media not only propagate information but also shape beliefs of social issues through specific linguistic choices (Hassan et al., 2024).

The modern world has changed, and new sources of information have emerged. Though people in the current era rely on other forms of media (such as social media and broadcast media) for quick information, the role of print media as an authentic and reliable source of information cannot be overlooked. It is one of the media types that raise awareness of the impacts and ramifications of climate change by circulating information about this issue (Kakade et al., 2013). Nazeer et al. (2024) also support the notion of print media's vital role in raising awareness about climate change and formulating climate-related policies. The selection of words in newspapers has a significant influence on readers as it reflects ideological positions and also shapes public opinion (Hassan et al., 2024).

As discussed earlier, climate change is a global phenomenon, and media outlets worldwide contribute to its portrayal. Similarly, several Pakistani English-language newspapers have addressed climate change, both in general terms and with a specific focus on its severe implications for Pakistan. Studies of the discourse around climate change in these newspapers suggest that rising average temperatures have heightened the risk of glacier melt, leading to severe floods (Ghani & Muhammad, 2017). Hussain et al. (2022) examined how climate change had altered

Pakistan's weather patterns, leading to increased flooding, droughts, biodiversity loss, and the extinction of certain species. Additionally, Akhtar and Jan (2023) used a qualitative, interpretive approach and identified climate change as a non-traditional security threat to Pakistan's national security, driven by environmental changes.

Given Pakistan's ranking as the fifth most affected country by extreme weather events between 1999 and 2018 (Eckstein et al., 2020), a growing body of literature exists in which the causes and impacts of climate change reported in Pakistani print media have been investigated (Ghani & Muhammad, 2017; Nazeer et al., 2024). Despite this, limited research has been carried out on the linguistic framing of climate change in Pakistani print media.

Dawn is the most widely read English-language newspaper in Pakistan with an average daily readership of 524,953 (Saleem et al., 2024). Moreover, Dawn's opinion articles are a reliable source of information on social issues because they are authored by field experts with extensive knowledge of these issues (Ullah et al., 2022). For this purpose, opinion articles from the *Dawn* newspaper have been selected to analyse the linguistic framing of climate change through modal constructions and evaluative words. Since 2011, Pakistan has been battling the catastrophic impacts of climate-induced disasters such as floods, earthquakes, landslides, soil erosion, and irregular rainfall patterns (Akhtar & Jan, 2023); therefore, the *Dawn* opinion articles published between 2011 and 2025 were selected. Berkeymer et al. (2016), in their study of climate change narratives in 113 newspapers from different countries, conclude that the media molds its attention towards climate issues when they are frequent. It further validates the selected time frame for the present study's corpus collection, as natural catastrophes have been recurring in Pakistan since 2011.

Therefore, the present corpus-based study aims to achieve two objectives: (1) to examine the frame constructed about climate change in the selected corpus and (2) to identify the modal constructions and evaluative words used for constructing the underlying frame about climate change in the selected corpus. In light of the set objectives, the present study is guided by the following research questions:

RQ1: What frame of climate change has been constructed in the selected corpus?
RQ2: What are the modal constructions and evaluative words used for constructing the underlying frame about climate change in the selected corpus?

LITERATURE REVIEW

Pakistani print media play a crucial role in spreading information about climate change, given the country's exposure to its effects, such as glacier melt, severe weather events, and water scarcity (Ali et al., 2021). In another study, Javed et al. (2020) conducted content analysis of news articles collected from four prominent Pakistani newspapers (*The Nation, The News, Nawa-i-Waqt, and Jang*), indicating that these newspapers have put stress on the outcomes of climate change like global warming, water scarcity, and severe floods with no attention being paid to food insecurity and drought resulting from this issue. Likewise, Fizzah (2021) in her study of qualitative content analysis of opinion pages of Pakistani Urdu and English newspapers concluded that the climate change issue has been highlighted more in English newspapers, with a focus on criticising governmental inaction, as compared to Urdu newspapers whose primary focus is on suggestions related to climate change.

Similarly, Gul et al. (2024) conducted qualitative and quantitative content analysis of various posts published on Facebook, X, and Instagram (2021-2024) to explore the depiction of climate change across these popular social media platforms. The findings reveal that Facebook has more relevant posts that engage with discussions on climate change than the other two platforms, i.e., Instagram and X. Most of these posts discuss the adverse effects of climate change on human health and the environment. However, most online content on these platforms has not focused on solutions or the individual actions needed to address the issue.

As almost every region of the world is experiencing the consequences of changing weather patterns, the issue of climate change has drawn the attention of not only the Pakistani but also the international media. In this regard, Li (2023) conducted an important study examining language patterns and varied meanings in climate change discussions in TED Talks across two periods using a corpus-based approach. By analysing the meaning conveyed through specific linguistic choices in these talks, the findings reveal the urgency of taking action to cope with the severe impacts of climate change. His work suggests that discussions of climate change are insufficient; rather, a primary approach to raising awareness for the general public is required. There is a need to focus on collective practices to overcome the adverse effects of climate change. Likewise, Gillings and Dayrell (2023) explored shifts in climate change discourse by observing fluctuations in the use of collocates with the keyword of climate change in the UK press. The results indicate a transition from focusing on the causes of climate change to increased public awareness, thus engaging them in mitigating its impacts.

A similar corpus-based study by Huang and Che (2024) examined linguistic devices used in news discourse on climate change in *China Daily,* a leading national English-language newspaper of China, and the *Los Angeles Times*, a historic American newspaper. By employing a corpus-assisted critical discourse approach, the study reveals that Chinese newspapers present the frame of national efforts through various linguistic devices. In contrast, American newspapers propagate the frame of global efforts, emphasising the dire need for climate security. Following the same line, Sabid (2025) explored the coverage of the climate change issue in Bangladesh's top five English-language newspapers, *The Daily Star, Bangladesh News 24, The Financial Express, Dhaka Tribune*, and *The Daily Sun,* by analysing how the lexical choices used in these newspapers construct a specific frame about this issue. Using a corpus-assisted approach integrated with frame theory, the findings indicate an anthropocentric frame that portrays humans as both agents and victims of this global issue.

Numerous studies using corpus-based approaches have examined the representation of the climate issue in international media outlets and its linguistic framing through linguistic choices. Despite the breadth of research on the causes and impacts of climate change in Pakistani media, the linguistic framing of this issue through linguistic choices remains unexplored. Therefore, this corpus-based study intends to fill this gap by exploring the frame constructed about climate change in the opinion articles from the leading Pakistani newspaper, *Dawn*, using modal constructions and evaluative words.

<div align="center">METHODOLOGICAL APPROACH</div>

This study analyses a corpus of *Dawn* opinion articles using Corpus-Assisted Critical Discourse Analysis (CACDA) as methodological approach. This study integrates the corpus linguistics approach (Baker et al., 2008) and Frame Semantics theory (Fillmore, 1982). The integrated framework has been designed for the current study to follow a logical scheme. The qualitative

interpretation of the corpus is based on the quantitative findings; therefore, this approach to analysis reduces the risk of selective analysis and increase analytical transparency. (Baker et al., 2008). On account of the current study's aim to interpret the underlying frame constructed about climate change through the linguistic choices in the selected *Dawn* opinion articles, Frame Semantics theory (Fillmore, 1982) is found appropriate because it assists in analysing the nature of the frame built through linguistic choices. Moreover, while discussing the effectiveness of Fillmore's Frame Semantics in the discourse of climate change, Zheng (2021) illustrated that this theory offers a framework for examining how language constructs perception of climate change. Apart from this, the Frame Semantics theory assists in obtaining the semantic roles of agents and victims, ultimately consolidating the frame constructed through the linguistic choices used in the selected corpus.
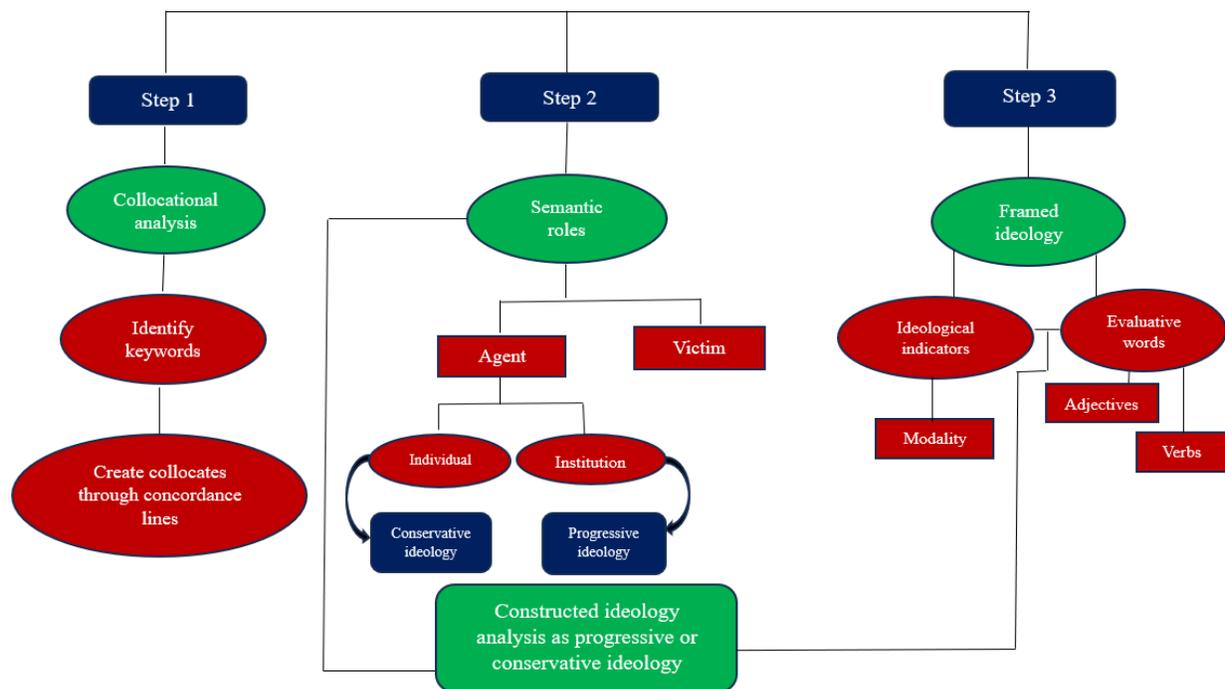
FIGURE 1. Methodological Approach

Figure 1 illustrates the three steps of the CACDA framework, which the researchers employed to examine the compiled corpus. Several key themes have been identified by the researchers in accordance with step 1 of this approach, using the retrieved collocate list. In light of step 2, semantic roles, such as agents and victims, played by various entities, have been analysed through the nouns' list to investigate the underlying frame constructed about climate change. Following the step 3 of the approach, the researchers have identified numerous high-frequency modal constructions and evaluative words that play a significant role in constructing the underlying frame about climate change, using the Sketch Engine software's wordlist feature.

RESEARCH METHODOLOGY

RESEARCH APPROACH

In recent years, corpus linguistics, as a method used in various interdisciplinary research, has been widely taken to examine and analyse the shifts in linguistic patterns in both written and spoken literary works (Chen et al., 2023; Nejad et al., 2023; Wong et al., 2023). These works offered notable insights about the role of language and its usage within specific cultural contexts and societies (Wong et al., 2024). According to Fitzgerald (2024), corpus-assisted discourse analysis asserts that language is inherently embedded in larger ideological discourses, structured by recurring linguistic patterns and often hidden from the general public, who mostly read without understanding the underlying politics of language embedded in the works that seem apolitical at the surface.

This current study has employed the CACDA approach to analyse the selected corpus. The researchers have found this approach appropriate for the current study, as it helps analyse the frame constructed through a particular linguistic pattern (Wong et al., 2023; Chen et al., 2025). The quantitative analysis of the selected corpus is conducted using corpus linguistic techniques, including collocation and concordance analysis (Baker et al., 2008), while qualitative analysis is based on Frame Semantics theory (Fillmore, 1982). The first step of the framework is a collocational analysis, which involves retrieving collocates to objectively support and validate the identified themes (Baker et al., 2008). The second step involves mapping the semantic roles of agents and victims via the wordlist feature. The last step of the framework involves examining modal constructions and evaluative words (adjectives and verbs), which construct certain frames about an issue (Fillmore, 1982).

CORPUS DESIGN

The researchers compiled a corpus of 85 opinion articles from *Dawn* and utilised the Sketch Engine software (Kilgariff et al., 2014) for its analysis. The articles, published between 2011 and 2025, were retrieved from *Dawn*'s official website using the keyword *climate change* as the search term. The term climate change was selected as the primary search term to ensure thematic consistency and analytical focus. A preliminary search using related keywords such as floods, droughts, and global warming was conducted. However, many of the retrieved articles discussed these events independently without explicitly situating them within broader climate change discourse. To maintain conceptual coherence, climate change was therefore retained as the central search term. Each researcher skimmed every selected *Dawn* opinion article to assess its relevance to the keyword *climate change,* thus; mitigating the sampling bias. The selection of articles was limited to 85 opinion articles because they were found to contain the most relevant climate change discourse during the selected time frame. However, the corpus is not balanced across all the selected years because climate catastrophes have not occurred uniformly in these years. Therefore, the years with more climate catastrophes have a greater number of articles and vice versa. After uploading the compiled corpus to Sketch Engine, the researchers used the *COUNTS* and *LEXICON SIZES* options under the *Corpus Info* feature to obtain the total word tokens and word types. The corpus consisted of 9,426 word types and 73,592 word tokens.

ANALYTICAL PROCEDURE

This study has employed a mixed-methods approach, combining quantitative data obtained through software analysis with qualitative interpretation guided by the CACDA approach.

Initially, the researchers extracted the concordance list for the keyword *climate change and* then retrieved a list of collocates. Based on step 1 of the CACDA framework, researchers identified clusters of collocates that generate specific themes in the selected corpus. Thematic analysis was conducted by thoroughly examining the concordance lines of the collocate clusters that constitute key themes. The researchers also identified some high-frequency nouns in the list obtained using the software's wordlist feature, which function as causers and sufferers in the selected corpus on climate change. Based on their function, researchers assigned semantic roles, such as agents and victims. In addition, the researchers also extracted some solutions, given in Table 2, with the help of nouns present in the nouns' list. Next, the researchers identified various high-frequency modal constructions and evaluative words that construct the underlying frame about climate change, which are available in the wordlist feature. Lastly, the underlying frame was analysed by examining linguistic choices, agents, and victims from their concordance lines.

To establish the validity of the research, all 85 *Dawn* opinion articles were carefully selected from the *Dawn* newspaper website by using the main keyword of *climate change* in the website's search bar. All concordance lines obtained through the concordance feature of the Sketch Engine software were closely examined to assess coverage of the climate change issue, thus consolidating the content validity. Moreover, to bolster construct validity, the entire corpus was thoroughly analysed using a range of features, such as *concordance, word sketch*, and *wordlist,* to identify the modal constructions and evaluative words that contribute to the construction of a specific frame regarding climate change.

The research's reliability was established by collecting a corpus of *Dawn* opinion articles from the newspaper's official website. Apart from that, the entire corpus was analysed using various software features. All the researchers jointly obtained the frequency of the modal constructions and evaluative words involved in the construction of a frame about the climate change issue. Moreover, researchers thoroughly read and analysed the concordance lines in light of the three steps of the conceptual framework. To ensure the study's credibility and confirmability, researchers took all necessary steps. The researchers ensured the credibility of this study by purposively selecting all 85 opinion articles from *Dawn* newspaper's official website using the single search term "climate change". In addition, all the researchers analysed the *Dawn* corpus together to identify high-frequency modal constructions and evaluative words used to construct a particular frame about climate change, thus avoiding personal bias. As all qualitative analysis was based on quantitative results obtained using various features of the Sketch Engine software, this provides a replicable methodological framework among the researchers thus supporting systematic and evidence-based interpretation of the results. Hence, these steps enhanced analytical transparency of the results and findings obtained.

DATA ANALYSIS AND RESULTS

In the selected corpus, the keyword *climate,* along with its most frequent collocate *change,* appeared together 712 times, with a calculated frequency of 8,394.74 tokens per million.

COLLOCATES OF THE KEYWORD CLIMATE CHANGE IN THE SELECTED CORPUS

The table below presents a list of collocates identified by the researchers as the most frequently occurring words in the selected corpus, which also generate the extracted themes. The window size for collocates was set ±5 (5L-5R) for the keyword *climate change,* as this shows the maximum relevance of co-occurring words to the keyword. Additionally, all collocates listed below were selected with a minimum frequency threshold of four in the corpus. The minimum frequency criterion was set to at least 4 because all the collocates below this frequency did not show a strong collocational relationship with the keyword "climate change". In addition to frequency, collocates were selected based on their LogDice values, which also indicate the collocational relationship with the keyword. The minimum LogDice was 7, as LogDice values of 7 or greater indicate a strong association with the keyword (Gablasova et al., 2017). The collocates have been categorised by word class.

TABLE 1 . Collocates for the keyword *Climate change*

Word class	Collocates	Frequency	MI	LogDice
Nouns	Impacts	47	5.88	10.90
	Pakistan	66	3.93	10.78
	Effects	32	6.01	10.41
	Country	28	4.46	10.05
	Vulnerable	23	4.78	9.86
	Risks	21	5.08	9.50
	Policy	16	6.20	9.47
	Countries	19	3.62	9.44
	Development	15	4.13	9.24
	Adaptation	14	4.28	9.17
	Report	14	3.80	9.11
	Ministry	12	5.09	9.03
	Challenges	12	4.67	9.00
	Weather	13	3.52	8.97
	Threats	16	5.11	8.91
	Human	11	4.47	8.87
	Consequences	05	5.52	7.82
	Vulnerability	09	4.54	8.60
	Action	08	3.85	8.40
	Agriculture	07	3.77	8.21
	Disasters	07	3.66	8.20
	Temperatures	07	3.49	8.19
	Floods	04	1.76	7.26
	Heatwaves	04	3.23	7.03
	Water	06	2.05	7.80
Verbs	Adapt	10	5.76	8.80
	Combat	09	6.37	8.67
	Added	09	4.54	8.60
	Impacted Highlighted	08	6.20	8.50
	Tackle	08	5.09	8.47
	Address	06	5.67	8.08
	Set	06	5.09	8.07
	Face	06	4.35	8.04

	Made	06	4.16	8.03
	Increase	06	3.96	8.02
	Cope	06	3.09	7.95
	Warned	05	5.52	7.82
	Affects	05	5.41	7.82
	Support	05	5.22	7.81
	Become	05	3.41	7.74
	Need	05	3.34	7.73
		05	2.83	7.69
Adjectives	Adverse	09	5.74	8.65
	Extreme	10	3.39	8.63
	Natural	07	4.00	8.23
	Increasing	06	3.99	8.02
	Rising	06	3.96	8.02
	National	06	3.53	7.99
	Economic	06	2.89	7.92
	Financial	06	4.06	8.02
	Escalated	05	6.41	7.83
	Addressing	05	5.31	7.82
	Various	05	4.41	7.79
	Severe	05	3.76	7.76
	Environmental	05	3.05	7.71

ANALYSIS OF THE THEMES EXTRACTED USING KEYWORD COLLOCATES

The researchers have uncovered major themes in the selected corpus, taking into account the collocates listed in Table 1. The extraction of themes from the corpus has been guided by Braun and Clarke's (2006) thematic analysis framework, which includes generating codes from the data. The codes are then grouped into different clusters, with each cluster presenting a specific theme related to the keyword in context. First, various collocates (see Table 1) were retrieved based on their frequency and LogDice values. Next, the collocates were categorised by word class. Then, themes were identified following the thematic analysis procedure proposed by Braun and Clarke (2006). The theme of impact is one of the main themes in the selected corpus, as evidenced by collocates such as *extreme, adverse, water, agriculture*, *disasters, increasing, heatwaves, food, severe, floods, hazards,* and *crops.* Various concordance lines in the figure below show the impacts of climate change as a main theme in the selected corpus.

FIGURE 2. Concordance lines representing the theme of impacts

Figure 2 sheds light on the impacts of climate change; as shown above, floods, droughts, desertification, and glacial melt are among the observable effects. Moreover, other concordance lines further substantiate this theme by showing the impact of climate change on the agriculture sector, leading to food inflation. The below-cited example extracted from one of the above concordance lines further entails this theme by stating that:

> Extreme weather events are becoming more intense and frequent due to climate change, heatwaves are growing in both strength and duration, seasonal patterns are shifting, and the global water cycle is accelerating, resulting in more frequent droughts and floods.
>
> (Dawn, 20th January 2025)

The researchers have derived another important theme from the collocates listed in Table 1. The group of collocates, such as *Pakistan, vulnerable, country,* and *vulnerability,* is developing the theme of Pakistan's vulnerability to climate change. This theme is evident from the concordance lines presented in Figure 3.

FIGURE 3. Concordance lines representing the theme of Pakistan's vulnerability to Climate change

The theme of Pakistan's vulnerability to climate change is evident in the concordance lines in the figure above, which indicate that Pakistan is the 5th most vulnerable country. Additionally, this theme is illustrated by the following statement from the concordance lines, which ranks Pakistan's susceptibility to climate change in the Climate Risk Index (CRI) report.

> According to the 2025 Climate Risk Index (CRI) report, Pakistan ranked as the most vulnerable country to climate change in 2022, followed by Belize and Italy.
>
> (Dawn, 21st March 2025)
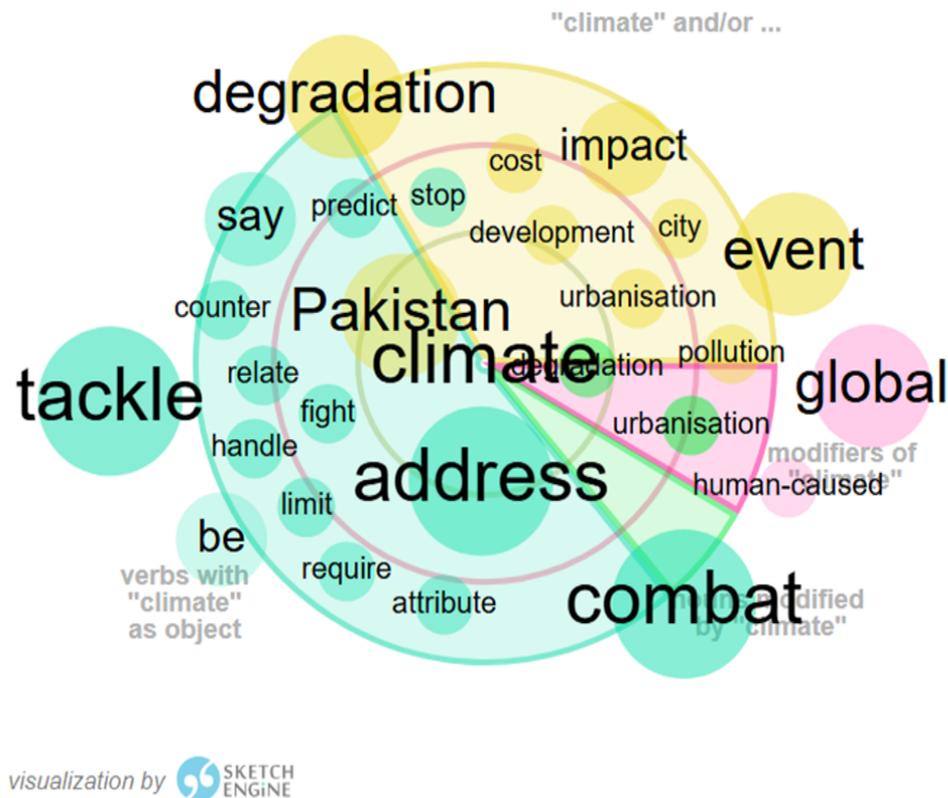
FIGURE 4. Word sketch of the keyword climate change

The figure above, which shows the collocates' association with the keyword, was created by the researchers using the *word sketch* option in the Sketch Engine software. This figure shows the frequency and relevance of collocates to the keyword *climate change,* indicated by the bubble size and distance from the keyword, respectively. The size of the bubble is directly proportional to the frequency of the collocate, while the distance of the bubble from the keyword is inversely proportional to its relevance. Therefore, the above figure shows that the collocates *Pakistan* and *address* are both frequent and relevant to the keyword *climate change* in the selected corpus, as they have large bubble sizes and are close to the keyword. Moreover, the large bubble sizes of the collocates *combat, tackle, impact*, and *degradation* also highlight the urgency of addressing this issue without further delay through their frequent appearance with the keyword *climate change* in the selected corpus. Although these collocates are far from the keyword *climate change,* their relevance to climate change can be assessed by their frequent occurrence in the selected corpus. Similarly, collocates such as *fight, counter, handle, combat, stop,* and *limit* are highly relevant because they are proximal to the keyword *climate change*. This relevance illustrates an action-oriented approach to climate change by collectively emphasising the need to take steps to address the issue.

TABLE 2. Semantic Roles in the Corpus

Agents	Examples from the concordance lines
Government (209)	Environment and related issues are not a priority of the *government*, and environmental laws are not implemented. (*Dawn*, 6th February 2015)
	Issues like deforestation, wildlife trade, deterioration of water quality, and national environmental standards, he added, were not being managed through long-term strategies. (*Dawn*, 6th February 2015)
Policymakers (20)	Equally alarming are the impulsive reactions from our policymakers. In many cases, they appear to lack a clear understanding of the complexities of climate change and are presenting unrealistic targets as policy goals. (*Dawn*, 8th July 2022)
	Unfortunately, our *policymakers* are also unaware of the strategies needed to overcome the impacts of a warming world on the economy. (*Dawn*, 18th September 2023)
Victims	**Examples from the concordance lines**
People of Pakistan (139)	The AGP highlighted the devastating 2022 floods, which submerged one-third of Pakistan's territory and impacted 33 million *people*. (*Dawn*, 13th December 2024)
	The country experienced devastating floods in 2010 that claimed 2,000 lives, displaced 20 million people, and inundated one-fifth of its territory. (*Dawn*, 26th May 2011)
Solutions	**Examples from the concordance lines**
Demands serious efforts by the government.	Enhanced collaboration among different tiers of government would be a step in the right direction. (*Dawn*, 23rd August 2024)
	The *government* should revive the climate change ministry and develop different viable projects to seek international funding for them. (*Dawn*, 1st July 2013)
Pay heed to adaptation and mitigation strategies.	The situation necessitates devising and implementing *adaptation* strategies and solutions without further delay. (*Dawn*, 28th October 2024)

The examples, such as the non-seriousness of government and policymakers in implementing environmental laws, the non-prioritisation of climate change, and the failure to address the hardships of affected people, presented in Table 2, are clear evidence of the role of agents played by the government and policymakers. In the same table, it can be seen that the role of victims has been mapped out for the people of Pakistan because they are bearing the devastating impacts of climate change. The death of thousands of people and the movement of millions of people in the wake of the 2010 and 2022 floods are a clear testament to the role of people as victims. In addition to the roles of agents and victims, the researchers have identified some pertinent solutions by analysing concordance lines for nouns such as government, adaptation, and mitigation. It is evident from the examples in Table 2 that the government should strengthen cooperation between its different tiers, revive the climate change ministry, and adopt various adaptation and mitigation strategies. The researchers assigned the roles of agents and victims to the government and the people, respectively, through conducting transitivity analysis in which all the concordance lines of the government and the people functioning as nouns were closely examined to view their contextual occurrence within the selected corpus. The identification of semantic roles was not based solely on frequency counts but on clause-level analysis informed by transitivity patterns. Concordance lines containing key entities such as government, policymakers, and people were examined to determine their grammatical and functional positioning within processes. Specifically, the analysis assessed whether these entities predominantly occurred in material processes (e.g., implement, enact, address), relational processes (e.g., are responsible), or as affected participants within clauses describing climatic impacts. Role assignment was based on recurrent syntactic patterns rather than isolated instances. To enhance analytical transparency, concordance lines were systematically reviewed across the corpus, and role classifications were determined based on consistent grammatical positioning rather than interpretive inference. The focus was therefore on identifying patterned representations of agency and affectedness within the discourse rather than attributing real-world responsibility.

In the selected corpus, the researchers identified the modal verbs *should*, *must*, and *can*, functioning as modal constructions that contribute to constructing the underlying frame about climate change. The researchers excluded all other modal verbs because they focused only on the modal verbs indicating suggestion (*should*), necessity (*must*), and possibility(*can*). The researchers have selected only these three modal verbs on the basis of not only their frequency but also their contribution to the frame of action by suggesting that the government should take immediate steps to mitigate the impacts of climate change. Besides, the modal verb; *can,* has contributed to the frame of action by indicating the capacity and ability of the government to curb the causes of climate change through implementing several environmental laws.

TABLE 3. Modal verbs such as *should, must, and can* reflecting the constructed frame of climate change.

Modality	Examples from the selected corpus
Should (64)	1. This policy should outline clear mechanisms for providing financial and technical support to the most vulnerable regions, ensuring an inclusive and equitable response to climate challenges. (*Dawn*, 5th March 2024)
	2. The government should instantly step up its endeavors to upskill personnel so that the capacity of the relevant ministry can be increased. (*Dawn*, 27th November 2023)
Must (70)	1. Policymakers must recognise that investing in climate change adaptation is what is truly needed. (*Dawn*, 27th February 2024)
	2. Policy commitments by the government must be translated into concrete and effective actions as well. (*Dawn*, 20th January 2025)
Can (203)	1. Functional local governments in Pakistan can play a more effective role in emergencies and managing natural disasters. (*Dawn*, 13th March 2023)
	2. Through sustained dialogue, strategic policymaking, and investment in sustainable solutions, Pakistan can navigate the path toward a greener, more resilient future. (*Dawn*, 10th February 2025)

Table 3 presents several examples of the identified modal verbs. The researchers extracted these examples through a separate analysis of the concordance lines of the modal verbs *should*, *must*, and *can*.

Alongside the modal constructions, the researchers identified a range of evaluative words, such as adjectives and verbs, in the selected corpus that contributed to the construction of frame about climate change.

TABLE 4. Evaluative words that play a role in constructing the frame about climate change

Evaluative words	Frequency of adjectives and verbs as keywords' collocates	Examples from the selected corpus
Adjectives	*Extreme* (121 tokens in 49 documents) *Vulnerable* (102 tokens in 47 documents) *High* (85 tokens in 42 documents) *Severe* (45 tokens in 30 documents) *National* (63 tokens in 27 documents)	High riverine floods, higher temperatures, *variation in rainfall patterns, and projected higher temperatures will likely cause more frequent, extreme, and dry conditions.* (*Dawn*, 30th June 2022). National policy, national conversation, and national priority, such as *the national conversation on climate change, need to move out of conference halls and resonate with the public*. (*Dawn*, 23rd February 2025)
Verbs	*Increase* (132 tokens in 52 documents) *Need* (115 tokens in 45 documents) *Reduce* (100 tokens in 46 documents) *Affect* (105 tokens in 51 documents) *Face* (66 tokens in 37 documents) *Result* (54 tokens in 32 documents) *Protect* (41 tokens in 27 documents)	Increase as a verb, such as *nonetheless, there is a consensus that macroprudential measures are critical to mitigate climate-related risks, as without mitigation measures, physical risks from climate change-driven natural hazards – heat waves, windstorms, floods, and droughts – are likely to increase significantly.* (*Dawn*, 1st July 2024)

	Affect as a verb, such as *Deforestation, affects climate change as much as burning fossil fuels.* (*Dawn*, 9th August 2017) Protect as a verb, such as *the most effective way to protect people and communities from the unavoidable impacts of climate change is to take actions that increase their climate resilience.* (*Dawn*, 12th February 2025)

Table 4 includes examples of evaluative words that help to construct the underlying frame about climate change. These examples were obtained using the wordlist feature of the Sketch Engine software. All the above-mentioned examples have been obtained from the concordance lines of the respective adjectives and verbs. These adjectives and verbs have been found most frequently in the selected corpus; therefore, a certain frame about climate change is being constructed with these evaluative words.

TABLE 5. Collocates of the evaluative words (adjectives and verbs) in the selected corpus

Adjectives	Adjectives' collocates in the selected corpus
Extreme	Extreme *heat,* extreme *weather*, extreme *floods*, extreme *temperatures*, extreme *storms*.
Vulnerable	Vulnerable *country,* vulnerable *population*, vulnerable *people*.
High	High *temperatures*, high *rainfall*, and high *floods*.
Severe	Severe *storms*, severe *heatwaves*, severe *economic consequences*, severe *droughts*, severe *rains*.
National	National *security issue*, national *efforts*, national *action plan*, national *policy*, national *adaptation plans*, national *approach*, national *climate plans*.
Verbs	**Verbs' collocates in the selected corpus**
Increase	Heat waves are *increasing*, droughts have *increased*, frequency of floods has been *increasing*.
Need	Action is *needed* now; policymakers *need* to review their toolkit, financial institutions *need* to invest more money, and the government *needs* to wake up.
Reduce	Adopting solar technology will *reduce* fuel; green entrepreneurship for reducing greenhouse gas emissions; the mangrove cover has also been *reduced* from 32 percent to 10 percent. Systematic and coordinated development initiatives can help *reduce* vulnerabilities, but the scale of devastation cannot be *reduced* unless local government institutions are developed.
Affect	Erratic weather *affects* crops, devastating floods of 2022 *affected* over 33 million people with a loss of 1700 lives, and Pakistan is already on the list of the nations most affected by climate change.
Face	The country *faced* extreme floods in 2010. Pakistan may *face* substantial losses in natural resources by 2070; millions of children *face* weeks of school closure due to adverse weather conditions.
Result	Rapidly melting glaciers that *resulted* in Glacial Lake Outburst Floods (GLOFs) in Pakistan, extreme climate events have *resulted* in the loss of lives and colossal damage to the economy.
Protect	Urge for programmes and plans by the government to *protect* the most vulnerable population. Climate adaptation can *protect* key infrastructure; long-term actions to *protect* the Pakistani people and economy from the unfolding climate crisis.

Apart from the retrieval of high-frequency adjectives and verbs, constructing a certain frame about climate change, the researchers have also examined the collocates of the retrieved evaluative words, further substantiating the constructed frame. Table 5 presents all examples of evaluative words' collocates that reflect a constructed frame about climate change.

The cooccurrence of the collocates *heat, weather, floods, temperature, storms, rainfall, heatwaves, economic consequences,* and *droughts* with the adjectives *extreme, high,* and *severe,* as well as with the verbs *increase, face,* and *result,* constructs an action-oriented frame about climate change by illustrating the seriousness of the issue in terms of its impacts. The construction of an action-oriented frame about climate change with these evaluative words is evident from the example of the selected corpus, stating that:

> Climate change has made the severity of extreme monsoon rainfall increase by 50 per cent. Moreover, over eight million people lost their homes and were internally displaced due to the 2022 floods, while 1.3 million houses were damaged. Before the floods in 2022, Pakistan witnessed severe heatwaves from March to May, which resulted in GLOFs in northern Pakistan and record-breaking monsoon rainfall.
>
> (Dawn, 12th February 2025)

Furthermore, collocates such as *country*, *population*, *people*, and *floods* co-occurring with the adjective *vulnerable* and verb *affect* reflect an action-oriented frame constructed about climate change in the compiled corpus.

> Situated on the floodplain of the Indus Basin, Pakistan remains inherently susceptible to flooding. As per official government data, the record-breaking floods of 2022 impacted 33 million people across 84 districts and resulted in damages worth of $15 billion.
>
> (Dawn, 6th September 2024)

It is evident from the cited example that the action-oriented frame is being constructed around climate change by representing the apocalyptic impacts of climate change, increased vulnerability of Pakistan, and the loss and damage endured by the people of Pakistan.

Besides, collocates such as *action*, *programmes, plans, government, systematic, and long-term actions* that have appeared together with the verbs *protect* and *need* reflect the constructed action-oriented frame. The following example shows that the frame of action has been constructed regarding climate change because government institutions have been referred to for taking immediate actions necessary to tackle the climate change issue.

> It is crucial to initiate prompt, coordinated, and sustained measures to safeguard the people and economy of Pakistan from the escalating climate crisis. Acknowledging our lack of preparedness places greater accountability and direct responsibility on the relevant federal and provincial departments, as well as the currently inactive local governments (LGs), which play a vital role in bottom-up adaptation planning to ensure national resilience.
>
> (Dawn, 8th July 2022)

DISCUSSION

By thoroughly analysing the compiled corpus, using multiple features of the Sketch Engine software such as *concordance*, *word sketch*, and *wordlist,* the researchers identified two important themes. One of the themes identified as the impacts of climate change on Pakistan generated by a cluster of collocates such as *extreme, adverse, water, agriculture*, *disasters, increasing, heatwaves, food, severe, floods, hazards,* and *crops.* Pakistan's extreme vulnerability to climate-related disasters is the second theme generated by a cluster of collocates, including *Pakistan, vulnerable, country,* and *vulnerability.* The findings on the two climate change themes align with the findings of Gul et al. (2024). The present study has extracted the themes with the help of collocates such as *extreme, adverse, water, agriculture*, *disasters, increasing, heatwaves, food, severe, floods, hazards,* and *crops,* generating the theme of impacts and collocates like *Pakistan, vulnerable, country,* and *vulnerability,* developing the theme of Pakistan's vulnerability. However, Gul et al. (2024) have found the theme manually without using any software. Manual extraction of themes based solely on qualitative interpretation of the data may introduce subjectivity and bias, but

retrieving themes from collocates obtained through quantitative analysis ensures objective interpretation. Moreover, the present study has identified two main themes in the selected corpus, while Gul et al. (2024) have discussed only the theme of impacts. The themes related to climate change may vary in the selected genres. While editorial articles present an institutional viewpoint and opinion articles present a personal viewpoint on a social issue, the themes may vary in these genres.

After analysing the extracted themes, the researchers identified some high-frequency nouns (see Table 1, p. 7), involved in making the climate change issue worse due to their lack of seriousness about tackling the issue. Therefore, as evident from Table 2, the government of Pakistan and its policymakers are the ones responsible for this act of exacerbating the climate change issue due to their obliviousness. Therefore, the researchers assigned the semantic role of agent to the Pakistani government and its policymakers, as evidenced by the concordance example that environmental issues, such as climate change, are not a priority for the government, and that environmental laws are not implemented in a true sense. Apart from this, the researchers also mapped the role of victims to nouns because they bear the brunt of the non-seriousness of authoritative bodies, such as the government and policymakers (Sabid, 2025). As mentioned in Table 2, people of Pakistan have been referred to as victims because they are suffering from climate change in terms of mass displacement as well as loss of their lives. The semantic roles identified in the present study indicate the frame of action constructed about climate change, as institutions such as the government and policymakers pay little attention to it. The findings regarding the authorities' inaction in the present study align with those of Fizzah (2021). However, Fizzah (2021) obtained these findings by manually reading English newspapers, whereas the present study obtained them by analysing high-frequency nouns using the software's wordlist feature.

The researchers identified certain modal constructions, such as *must*, *can,* and *should*, whose examples have been presented in Table 3. All the cited examples of modal constructions reveal an action-oriented frame about climate change in the chosen corpus by suggesting that the government should take immediate steps to mitigate its impacts. Identification of action-oriented frame through modal constructions such *as must, can, and should* aligns with the results of Li (2023), who has also identified the same kind of frame. Li (2023) has also found similar findings emphasising concerted efforts to combat climate change. Both studies differ: Li (2023) highlights the concerted efforts required to combat climate change but does not explicitly mention authoritative bodies, whereas the present study explicitly mentions government and policymakers, supported by examples of modal constructions.

Furthermore, various adjectives and verbs have been identified as evaluative words using the *wordlist* feature of the selected software. The examples of the extracted adjectives, *extreme, high,* and *severe*, given in Table 4, construct an action-oriented frame about climate change by indicating the severity of the issue in terms of its impacts, such as an *increase in floods, droughts*, and *glacier melting*. Moreover, the adjectives, *vulnerable, high, devastating,* and *national*, further reveal the frame of action about climate change. The Frame of action constructed about climate change is evident because people have been represented as victims who are facing the consequences of climate-related disasters, such as floods and droughts, due to the unpreparedness of the government, and the governmental institutions have been suggested through various linguistic choices, such as adjectives, modal verbs, and verbs, for addressing these climate-related issues. The collocates of the adjective *national,* presented in Table 5, such as national *security issue*, national *efforts*, national *action plan*, national *policy*, national *adaptation plans*, national *approach*, and national *climate plans,* reveal the constructed frame of action by suggesting the

government to take several steps such as making national climate plans and policy to address this issue on immediate basis.

In addition to adjectives, the researchers have identified various verbs that also play a vital role in constructing the action-oriented frame about climate change. The examples of the verbs, *increase*, *affect* and *result*, given in Table 4 such as increasing heat waves, droughts, floods, people affecting due to floods, crops affecting because of erratic weather patterns, and colossal damage to country's economy resulting from climate change related issues are explicitly constructing frame of action by highlighting the repercussions of inaction related to handling the issue of climate change. Moreover, the frame of action is also being constructed in the selected corpus with the help of verbs such as *need*, *reduce,* and *protect,* by urging the government and policymakers to take initiatives by developing projects, making sound policies, and devising climate-related programmes to protect the country from the impacts of climate change. All the above discussion shows that the present study's findings about the action-oriented frame of climate change in Pakistani print media are an extension of the findings of existing international studies (Li, 2023; Sabid,2025). The researchers have found this action-oriented frame, with the help of various features of Sketch Engine software, in the *Dawn* opinion articles constructed with modal constructions and evaluative words (adjectives and verbs) around climate change.

CONCLUSION

This corpus-based study set out to identify linguistic choices, specifically modal constructions and evaluative words, that appear frequently in the selected corpus of *Dawn* opinion articles and contribute to constructing an underlying frame about the issue of climate change in Pakistan. Based on qualitative and quantitative analyses conducted using various features of the Sketch Engine software, the researchers found the frame of action constructed about climate change in the selected corpus. This frame of action is constructed through the frequent use of modal verbs such as *should*, *must*, and *can*, which serve as key modal constructions indicating the government responsible for exacerbating climate change, thereby suggesting the need for precautionary measures to address it. Additionally, evaluative words, including adjectives like *extreme*, *vulnerable*, *high*, *severe*, and *national*, as well as verbs such as *increase*, *reduce*, *affect*, *face*, *result*, and *protect,* are also commonly observed, indicating the severity of the climate change issue, which needs to be addressed by the government taking strict actions. These elements have played a significant role in constructing the frame of action about climate change within the analysed *Dawn* opinion articles.

The findings of this study provide new insights into the climate change discourse in Pakistan, where print media focuses on narratives of awareness and urgency to address environmental issues on the national level by highlighting the severity of the climate change issue through adjectives (extreme, severe, high) and verbs (increase, need, protect). The action-oriented frame provides narratives of awareness and thus contributes to the study's findings (Weather et al., 2025), which propagate narratives of adaptation and mitigation. It emphasises careful selection of linguistic choices, specifically focusing on their frequency and usage, underscoring that these linguistic choices inherently construct the frames surrounding climate change and other issues in linguistics (Zheng, 2021). By identifying and examining the underlying frame in the linguistic discourse on climate change using several indicators, the current study can inform policymakers, climate-related ministries, and government institutions of the urgency of this matter. The findings

can help policymakers formulate new, well-grounded, and practical policies as well as their implementation to alleviate and adapt to this issue.

Due to limited time, the current study has undertaken only 85 opinion articles from the *Dawn* newspaper as the primary data for analysis. Additionally, all selected opinion articles were drawn from the prominent Pakistani newspaper *Dawn*, which may affect the generalizability of the results and reduce the extent to which the findings can be applied to other related studies on climate change. In fact, analysing other Pakistani newspapers using the conceptual framework employed in the current study might reveal different framing perspectives on climate change through different linguistic choices. Consequently, limiting the data to a small number of opinion articles from a single source may exclude other relevant potential frames underlying the representation of climate change, which could have been explored by selecting a broader dataset for analysis.

Future researchers planning to conduct a corpus-based study on climate change from a Pakistani perspective are encouraged to include more opinion articles, editorials, and news reports in their corpus to enhance the reliability of their findings. Additionally, incorporating content from multiple Pakistani English-language newspapers such as *The News*, *The Express Tribune*, and *The Nation* alongside *Dawn* would enable a comparative analysis. This comparative approach would offer deeper insights into the diverse framing constructions about climate change, as reflected in the varying linguistic choices across different media outlets.

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ABOUT THE AUTHORS

Saqlain Hassan is an Assistant Professor of Corpus Linguistics and Head of English at Riphah International University, Pakistan. His research focuses on corpus-based media discourse, sentiment analysis and endangered language revitalisation. He can be contacted via saqlain.hassan@riphah.edu.pk.

Wong Wei Lun (Ph.D) Senior Lecturer at UKM, specialises in TESL, corpus linguistics and educational research. An active reviewer and academic editor, he has published widely in reputable journals including SAGE Open and Scientific Reports. He can be contacted via colinw@ukm.edu.my

Riffat Nazeer is an MPhil (Master of Philosophy) scholar at the Department of English Linguistics and Literature, Riphah International University, Pakistan. Her research interests include Corpus Linguistics, English Language Teaching, TESOL and Phonetics. She can be contacted via 63181@students.riphah.edu.pk.

Warid Mihat (Ph.D) is a Senior Lecturer at Universiti Teknologi MARA, Malaysia. As MELTA's Director of Journals, he oversees The English Teacher (MyCite) and the Malaysian Journal of ELT Research (WoS ESCI). Specialising in CALL, he publishes widely both locally and internationally. He can be contacted via waridmihat@uitm.edu.my