

Role of Media in Shaping Public Awareness on Climate Change in Pakistan

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Abstract

Climate change threatens the very existence of Pakistan by causing repeated flooding, protracted droughts, increasing temperatures, water shortages, and food shortages. Due to being one of the world's most vulnerable countries to climate change, Pakistan suffers from severe socio-economic and environmental issues. mental impacts and is responsible for less than 0.8% of the world's total GHG emissions. Public awareness is important for climate adaptation and mitigating its effects; however, the media also significantly shape public perception, beliefs, and reactions to climate change by setting agendas and framing narratives. This study reviews literature in academia and media studies, as well as policy documents, to evaluate the role of Pakistani media in enhancing public awareness of climate change. Agenda-setting and framing theories were used to analyze how Pakistani media represent climate change across various media platforms (print, electronic, digital), to what degree media coverage has enhanced public awareness, and the limitations associated with effectively communicating climate change. Research indicates that although Pakistani media has demonstrated a significant increase in climate-related disaster news coverage, climate change reporting tends to be episodic, event-based, and limited to immediate disaster impacts rather than long-term mitigation, adaptation, and policy solutions. Further barriers to effective climate journalism include structural, educational, and training deficits, editorial considerations, and political pressure. Ultimately, this study concluded that continued, solutions-focused, and inclusive climate communication will provide the basis for increasing public awareness and supporting climate resiliency in Pakistan.

Keywords: Public Awareness, Climate Communication, Environmental Journalism

Introduction

The impacts of climate change are being felt worldwide, making it one of the twenty-first century's largest global challenges. Climate change is causing severe disruptions to ecosystems, economies, and human livelihoods globally and locally. The increasing frequency and severity of extreme weather events, rising global temperatures, rising sea levels, and the loss of biodiversity are all indicators of the urgent need to address climate change. Developing countries are especially vulnerable to the negative impacts of climate change because they lack the resources to adapt to changing conditions and are often plagued by poor infrastructure, weak government structures and

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institutions, and ongoing socioeconomic disadvantages. Climate change-related shocks will frequently create new inequalities, reverse progress toward sustainable development, and imperil food, water, and energy security for developing countries.

Although Pakistan is ranked at the top of the list of countries adversely impacted by climate change despite producing fewer than 1% of the world's total greenhouse gases, it has been subject to repeated flooding, droughts lasting years, extreme heat waves, rapidly disappearing glaciers in the Hindu Kush-Karakoram-Himalayan region, growing water scarcity, and decreasing agricultural production (Germanwatch, 2021; IPCC, 2023). As a result of climate-related hazards, there has been significant human displacement, infrastructure damage, and economic losses, placing a huge strain on the national system of development and disaster management. Pakistan's experience with climate impacts reflects a larger issue of climate justice and inequity between developed and developing countries (Government of Pakistan, 2021), even though it contributes less than 1% to global greenhouse gas emissions.

Recent climate-related catastrophes clearly demonstrate the urgency of taking climate action in Pakistan. For example, millions of people were displaced and had their livelihoods destroyed as a result of the massive floods of 2010 and 2022. Additionally, numerous lives and livelihoods were lost due to prolonged droughts in the provinces of Balochistan and Sindh. Prolonged droughts have exacerbated food insecurity, water shortages, and poverty in rural areas. Rising temperatures in major cities have increased health risks for vulnerable populations. The frequent occurrence of these catastrophes demonstrates that climate change in Pakistan is a lived, current experience. Therefore, addressing climate change in Pakistan requires not only innovative policy responses and technological solutions, but also an informed, active, and empowered citizenry capable of participating in climate decision-making and adaptation processes.

Citizen awareness is critical for forming public perceptions, actions, and policy support regarding climate change — especially in climate-vulnerable communities. Citizens with a clear understanding of local climate risks are more likely to support climate adaptation and mitigation initiatives, adopt environmentally friendly behaviors, and hold policymakers and other institutions accountable for taking climate-related action (Lee et al., 2015).

Awareness serves as a precursor to behavioral changes and collective action, since it affects how individuals assess risk, rank environmental concerns, and respond to climate-related information. Media, including newsprint newspapers, television, radio, and increasingly social media and online platforms, serve as a primary vehicle for communicating climate information to the public. The media plays an important role in translating scientific knowledge about climate into understandable stories, shaping public discourse and perceptions of urgency and responsibility. This is particularly relevant in countries such as Pakistan, where literacy rates are lower, access to scientific knowledge varies widely, and many members of the population receive their information about national and global affairs through mass media. Mass media can focus attention on selected aspects of climate change while de-emphasizing others, thereby influencing public perceptions of its importance and policy priorities.

News media play a significant role in shaping public discourse and debate, informing policymaking and representing prevailing societal views in Pakistan.

However, little academic research examines whether Pakistani media effectively reports on climate change, whether climate reporting is consistent over time, and whether climate reporting provides solutions to climate change and increases public awareness of it. Research findings suggest that climate change reporting is typically event-based and focuses on the effects of natural disasters rather than on adaptation, mitigation, and governance strategies critical to reducing

climate-related impacts in the long term. On this basis, this study aims to investigate the role of media in increasing public awareness of climate change in Pakistan by examining current research on media coverage of climate change, focusing on content, frames, and communication barriers. Furthermore, this study aims to identify shortcomings in media engagement and to provide recommendations for enhancing climate change communications and informing future research, media practice, and policy interventions.

Literature Review

Climate change communication encompasses all methods and means of communicating scientific data about climate change to the public via numerous communication channels (mass media, interpersonal, etc.) and communication types (including digital) (Moser & Dilling, 2007). The successful communication of climate change relies on more than the dissemination of scientific facts. It requires the conversion of the complex and often uncertain scientific findings into narrative(s) that are accessible, relevant, and meaningful to all members of society. Media is an essential component of climate change communication because it serves as an intermediary between scientists/policymakers and the general public. The way in which the media selects, interprets, and communicates climate-related news affects how the public perceives climate risk, assigns blame, and assesses the need to take climate action.

The media's influence on public opinion about climate change can be understood through Agenda-Setting Theory. Agenda-Setting Theory states that media do not tell individuals what they should think; however, they determine what individuals will think about by placing emphasis upon certain subjects (issues) based upon the amount of space given to those subjects in their publication/coverage (frequency, placement, etc.) (McCombs & Shaw, 1972). The more media coverage of climate change, the greater the likelihood that the general public will view it as a significant social and political issue. Conversely, less frequent or sporadic coverage of climate change may reduce public concern and, ultimately, lead climate risks to appear less relevant.

Framing Theory is closely related to Agenda-Setting Theory. Framing Theory concerns how the media portray an issue and how this portrayal affects how audiences interpret and give it meaning (Entman, 1993). Media framing of climate change presents the issue in various ways, with each framing having different implications for how the public understands and responds to it.

The way climate change is framed has several implications for how the public views it. Climate change may be framed as a scientific controversy emphasizing uncertainty and disagreements among experts; as an economic issue highlighting costs and development trade-offs; as a national or human security issue focusing on disaster, displacement, and resource conflict; or as a moral/ethical obligation stressing climate justice and intergenerational equity. Research suggests that these frames influence whether the public views climate change as far away or close at hand; whether it is something that can be solved or is inevitable; and whether it is an individual or collective problem. Frames that present climate change as a conflict or as uncertain may lower public trust in it. Conversely, frames that focus on solutions and present climate change as relevant to local concerns are more likely to foster public engagement and behavior change.

International research also shows that media coverage of climate change follows a pattern that is both episodic and event-driven. Coverage of climate change tends to follow extreme weather events/natural disasters/high-profile international climate summits (e.g., Conferences of the Parties, or COPs), resulting in primarily reactive coverage rather than ongoing (Boykoff & Boykoff, 2007; Anderson, 2009). While episodic coverage may provide a temporary spike in public interest/concern about climate change, it typically does so without providing the continuity

and depth of context that would allow for a sustained discussion. As a result, climate change is often depicted as a series of discrete events rather than a long-term structural problem rooted in economic systems, governance practices, and daily human behavior.

Because climate reporting is episodic, it fails to promote sustained public understanding, engagement, and behavioral change necessary to address climate change. The episodic nature of climate reporting, although it can create a surge in public awareness of climate change, is typically followed by minimal explanation of its causes and/or options for mitigating/adapting to it. This results in the public perceiving climate change as too large a problem to tackle and, therefore, as simply unavoidable, creating apathy/fatalism rather than action. The above constraints illustrate the necessity for continued, richly contextualized, and solution-oriented approaches to climate communication that move beyond crisis reporting and promote engaged public dialogue and collective responses to climate change.

Pakistani research studies have found the same type of episodic reporting pattern. In terms of how Pakistani print news media report climate-related events, a study by Ahmed et al. (2018) found that top newspapers in Pakistan are almost entirely focused on climate-related disasters — particularly flooding — but do not cover methods to mitigate them or climate governance. A second study by Raza et al. (2020) found that when climate change is discussed in print media, it is typically presented as either an environmental issue caused by nature or by external factors, rather than a human-caused problem requiring systemic change.

In terms of providing policy-oriented/analytical content related to climate change, English language newspapers such as Dawn and The Express Tribune generally provide more in-depth and policy-focused reporting about climate change than Urdu language newspapers, which typically provide more "human interest" style reporting and report on the immediate effects of climate change (Hussain & Rehman, 2021). Therefore, differences in how climate information is conveyed through English- and Urdu-language print news media create two distinct types of societal segmentation in access to climate change information.

Televisions remain the primary source of mass communication in Pakistan; however, the focus on climate change is rarely sustained outside of major natural disasters (Shahzad et al., 2022). Climate change issues compete for television news time alongside political conflict, national security, and entertainment.

Studies have shown that media coverage of climate change is a significant factor in increasing public knowledge of the issue and their belief in the threat it poses (Lee et al., 2015). Media consumption was also found to be a positive indicator of climate awareness among Pakistani residents (Khan et al., 2021), but this awareness does not necessarily translate into actions that support climate change mitigation.

Climate awareness does not always translate into action, and scholars attribute this to the lack of solutions in media coverage of climate issues and to the inability to provide relevant local information on mitigating climate change (Nawaz & Hassan, 2020). As a result, many people may see climate change as too complex and/or beyond an individual's ability to take meaningful action. The climate journalists face many barriers, such as a need for special education for climate reporting, a lack of access to credible scientific information, political pressure from editors, and an economic constraint placed on the environment reporters by their newsroom managers (Nisar & Iqbal, 2019) and that environmental reporting has a low priority in newsrooms because it does not have perceived high interest and revenue potential among audiences. Journalists are also challenged to translate scientific terms for non-experts, which can oversimplify or misrepresent

them (Billet, 2010), and these barriers impede the media's ability to improve the public's knowledge of climate change.

Theoretical Framework

Guided by Agenda Setting Theory and Framing Theory, both prominent approaches to measuring the impact of mass media on the public's perceptions and behavior, this research project uses these theories to assess the impact of mass media on the public's awareness and response to climate change. Agenda-setting theory argues that mass media don't tell people what to think, but instead tell them what to think about by emphasizing specific issues or topics through the frequency of coverage, where coverage is placed, and its salience (McCombs & Shaw, 1972). In this way, mass media coverage can elevate climate change to a priority in public discussions and foster public awareness, concern, and discussion. Research has shown that agenda-setting effects tend to be strongest when mass media consistently and over time cover an issue, as audiences rely on mass media to provide information about complex issues, such as environmental risk (Scheufele & Tewksbury, 2007; Wanta & Hu, 1994).

Unlike agenda-setting theory, which examines what issues the mass media cover, framing theory examines how mass media stories influence audience interpretations by focusing on certain aspects of an issue while ignoring others (Entman, 1993). Through framing, mass media can influence how people view the causes of climate change, its consequences, who is responsible, and possible solutions. For instance, a "disaster" centered frame of climate change that emphasizes extreme weather events (like floods, heat waves, and droughts) may heighten concerns and sense of urgency regarding climate change among audiences, but it may also lead to perceptions of inevitability or helplessness, thus preventing proactive engagement (Boykoff & Boykoff, 2007; Carvalho, 2007). On the other hand, "solution" oriented frames that emphasize adaptations to climate change, renewable energy, and community-based initiatives can increase understanding, efficacy, and behavioral responses (Leiserowitz et al., 2006; Nisbet, 2009).

Given the context of Pakistan, media framing of climate change has mainly focused on disasters, human suffering, and the immediate threat to people's lives and livelihoods. While such coverage increases awareness and concern in the short term, it may unintentionally foster fatalism among audiences, especially if the media reports on the scale of climate change-related losses without presenting actionable solutions to address them (Hussain & Rehman, 2021; Ahmed et al., 2018). The media also tends to prioritize coverage of urban areas and high-profile events over rural and marginalized communities, thereby limiting the equitable dissemination of climate change knowledge (Khan et al., 2021; Shahzad et al., 2022).

The application of these theoretical perspectives provides critical insights into how mass media influences public awareness, perception, and behaviors related to climate change. Using both agenda-setting and framing theories together allows researchers to assess the issues covered in the mass media and how they are framed, providing an integrated assessment of the mass media's influence on public debate. These theoretical frameworks also assist researchers in identifying shortcomings in climate communication, including the lack of solution-oriented reporting, insufficient coverage of climate-related policy efforts, and limited media engagement with vulnerable populations. Identifying these gaps in climate communication will aid in developing effective media interventions that inform the public about climate change and encourage adaptive behavior, civic engagement, and advocacy for climate-related policy in Pakistan.

Methodology

This study will use a Qualitative Review-Based Design and will rely on secondary data from peer-reviewed journal articles, academic books, policy documents, and media studies on Climate Change Communication and Media Practices in Pakistan. Because the focus of this research is to examine how Climate Change is presented, framed, and interpreted through media discourse, a qualitative approach is most appropriate. This qualitative approach is best suited to this type of research because it allows a close, contextualized examination of meanings, narratives, and patterns across a variety of media and communication venues (Creswell & Poth, 2018). As climate communication research draws upon multiple disciplines, including communication studies, environmental sociology, media studies, and development research, this study will integrate them. To ensure a transparent, rigorous, and reproducible selection of relevant studies, a systematic literature review (SLR) was conducted (Snyder, 2019). The SLR examined scholarly work published between 2005 and 2024; a time frame during which there has been a heightened focus nationally and globally on climate change, especially after several major climate-related disasters and international policy developments. Thus, this time frame allowed for both seminal studies and current research that reflect changing media landscapes and the increasing use of digital and social media platforms in reporting on climate change.

Google Scholar, JSTOR, Scopus, and ResearchGate were all systematically searched utilizing combinations of the following keywords: climate change, media, public awareness, Pakistan, environmental communication, and climate journalism. Boolean operators were used to narrow search results and ensure comprehensive coverage of all relevant literature. Additionally, reference lists of selected articles were reviewed to obtain other relevant studies, a common method for ensuring the completeness of literature reviews (Booth et al., 2016).

Thematic Analysis was utilized to analyze the selected literature (a widely used qualitative method for extracting and reporting patterns from textual data) (Braun & Clarke, 2006). Through iterative readings and coding, thematic analysis identified major themes in the selected literature, including the dominant media frames that have emerged, the ways media platforms are used for agenda-setting, the representation of climate risk, and the relationship between media exposure and public awareness. This analysis compared how print, electronic, and digital media platforms address climate change issues in Pakistan.

Ultimately, synthesizing the findings from the selected studies will provide a comprehensive overview of the strengths and weaknesses of climate change communication in Pakistani media. Furthermore, the methodology employed in this study will permit a critical evaluation of previous research while also identifying areas where future research may be warranted, specifically regarding audience reception, behavioral outcomes, and the roles that new media technologies play in creating climate awareness.

Findings and Discussion

Pakistani Media Coverage of Climate Change is Almost Entirely Disaster-Focused Floods, Heat Waves, Glacial Lake Outburst Floods & Prolonged Droughts Get Most of the Coverage; Especially During Crises.

Coverage of major climate-induced disasters like the 2010 & 2022 floods is high-visibility, emotional, and focused on human-interest stories, with a dramatic visual component. However, these types of events receive little more than temporary and episodic coverage. While the episodic coverage can create immediate public awareness and prompt humanitarian response, it generally fails to provide long-term analytical focus or continuity. Therefore, climate change is often

portrayed as a series of isolated natural disasters rather than a chronic, structural, and human-caused problem linked to development choices, governance failures, and global emissions.

The literature also demonstrates a notable lack of solution-oriented journalism within Pakistan's media. The media rarely covers climate mitigation strategies, such as transitioning to renewable energy sources, implementing emission-reducing policies, adopting climate-smart agricultural practices, creating sustainable urban plans, and other solutions. Even when solutions are mentioned, they are typically viewed as an obligation of other nations rather than a priority for their own country. Adaptation strategies — including disaster preparedness, early warning systems, developing community-based resilience, managing water resources, and developing climate-responsive policies — receive almost no media coverage. Thus, the media contributes to public misunderstanding of how to respond to climate change and to a general sense of hopelessness about the issue.

Additionally, the literature has demonstrated significant differences in climate change awareness across socio-economic groups and geographic locations. Urban residents, especially those who have access to television, newspapers, and/or internet/digital media platforms, tend to be exposed to more climate-related information and discussion than rural/remote/marginalized populations. Although rural/remote/marginalized populations are more vulnerable to climate impacts, they are less informed about climate-related topics due to limited access to media, lower literacy rates, and the lack of regional climate reporting. The information gap between these two groups will contribute to the widening of socio-economic inequities, hinder inclusive climate actions, and reduce the efficacy of grassroots adaptation activities. Scholars have argued that the failure to tailor climate communications to local environments/knowledge systems will further marginalize already vulnerable populations.

Over the last few years, social media platforms have become alternative means of climate communication and advocacy for many youth activists, journalists, researchers, and civil society organizations. Social media platforms such as Twitter (X), Facebook, and YouTube have enabled the rapid dissemination of information and climate campaigns/mobilizations. These platforms have also enabled counter-narratives that counterbalance the relative silence on climate-related issues from mainstream media outlets, bringing attention to policy failures and environmental injustices. However, the literature also highlights that the unregulated nature of social media creates serious problems, such as the spread of misinformation, the politicization of climate discussions, and avenues for circulating unverified/unsubstantiated information. The lack of authoritative, reliable climate information online will likely confuse the public and erode confidence in climate science, underscoring the need for improved digital literacy and responsible climate journalism.

Collectively, the literature indicates that while the Pakistani media plays an important role in shaping public perceptions of climate change, its current practices remain largely reactive, event-focused, and lacking context. Therefore, it is critical to transition to continuous, explanatory, and solution-focused climate reporting (in both traditional and digital media) to enhance the public's understanding of climate change, encourage behavioral change, and support evidence-based climate policy and action.

Conclusion

Pakistan's media plays a vital role in disseminating information about climate change to the general public, but the vast majority of this capacity has yet to be utilized. Although there have been an increase in media coverage on natural disasters related to climate change in the last ten years, the

majority of these stories continue to be primarily event-driven and episodic; after the occurrence of a flood, heatwave or drought, the media reports on the incident and rarely follows up with additional reporting or provides context for how the event relates to a larger problem such as climate change. The media's ability to provide contextual information limits the public's understanding of climate change by portraying it as a collection of individual disasters rather than a long-term, systemic issue tied to various aspects of development and government, as well as the global environment.

There are several structural and institutional barriers that currently hinder climate communication in Pakistan. Some of the most significant of these include journalists' lack of knowledge about climate science, limited access to climate-related scientific data and other expert sources, limited resources (time and personnel) available to news agencies, as well as editorial preferences that emphasize reporting on the latest developments in politics and/or crime over climate issues. Furthermore, the majority of Pakistani media outlets lack climate or environmental desks, which would enable them to provide continuous, in-depth reporting on climate-related topics. Therefore, the media typically fails to critically evaluate and report on mitigation efforts or adaptation policies, and on accountability mechanisms that could strengthen its role as a watchdog and educator.

In order to increase public awareness of climate change in Pakistan, media organizations need to make a conscious effort to transition away from providing crisis-focused reporting and towards explanatory reporting that will highlight how climate change affects different areas of Pakistan, how local communities are working to adapt to climate change, how government policies and sustainable development initiatives are responding to climate change, etc. Furthermore, media organizations should seek to incorporate the views and perspectives of climate scientists, policymakers, representatives from civil society, and people directly impacted by climate change into their reporting, thereby creating more balanced and credible coverage that resonates with diverse audiences. Additionally, reporting on climate change needs to be in local languages and through local media outlets to effectively reach rural and marginalized populations, who are disproportionately vulnerable to its negative effects.

Climate journalism in Pakistan can be improved through targeted training programs, financial support, and collaborations between media professionals and climate experts. Using digital and social media responsibly can also enhance public awareness of climate change, facilitate citizen participation, and mitigate the spread of misinformation when used in conjunction with credible sources and professional journalistic ethics. Ultimately, developing a strong, informed media landscape will enable citizens, promote public participation, and influence decision-making based on empirical evidence, thereby enhancing climate resilience and sustainable development in Pakistan.

References

- Ahmed, S., Qureshi, M., & Raza, S. (2018). Media coverage of climate change in Pakistan. *Journal of Social Sciences*, 12(2), 45–59.
- Ali, A., & Erenstein, O. (2017). Assessing farmer use of climate change adaptation practices in Pakistan. *Climate Risk Management*, 16, 1–13.
- Anderson, A. (2009). Media, politics and climate change. *Sociology Compass*, 3(2), 166–182.
- Billett, S. (2010). Dividing climate change: Global warming in the Indian mass media. *Climatic Change*, 99(1), 1–16.
- Boddy, J., & Boddy, C. (2016). Climate change and journalism. *Journalism Studies*, 17(4), 1–17.

- Boykoff, M. T. (2011). *Who speaks for the climate? Making sense of media reporting on climate change*. Cambridge University Press.
- Boykoff, M. T., & Boykoff, J. M. (2007). Climate change and journalistic norms: A case-study of US mass-media coverage. *Geoforum*, 38(6), 1190–1204.
- Brüggemann, M., & Engesser, S. (2017). Beyond false balance: How interpretive journalism shapes media coverage of climate change. *Global Environmental Change*, 42, 58–67.
- Carvalho, A. (2007). Ideological cultures and media discourses on scientific knowledge: Re-reading news on climate change. *Public Understanding of Science*, 16(2), 223–243.
- Carvalho, A., & Burgess, J. (2005). Cultural circuits of climate change in the UK broadsheet newspapers. *Risk Analysis*, 25(6), 1457–1469.
- Dunlap, R. E., & McCright, A. M. (2008). A widening gap: Republican and Democratic views on climate change. *Environment*, 50(5), 26–35.
- Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51–58.
- Fahad, S., & Wang, J. (2020). Climate change, vulnerability, and adaptation in Pakistan. *Land Use Policy*, 97, 104–117.
- Farbotko, C., & Lazrus, H. (2012). The first climate refugees? *Global Environmental Change*, 22(2), 382–390.
- Germanwatch. (2021). *Global Climate Risk Index*.
- Government of Pakistan. (2021). *National Climate Change Policy*.
- Happer, C., & Philo, G. (2013). The role of the media in the construction of public belief and social change. *Journal of Social and Political Psychology*, 1(1), 321–336.
- Höijer, B. (2010). Emotional anchoring and objectification in the media reporting on climate change. *Public Understanding of Science*, 19(6), 717–731.
- Hussain, T., & Rehman, A. (2021). Climate narratives in Pakistani newspapers. *Journal of Media Studies*, 35(1), 77–94.
- Intergovernmental Panel on Climate Change (IPCC). (2018). *Global warming of 1.5°C*.
- IPCC. (2023). *Sixth Assessment Report*.
- Jaspal, R., Nerlich, B., & Koteyko, N. (2013). Contesting science by appealing to its norms. *Public Understanding of Science*, 22(7), 797–812.
- Kasperson, R. E., Renn, O., Slovic, P., Brown, H. S., Emel, J., Goble, R., Kasperson, J. X., & Ratick, S. (1988). *The social amplification of risk: A conceptual framework*. *Risk Analysis*, 8(2), 177–187. <https://doi.org/10.1111/j.1539-6924.1988.tb01168.x>
- Khan, M., Ali, S., & Amin, F. (2021). Media exposure and climate awareness in Pakistan. *Asian Journal of Communication*, 31(3), 215–231.
- Lee, T. M., et al. (2015). Predictors of public climate awareness. *Nature Climate Change*, 5(11), 1014–1020.
- Leiserowitz, A. A. (2006). Climate change risk perception and policy preferences. *Climatic Change*, 77(1), 45–72.
- Leiserowitz, A. A., Maibach, E. W., Roser-Renouf, C., & Smith, N. (2006). Climate change risk perception and policy preferences: The role of affect, imagery, and values. *Climatic Change*, 77(1-2), 45–72.
- McCombs, M. E., & Shaw, D. L. (1972). Agenda-setting function of mass media. *Public Opinion Quarterly*, 36(2), 176–187.
- Moser, S. C. (2010). Communicating climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 1(1), 31–53.
- Moser, S. C., & Dilling, L. (2007). *Creating a climate for change*. Cambridge University Press.
- Nawaz, R., & Hassan, S. (2020). Climate change awareness and environmental behavior in Pakistan. *Pakistan Journal of Social Sciences*, 40(3), 1439–1452.

- Nisar, H., & Iqbal, Z. (2019). Environmental journalism in Pakistan. *Pakistan Journal of Communication*, 4(1), 23–38.
- Nisbet, M. C. (2009). Communicating climate change: Why frames matter. *Environment*, 51(2), 12–23.
- Olausson, U. (2009). Global warming–global responsibility? *Environmental Communication*, 3(4), 421–437.
- Painter, J. (2013). *Climate change in the media*. I.B. Tauris.
- Raza, S., Ahmed, M., & Ali, K. (2020). Framing climate change in Pakistani media. *Environmental Communication*, 14(3), 321–336.
- Schäfer, M. S., Ivanova, A., & Schmidt, A. (2014). What drives media attention for climate change? *Environmental Communication*, 8(2), 152–176.
- Scheufele, D. A., & Tewksbury, D. (2007). Framing, agenda setting, and priming: The evolution of three media effects models. *Journal of Communication*, 57(1), 9–20.
- Shahzad, F., Khan, M., & Amin, S. (2022). Media exposure and climate awareness. *Asian Journal of Communication*, 32(4), 389–405.
- Shanahan, M. (2009). Time to adapt? Media coverage of climate change in developing countries. *IDS Bulletin*, 40(3), 50–58.
- Shehata, A., & Hopmann, D. N. (2012). Framing climate change. *Journalism Studies*, 13(2), 175–192.
- UNDP. (2020). *Climate change adaptation in Pakistan*.
- UNEP. (2019). *Global environment outlook*.
- Wanta, W., & Hu, Y. W. (1994). The effects of agenda-setting on readers' opinions and recall. *Journalism & Mass Communication Quarterly*, 71(4), 902–914.