

# Mass Media and Public Awareness of Air Pollution in Afghanistan: A Review Study

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## ABSTRACT

This study examines the role of mass media in shaping environmental awareness regarding air pollution in Afghanistan, where poor air quality poses a severe threat to public health and the environment. Despite its urgency, existing research on public perception and media influence remains fragmented. Using a narrative literature review of 27 pertinent empirical studies published between 2010 and 2025 across databases such as Web of Science, Scopus, and Google Scholar, this paper synthesises regional and country-specific data on media framing and environmental communication. The findings indicate a growing research focus on media-driven environmental awareness in South and Central Asia. While mass media significantly heightens public awareness of air pollution crises, reporting tends to be episodic, focusing on immediate visibility rather than root structural causes. Furthermore, while traditional media remains dominant among broader demographics, social media has emerged as a crucial platform for youth engagement. Major limitations identified include a lack of integrated instructional approaches and minimal scientific depth in media coverage. Practically, these insights offer a framework for policymakers, media outlets, and educators to design coordinated communication strategies that promote protective behaviours and support future air quality regulations. This review provides the first systematic synthesis of regional research on this nexus, defining communication patterns and identifying critical gaps to advance environmental journalism in Afghanistan.

**Keywords:** Air pollution, Mass media, Public Awareness, Environmental communication, Afghanistan, Media framing, Climate awareness.

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## 1. INTRODUCTION

Air pollution is one of the most urgent environmental and public health issues worldwide, increasingly harming nations with rapid urbanisation and poor environmental governance (Hahad, 2024; Waseq, 2020). Air pollution is the buildup of dangerous compounds in the atmosphere, especially particulate matter (PM<sub>2.5</sub>), carbon monoxide, nitrogen oxides, sulfur dioxide, and other toxic emissions that change air quality and endanger human health (Rahmani et al., 2021). These pollutants come from several sources, including improper waste disposal, vehicle emissions, burning coal and wood for heating, and industrial operations (Hahad, 2024). Despite air pollution being a chemical and scientific reality, public awareness, attitudes, and group behaviour, all of which are impacted by how environmental issues are portrayed in the media, significantly impact how people respond to it (Abdi, 2015; Abdolmaleki & Sarukhani, 2016).

In environmental communication, mass media serves as a tool for shaping public opinion, environmental values, and behavioural responses, in addition to conveying information (K. Ahmed, 2022; Al-Masri et al., 2023). Media coverage can convey risk, emphasise scientific facts, and portray pollution as a social problem that requires immediate attention (Bonds, 2016; Butt, 2024). The media is the public's main source of environmental information, particularly in societies with low levels of environmental education

(Hua & Marsuki, 2014; Mamun et al., 2012). The media is crucial for spreading awareness of the causes and effects of air pollution and encouraging participation and shared responsibility in solving environmental issues (Abdi, 2015).

Despite the media's acknowledged ability to raise environmental awareness, several studies show that coverage of air pollution is often sporadic, episodic, and shallow (Aslam et al., 2025; Hussain et al., 2025). The public may not fully comprehend the long-term health and environmental consequences of pollution because media narratives may portray it as a transient catastrophe rather than a persistent structural issue (Aslam et al., 2025; Bonds, 2016). At the same time, new communication platforms, particularly social media, have enabled youth participation and participatory environmental discourse (Ahmed et al., 2025; Chandio et al., 2025). People engage with multimedia content that shapes their awareness and emotional reactions to environmental concerns, and they increasingly use digital media to learn about climate-related hazards (Neelima, 2022; Upadhyaya et al., 2023).

Air pollution has become a major environmental problem in Afghanistan, particularly in urban areas such as Kabul, where winters are characterised by the widespread use of inferior fuels for cooking and heating, leading to respiratory ailments and visible smog (Maihanyar & Sakhawati, 2024; Waseq, 2020). However, environmental information often spreads through mass communication channels rather than formal educational institutions, and public scientific literacy about air pollution is typically low (Rahmani et al., 2021; Sidiq, 2022). Consequently, the media landscape in Afghanistan, dominated by radio, television, and rapidly expanding social media, plays a crucial role in influencing public awareness of health hazards, pollution sources, and mitigation responsibilities (Maihanyar & Sakhawati, 2024; Zia et al., 2024). Identifying environmental awareness gaps and developing effective public engagement tactics requires understanding how Afghan media portray these topics.

In light of these factors, this review synthesises previous research. It identifies key trends in media communication techniques to examine how mass media help raise public awareness of air pollution in Afghanistan. The focus on Afghanistan is motivated by the pressing need for effective environmental communication in a context of weak environmental governance and a population that often relies on the media as its primary source of environmental knowledge (Sadat et al., 2024; Sidiq, 2022). Thus, the following research questions are addressed in this study:

1. How does the media inform the public about air pollution issues?
2. Which media outlets have the biggest impact on increasing public awareness of air pollution in Afghanistan?
3. What communication techniques do the media employ to influence the public's perception of the dangers of air pollution?
4. How do public attitudes and actions toward air pollution change as a result of the media's framing?
5. What obstacles and deficiencies are present in Afghanistan's media coverage of air pollution?

## 1. METHODOLOGY

Two systematic methods were used to identify relevant research published up to June 2025 and provide a thorough review of the existing literature. The steps for finding and choosing research articles on mass media and public awareness of air pollution are described below.

First, academic search engines and digital databases, such as Google Scholar, Web of Science, Scopus, ScienceDirect, SAGE Journals, Taylor & Francis Online, Emerald Insight, and SpringerLink, were utilised to conduct a targeted examination of the pertinent empirical literature. These scholarly sources provided peer-reviewed journal articles and conference proceedings for the literature review. The selected studies were empirical, meaning field data, systematic research, or observable facts formed the basis of their conclusions. The research problem was defined, the relevant literature was reviewed, the technique was explained, and the authors' findings and conclusions were reported in journal papers that adhered to standard research formats.

The literature search used combinations of the following keywords: "mass media," "air pollution awareness," "environmental communication," "public perception," "Afghanistan," "media framing," "environmental behaviour," "review," and "public health communication." Using quotation marks around specific phrases in the published literature produced more accurate results. Studies published between

2010 and 2025 were selected to capture recent research trends, focusing on the past ten years because digital media and environmental communication research has proliferated rapidly.

Second, a manual reference search identified other pertinent studies cited in the previously selected papers. This reference tracking included academic literature on media coverage of environmental issues, public awareness of air pollution, environmental perception studies in Afghanistan and surrounding regions, and cross-national studies on climate change communication.

To guarantee the quality and applicability of the sources included in this study, the following exclusion criteria were applied:

1. Research that was either not directly related to air pollution or did not prioritise public awareness or the media was excluded.
2. Studies that only looked at chemical emissions or technical atmospheric science without considering issues of awareness or communication.
3. Non-empirical studies, such as non-research reports and opinion pieces.
4. Works of literature written in languages other than English were also included to keep the analysis consistent.

With a special focus on Afghanistan's sociocultural setting and media environment, this review offers a cogent understanding of how mass media communication affects public awareness of air pollution by employing these methodical techniques.

The reviewed literature highlights a growing body of research examining how mass media shapes public awareness of air pollution across different contexts. To provide a structured overview, Table 1 summarises key studies, including their research focus, methods, media channels examined, and major findings. As shown in the table, previous research consistently emphasises the central role of television, radio, and digital platforms in informing the public about pollution sources, health impacts, and protective behaviours. The table also shows variation in communication strategies across studies, ranging from risk-framing techniques to public engagement approaches. This synthesised overview situates the current study within the broader field and identifies key gaps in understanding media influence on environmental awareness in Afghanistan.

Using quotation marks (") helps the researchers find the specific phrases in the literature. In addition, the following exclusion criteria were established: First, the study did not state a computer-based model as the purpose, or at least as one of its purposes. Second, studies that focused on just models. Third, studies not based on empirical research and not in English.

## 1. RESULTS

The reviewed studies show notable consistencies in how mass media contributes to public awareness of air pollution across different settings. To present these findings clearly and in an organised way, Table 1 provides a comparative summary of the selected literature, outlining each study's authorship, research title, geographic or social context, primary focus, and the media types examined. As the table shows, much of the existing research emphasises the role of television, radio, and increasingly digital platforms in shaping public understanding of pollution sources, associated health risks, and protective behaviours. The diversity in study contexts and thematic focuses also highlights variations in communication approaches, ranging from risk framing to public engagement strategies. This structured overview forms the basis for the thematic results discussed in the following sections and situates the current study's analysis within the broader field of environmental communication.

**Table 1**

*Summary of Studies on Mass Media and Public Awareness of Air Pollution*

| Authors                        | Title                                                                                 | Context | Focus                           | Media Type        |
|--------------------------------|---------------------------------------------------------------------------------------|---------|---------------------------------|-------------------|
| Abdi (2015)                    | The Role and Function of Mass Media on Environmental Issues                           | Iran    | Environmental awareness & media | Television, Radio |
| Abdolmaleki & Sarukhani (2016) | Sociological study of the mass media role in environmental sociability of adolescents | Tehran  | Youth environmental awareness   | National TV       |

| Authors                       | Title                                                              | Context            | Focus                            | Media Type        |
|-------------------------------|--------------------------------------------------------------------|--------------------|----------------------------------|-------------------|
| Ahmed (2022)                  | Role of media in creating awareness with respect to climate change | Pakistan           | Climate change awareness         | News, TV          |
| Ahmed et al. (2025).          | Awareness of climate change through social media platforms         | Pakistan           | Youth awareness                  | Social media      |
| Al-Masri et al. (2023).       | Public perceptions: environmental challenges                       | Saudi Arabia       | Environmental responsibility     | Online media      |
| Aslam & Farheen (2023).       | Youth perception on climate change                                 | Islamabad          | Health impacts of climate change | Social media      |
| Aslam et al. (2025).          | Constructing the pollution problem: Media frames                   | Pakistan           | Media framing of pollution       | National media    |
| Bonds (2016)                  | Environmental injustices of war & media silence                    | Iraq & Afghanistan | Toxic pollution framing          | News silence      |
| Butt (2024)                   | Traditional media coverage on climate change                       | Pakistan           | Climate science communication    | TV                |
| Chandio et al. (2025).        | Social media & climate change awareness                            | Sindh, Pakistan    | Media literacy & climate         | Social media      |
| Farsi et al. (2025).          | Environmental coverage on local TV channels                        | Lahore             | Thematic analysis                | Television        |
| Hahad (2024)                  | Burden of disease due to air pollution                             | Afghanistan        | Health outcomes of air pollution | Research media    |
| Harun et al. (2011).          | Environmental knowledge among students                             | Sabah, Malaysia    | Environmental education          | Educational media |
| Hua & Marsuki (2014).         | Public perception towards environmental awareness                  | Malaysia           | River pollution awareness        | Mixed media       |
| Hussain et al. (2025).        | Episodic vs thematic framing of pollution                          | Pakistan           | Media framing                    | News              |
| Linus (2022)                  | Broadcast media shaping audience attitudes                         | Nigeria            | Environmental sanitation         | Broadcast TV      |
| Maihanyar & Sakhawati (2024). | Television's role in environmental awareness                       | Afghanistan        | Air pollution awareness          | TV                |

| Authors                  | Title                                            | Context     | Focus                 | Media Type            |
|--------------------------|--------------------------------------------------|-------------|-----------------------|-----------------------|
| Mamun et al. (2012).     | Perception of environmental awareness            | Bangladesh  | Public perception     | Mixed media           |
| Othman (2022)            | Media shaping environmental awareness in Yemen   | Yemen       | Social perception     | Media                 |
| Rahmani et al. (2021).   | Public awareness in environmental protection     | Afghanistan | Public awareness      | Local media           |
| Rehman et al. (2021).    | Knowledge and attitude of students               | Pakistan    | Environmental issues  | Educational campaigns |
| Sadat et al. (2024).     | Effective media tools for climate awareness      | Afghanistan | Climate awareness     | TV/Radio              |
| Safdar & Butt (2024).    | Public perception: traditional media coverage    | Pakistan    | Climate perception    | TV                    |
| Sidiq (2022)             | Function of mass communication in Afghanistan    | Afghanistan | Public development    | National media        |
| Upadhyaya et al. (2023). | Awareness, media, and mitigation actions         | India       | Climate mitigation    | Digital media         |
| Waseq (2020).            | Impact of air pollution in Kabul                 | Afghanistan | Environmental impacts | Research reports      |
| Zia et al. (2024).       | Climate change awareness among young media users | Afghanistan | Youth awareness       | Social media          |

**3.1. Mass Media Tools for Promoting Air Pollution Awareness**

According to Abdi (2015) and Ahmed (2022), mass media provides an open, dynamic communication environment that links scientific information about environmental threats to public awareness and action. Modern media tools, unlike traditional textual information, offer visual, narrative, and interactive affordances that go beyond static representations and help viewers understand the causal relationships between pollution sources, environmental conditions, and health outcomes (Aslam et al., 2025).

A wide range of media channels currently communicate air pollution challenges worldwide, including television broadcasts, radio programs, newspapers, digital news portals, and increasingly social media platforms such as Facebook, YouTube, Instagram, and TikTok (Ahmed et al., 2025; Chandio et al., 2025). Television remains the most accessible medium in many developing nations, especially for communities with low literacy rates. This allows for explaining complicated environmental ideas through expert interviews and visual storytelling (Maihanyar & Sakhawati, 2024).

Infographics, short films, animated simulations of pollution processes, and real-time air quality maps are just a few ways social media platforms let people engage with multimedia material and try out different depictions of environmental issues (Neelima, 2022; Upadhyaya et al., 2023). User-generated material is now a key component of awareness campaigns in countries such as Pakistan and Iran,

where local stories and grassroots projects are extensively disseminated via hashtags and community sites (Butt, 2024; Farsi et al., 2025).

In areas with limited digital connectivity, radio remains a significant mass medium. Radio broadcasts on environmental issues can reach listeners without access to formal environmental education, as shown in studies in Yemen and Afghanistan (Othman, 2022; Sidiq, 2022). Therefore, traditional media remains crucial for communicating environmental awareness, even as digital media offers interactive learning environments.

### 3.2. Public Engagement Through Media Interaction

Earlier studies on environmental communication suggest two key ideas. First, pre-existing views, cultural values, and past exposure to environmental issues influence how the public interacts with environmental media (Abdolmaleki & Sarukhani, 2016; Hua & Marsuki, 2014). Second, active engagement with media information can promote civic engagement, community discourse, and behavioural change while deepening understanding of environmental issues (Al-Masri et al., 2023; Rahmani et al., 2021).

Environmental communication studies often understand public involvement as a dialogue between media creators and viewers. Through media framing and narratives, the public can discuss environmental issues, draw causal links between pollution and health, and better understand environmental threats (Aslam et al., 2025; Hussain et al., 2025).

According to Maihanyar and Sakhawati (2024), audiences are more likely to engage in environmental sense-making practices, such as questioning pollution sources, discussing risks with peers, and looking for mitigation strategies when they perceive media content as meaningful and connected to their everyday experiences, such as winter smog in Kabul.

On social media platforms in particular, people can voice local concerns, share pollution experiences, post images of smog, and offer advice on protective measures, such as wearing masks or using clean heating fuels (Zia et al., 2024). Research from Pakistan, India, and Kenya shows that when media discourse emphasises "how" and "why," viewers are more aware of environmental issues and are prompted to consider evidence, long-term effects, and causal links (Linus, 2022; Neelima & Reddy, 2014; Otinga, 2014).

### 3.3. Communication Approaches in Environmental Awareness Campaigns

Inquiry-driven messaging is a popular strategy in environmental communication that involves asking the audience probing questions regarding the origins of pollution and its effects on health (Sadat et al., 2024). According to Harun et al. (2011) and Mamun et al. (2012), this method enables individuals to form preliminary interpretations based on personal experience, which specialists then refine with scientific information.

International initiatives such as the UN's "Beat Air Pollution" use a phased communication strategy that includes raising awareness, gathering public input, presenting case studies, and promoting evidence-based environmental solutions (Butt, 2024; Safdar & Butt, 2024). Local media in Afghanistan often draw attention to pollution by airing images of black smoke, interviewing medical professionals about respiratory conditions, and covering winter air quality (Maihanyar & Sakhawati, 2024).

By simplifying complex information, offering frameworks for public interpretation, and providing practical suggestions, such as avoiding burning plastic waste or switching to cleaner fuels, educational programs broadcast on radio and television can promote environmental literacy (Rehman et al., 2021).

To influence individual behaviour, social media-based campaigns use emotive storylines, visual proof, and community endorsements (Ahmed et al., 2025; Chandio et al., 2025). This strategy encourages people to adopt sustainable practices by framing environmental action as a community duty.

### 3.4. Assessment of Public Awareness in Media-Driven Campaigns

Rather than focusing on obvious physical characteristics, measuring public awareness of air pollution is complex and requires evaluating knowledge, attitudes, risk perception, and behavioural intentions (Abdi, 2015; Rahmani et al., 2021). Environmental awareness reflects internal cognitive processes such as attention, memory, and decision-making, which researchers must infer from surveys, interviews, or

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participation metrics, rather than from laboratory measures of pollutants (Harun et al., 2011; Mamun et al., 2012).

Environmental communication research frequently uses surveys to evaluate public knowledge, readiness to adopt mitigation actions, and trust in the media (Al-Masri et al., 2023). To assess campaign success across digital platforms, digital analytics systems can monitor engagement metrics such as shares, comments, video views, and hashtag usage (Upadhyaya et al., 2023).

Awareness studies in Afghanistan have highlighted the role of local knowledge and community networks in shaping public reactions, using case studies from regional contexts such as Environmental NGOs in Paktika and Jalalabad (Rahmani et al., 2021; Zia et al., 2024). Tracking shifts in the public's sense of danger over time can help determine whether media narratives support long-term environmental literacy rather than transient emotional responses.

### 3.5. Challenges in Media Coverage of Air Pollution

Although mass media can raise public awareness of air pollution, several issues constrain its effectiveness in developing nations. The episodic nature of environmental reporting, where media coverage increases during obvious pollution emergencies (such as winter smog) but decreases when conditions improve, is a significant obstacle (Aslam et al., 2025; Hussain et al., 2025).

Another issue is the lack of environmental science training among journalists, which can lead to cursory reporting that emphasises pollution symptoms rather than its structural causes (Farsi et al., 2025; Maihanyar & Sakhawati, 2024). Afghanistan's traditional media may lack the resources to produce in-depth reporting or publish lengthy articles that clarify complex scientific concepts (Sidiq, 2022).

Furthermore, limited access to communication technology, particularly in rural areas, hampers the reach of environmental campaigns (Othman, 2022). Environmental messaging may also be limited by low literacy rates and economic constraints (Bonds, 2016; Rahmani et al., 2021).

Lastly, in contexts affected by prolonged uncertainty, people often seek information from a variety of sources. In such situations, social networks may play a significant role in how environmental information is shared and discussed (Sadat et al., 2024; Zia et al., 2024). This diversity of sources can make it harder to coordinate collective environmental initiatives and develop standardised approaches to environmental education.

## 4. DISCUSSION

By combining regional and international research on environmental communication, media framing, and public perception, this review examines how mass media in Afghanistan raise public awareness of air pollution. The results indicate that the media plays an important role in shaping environmental knowledge, but its effects vary widely depending on institutional capacity, political climate, sociocultural context, and technological availability. This section highlights the consequences, contextual realities, and limitations of existing research, explores the findings from theoretical perspectives, and contrasts Afghan patterns with worldwide experiences.

### 4.1 Connecting Findings with Theoretical Frameworks

The knowledge-attitude-behaviour (KAB) model of environmental awareness, agenda-setting, and framing theory are the three main theoretical frameworks used to interpret the results.

According to agenda-setting theory, the media tells individuals what to think about rather than what to think. This research found strong evidence that Afghan and regional media focus on air pollution during obvious emergencies, such as winter haze, large fires, or industrial accidents, but cover structural reasons, such as waste management, transportation policy, or energy systems, less frequently. Similar trends have been observed in Nigeria (Linus, 2022) and Pakistan (Aslam et al., 2025; Hussain et al., 2025), where episodic coverage fosters temporary worry rather than long-term public knowledge. As a result, agenda-setting impacts are limited because media attention in Afghanistan primarily reflects short-term visibility rather than long-term environmental risks.

Framing theory explains how the media creates meaning around environmental issues. Research shows that Afghan media often portray air pollution as a seasonal health issue, emphasising visible smoke, hospital admissions, coughing, and haze (Maihanyar & Sakhawati, 2024). This framing heightens

emotional reactions but reduces deeper understanding of pollution sources, such as unregulated brick kilns, diesel generators, and low-grade fuel. In contrast, research from Bangladesh and Malaysia shows that audiences report higher levels of environmental knowledge and pro-environmental action when media frameworks highlight systemic causes and collective responsibility (Hua & Marsuki, 2014; Mamun et al., 2012). Therefore, whether awareness results in action depends on how it is presented.

According to the KAB paradigm, public awareness develops from knowledge to attitudes to behaviour change. Because messages are often fragmented, transient, and not integrated into broader environmental education initiatives, this analysis concludes that Afghan media interventions are stronger in knowledge but weaker in shaping attitudes and driving behaviour change. Messages such as "wear masks in winter" or "air pollution is dangerous" may raise awareness of risks. However, they do not help with long-term remedies such as better home energy practices, recycling, or pressure for legislative change. Similar gaps have been found in Pakistan and Yemen, where a lack of educational continuity limits awareness's capacity to promote societal change (Othman, 2022; Safdar & Butt, 2024).

Taken together, these theoretical frameworks indicate that while media in Afghanistan increases awareness, it has not yet produced long-term environmental understanding or systemic action.

## **4.2 Comparison with Regional and Global Findings**

### **4.2.1 Similarities with Regional Context**

Afghanistan and several regional countries, such as Pakistan, Iran, Bangladesh, and Yemen, share many similarities, including a heavy reliance on radio and television, a rapid rise in social media among young people, a lack of formal environmental education, weak capacity for environmental governance, and episodic media coverage. Local TV channels influence public opinion on air pollution in Pakistan, India, and Iran, but they rarely offer practical remedies (Butt, 2024; Farsi et al., 2025). Similarly, Afghan TV often features visuals and expert interviews on pollution in Kabul during winter but pays little attention to systemic causes or rural areas.

When combined with community initiatives, school interventions, or NGO activities, public awareness campaigns have raised environmental awareness in Bangladesh and Malaysia (Hua & Marsuki, 2014; Mamun et al., 2012). Afghanistan lacks such integration because environmental initiatives are not routinely linked to civil society, schools, or local planning.

### **4.2.2 Differences from Global Experiences**

Afghanistan's environment differs from global counterparts, particularly in Europe, Japan, and North America.

- restricted access to environmental data
- Inadequate scientific literacy among the general public
- media instability caused by political circumstances
- a lack of investigative environmental journalism
- a restricted regulatory policy environment

In Japan, public policy discussions, data visualisations, and scientific explanations of air pollution appear in media campaigns that educate the public about the connection between emissions and policy change. Afghan media coverage, by contrast, remains largely descriptive and focuses on visible pollution rather than systemic causes or legislative solutions.

Additionally, international studies suggest social media activism can inspire community action (Neelima, 2022; Upadhyaya et al., 2023). Afghan youth use social media frequently, but without organised citizen movements, environmental activism is largely limited to raising awareness and disseminating information.

## **4.3 Implications for Environmental Communication and Public Awareness**

### **4.3.1 Implications for Media Organisations**

These results imply that theme framing, rather than episodic reporting, can help Afghan media have a more transformative impact. Media outlets could:

- use data visualisations and infographics for public education
- highlight the scientific explanations of air pollution processes
- show connections between fuel types, energy systems, and emissions
- Include cost-health impact comparisons
- Include environmental experts in talk shows and news panels.

These methods are frequently used in international environmental journalism and can progressively increase public awareness.

#### 4.3.2 Implications for Government and Policy

Policy acceptance depends on public awareness. Global experience, for instance, shows that regulations such as fuel standards, emission standards, or the expansion of public transportation are effective only when people understand their necessity. The media will play a crucial role in fostering acceptance if future administrations in Afghanistan pursue air quality regulation. The public may become more educated if environmental communication is integrated with health reporting, educational initiatives and municipal planning.

#### 4.3.3 Implications for Civil Society and NGOs

NGOs can use media to raise awareness and integrate field actions with communication. Health-focused messaging might encourage households to use better stoves, minimise the plastic they burn, or improve ventilation, especially during winter. Previous experiences in Malaysia and Pakistan show that local campaigns work best when they offer concrete, doable solutions rather than theoretical cautions.

#### 4.3.4 Implications for Education and Youth

Youth are the most promising demographic for environmental change. Research indicates that media-based environmental education is highly responsive to university students in Bangladesh and Pakistan (Ahmed et al., 2025; Rehman et al., 2021). In Afghanistan, incorporating environmental messages into student groups, digital learning, and community projects can increase awareness and participation.

#### 4.4 Contextual Insights: Why Afghanistan is Unique

Four contextual elements influence Afghanistan's environmental communication landscape:

1. Institutional and media environment: Economic conditions, resource availability, and development priorities affect the extent to which environmental issues are covered in national media.
2. Energy Poverty and Household Fuel Use: Due to a lack of options, many Afghan families rely on coal, plastic, and wood for fuel. Public awareness of greener alternatives is low, and pollution is seen as an essential by-product of life, which discourages lifestyle changes.
3. Trust in Local Knowledge Systems: Compared to official institutions, people tend to trust family networks, religious leaders, and local personalities. Therefore, how strongly local authorities and cultural norms reinforce these messages may determine the impact of mass media.
4. Limited Data Infrastructure: The media's capacity to convey real-time data is hampered by the lack of dependable air quality monitoring equipment, which makes pollution appear abstract until it is obviously severe.

These criteria suggest that media operations in Afghanistan need to be localised, interactive, and culturally appropriate, rather than relying solely on global communication methods.

#### 4.5 Limitations of Current Research

Although this analysis offers valuable insights, current research has several limitations.

- Generalizability is limited because there is insufficient peer-reviewed research on air pollution awareness in Afghan environments.
- Limited information on behaviour modification: Most studies concentrate on perception and knowledge, with few assessing whether awareness results in action.
- Limitations of regional analogies: Although comparisons with countries such as Yemen, Bangladesh, and Pakistan can provide useful context, they may not fully reflect Afghanistan's unique cultural and institutional characteristics.
- Language bias: Only English-language sources were included in the review; local Pashto and Persian media studies were not fully incorporated.
- Short-term focus: Rather than measuring awareness over time, many studies do so during particular campaigns. Longitudinal research is required to confirm this.
- These drawbacks highlight the need for additional empirical research based in Afghanistan, particularly using mixed-methods approaches that assess knowledge, attitudes, and actual behaviour.

### 5. CONCLUSION

In recent years, scholarly attention to the role of media in shaping public understanding of environmental challenges has increased, particularly in developing contexts. This review demonstrates that in Afghanistan, television, radio, print journalism, and social media platforms collectively mediate how

people learn about air pollution. Across the literature, these outlets provide the public with information about the sources, health implications, and seasonal patterns of pollution, often using expert interviews, illustrative visuals, and narrative framing to communicate risk. These techniques play an important role in shaping how audiences interpret the severity and causes of air pollution and in influencing how strongly individuals perceive the issue as requiring action.

The evidence shows that traditional media—especially television and radio—still exerts the strongest influence on public awareness because of its accessibility and wide reach. At the same time, digital platforms have rapidly become important spaces where younger audiences encounter environmental content, discuss pollution risks, and share personal observations. Through these combined channels, the media not only disseminates information but also frames environmental issues in ways that encourage people to seek further knowledge, participate in public discussions, and occasionally adopt short-term protective behaviours.

However, the review also highlights several limitations that affect the overall effectiveness of environmental communication in Afghanistan. Media coverage tends to be episodic and concentrated during periods of visible winter pollution, making long-term structural and environmental issues less prominent in public discourse. Limited access to scientific data and a shortage of specialised environmental journalists further constrain reporting depth and consistency, reducing media outlets' capacity to provide continuous, evidence-based explanations. As a result, while media exposure can raise awareness and shape initial attitudes, it does not consistently translate into sustained behavioural change or broad community engagement.

Despite these challenges, the findings illustrate that the media retains significant potential to support environmental awareness in Afghanistan. Strengthening cooperation among media organisations, public institutions, and civil society can enhance the quality and continuity of environmental messaging. Integrating scientific information with culturally relevant communication strategies and embedding environmental topics within broader educational efforts may help transform awareness into long-term, collective action. Ultimately, a more coordinated, context-sensitive approach to environmental communication can support informed public dialogue and foster community-driven efforts to address air pollution.

### 5.1 Future Directions for Research

The review's conclusions suggest several avenues for further investigation. Future research should focus on the relative efficacy of various media channels, including radio, television, and social media, in affecting public attitudes, behaviour, and understanding of air pollution. Identifying the best channels for environmental communication in Afghanistan requires understanding how each medium reaches different demographics.

Second, future studies should examine how Afghan media frames environmental messaging, including the role of local narratives, the use of thematic vs episodic reporting, and the presence of scientific explanations. This research may shed light on how framing tactics influence how the public perceives and reacts to the dangers of air pollution. Another aspect is examining how regional cultural values, customs, and language usage affect the reception of environmental messages.

Third, more empirical research is needed on the relationship between media communication and formal and informal educational institutions. To support long-term behavioural change, researchers should examine how to integrate media-based environmental awareness into community learning, youth programs, and school curricula. Future studies should include diverse groups, including women, young people, rural populations, and socially vulnerable areas, to understand better variations in media participation, access, and trust.

Lastly, future research should integrate information from public health, environmental monitoring, and social behaviour studies with media analysis because Afghanistan lacks environmental data. Multidisciplinary methods can determine how public awareness translates into useful mitigation measures and how media coverage aligns with real air quality trends and health effects. Investigating these aspects will yield a more thorough understanding of the connection between media, consciousness, and environmental action.

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