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ROLE OF MEDIA IN RAISING ENVIRONMENTAL AWARENESS IN PAKISTAN: A SYSTEMATIC LITERATURE REVIEW

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Abstract
Pakistani media can raise environmental awareness, but the studies reviewed here show that awareness rarely turns into action. This article reviews 15 studies on the role of media in raising environmental awareness in Pakistan, published between 2019 and 2026. The studies were found by searching Google Scholar and similar sources, and were screened for Pakistan focus, media focus and full-text availability. The findings were grouped into themes using narrative synthesis. Four themes emerged. First, social media is the main source of environmental information for young people, ahead of television, radio and newspapers. Second, traditional media coverage is event-driven, urban-centered and limited in depth. Third, most youth studies report a gap between awareness and action. Fourth, several studies point to barriers such as misinformation, weak journalist training and the lack of regional-language content. More than half of the studies used student or youth samples and most were cross-sectional surveys, so the evidence is strong on urban youth and thin on rural audiences. The article suggests that environmental communication in Pakistan should be regular rather than crisis-driven, should reach rural and regional-language audiences, and should give people clear steps to act on.

1. INTRODUCTION

Environmental challenges are now among the most pressing problems in Pakistan. The country faces heat waves, floods, smog, water scarcity and deforestation. Pakistan contributes only about 0.3% of global emissions (Siddiqui et al., 2023), but it suffers heavily from climate risks. In recent years, Lahore has been ranked among the most polluted cities in the world (Siddiqui et al., 2023), and in the 2018 Environmental Performance Index Pakistan came 169th (Mirza et al., 2020). These problems cannot be addressed without public awareness and action.

Awareness supports action. People tend to change their behavior only when they realize that there is a problem and that it matters (Malik et al., 2023). Here the media can play a role: they can raise public awareness, stimulate debate and shift people's thinking on an issue (Asif et al., 2024). In Pakistan, the media landscape is also changing fast. About 64% of the population is under 30 (Malik et al., 2023),

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and more and more young people turn to the internet for information. It is therefore important to ask which media reach people on environmental issues and what impact they have.

Media coverage of environmental issues has also increased. Asif et al. (2024), citing Ejaz et al. (2023), report that print coverage of climate change in Pakistan rose from almost nothing to around 146 stories a month. However, Asif et al. (2024) point out that more stories do not necessarily raise awareness. Whether a message resonates depends on who delivers it, who hears it, the context and the medium. When we think about the role of media, we should therefore consider what kind of message appeared, in which medium and for which audience, and not only how many stories were published.

In recent years, a number of studies in Pakistan have looked at this question, but they have tended to focus on different audiences, media and issues. Some have studied newspaper editorials on smog (Javed et al., 2023). Others have asked students about their use of social media (Abubakar et al., 2025; Ali et al., 2026). Others have looked at rural attitudes to smog (Haider et al., 2026) and water scarcity (Riaz, 2022). Among the papers we collected, the only earlier review is that of Asif et al. (2024), which examined 23 studies of news coverage of climate change published between 2009 and 2023. It did not consider what audiences do in response to this coverage, nor did it consider social media. A review that brings these strands together is therefore useful.

In this article, we review 15 studies on the role of media in environmental awareness in Pakistan. Three questions guide the review:

- RQ1: What role have different types of media played in raising environmental awareness in Pakistan?
- RQ2: What do the studies show about the link between media exposure, awareness and action?
- RQ3: What gaps and barriers limit the role of media?

2. Methodology

This is a systematic literature review with a narrative synthesis. To identify relevant studies, we used the key elements of the PRISMA approach (search, screening, eligibility and inclusion) in a simple form. We did not carry out a meta-analysis because the studies differ too much in their focus and outcome measures.

2.1 Search strategy

In October 2026, we searched Google Scholar using combinations of the following terms: role of media, climate change awareness, environmental awareness, social media, smog, environmental journalism and Pakistan. Where possible, we obtained full texts from journal websites and open repositories.

2.2 Eligibility criteria

To be included, a study had to meet all four of the following conditions:

- be set in Pakistan or concern Pakistani media or audiences;
- consider the role of media (e.g., newspapers, television, radio, online or social media) in environmental awareness, perception, coverage or related behavior;
- be written in English and have a full text available; and
- be an empirical study or a review published in a journal or an open repository.

Studies were excluded if media was not one of their variables, if they were not set in Pakistan, or if they were opinion pieces without a media focus.

2.3 Screening and selection

We obtained 19 full-text papers. After reading them, we excluded four. The first was a survey of smog in Punjab that did not examine the media. The second was a survey of forestation awareness among

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prospective teachers, in which the media were also not explored. The third was an editorial in a health journal on smog in Lahore. The fourth was a paper on youth and social media that was not set in Pakistan. This left 15 studies for this review

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2.4 Data extraction and synthesis

For each study, we noted the authors and year, design, setting, sample or data, and the main findings about media. We did not formally judge the quality of the studies, but we noted weaknesses such as convenience samples and small sample sizes. We then read the findings across the studies and grouped them into themes by hand.

2.5 Reporting

This review used only published studies, so no new data were collected from people and no ethical approval was required. All figures and findings in this article come from the included studies, and each is credited to its authors. Where a study presented findings differently in its abstract and in its main text, we report only the findings common to both.

3. Results

The 15 included studies were published between 2019 and 2026. Twelve of them appeared in 2023 or later, so the body of work is expanding rapidly. Nine were quantitative surveys, two used mixed methods, one was a content analysis of newspaper editorials, and three were based on documents, concepts or earlier studies (a systematic review, a policy-focused analysis of secondary sources and a conceptual paper). Respondents in eight of the studies were young people or university students. Most studies were set in Punjab, often in Lahore. Only one focused on Khyber Pakhtunkhwa, and none named Sindh or Balochistan as its setting. Table 1 presents each study.

The studies cover a range of media and issues. Nine focused mainly on social or online media (Abubakar et al., 2025; Ahmed et al., 2025; Ali et al., 2026; Baber et al., 2025; Jawwad et al., 2025; Mirza et al., 2020; Ramzan et al., 2019; Safdar et al., 2026; Siddiqui et al., 2023), and three focused on news media (Asif et al., 2024; Haider et al., 2026; Javed et al., 2023). Malik et al. (2023) compared social media, newspapers, radio and television, while Riaz (2022) and Iqbal et al. (2023) looked at media more broadly. Seven studies addressed climate change, three addressed smog, one addressed water scarcity and four addressed the environment more broadly.

Table 1. Summary of the 15 included studies (oldest first)

#	Study	Design	Sample or data	Main finding about media
1	Ramzan et al. (2019)	Survey	187 college and university students, Sialkot	Social media users were significantly more aware of climate change than non-users.
2	Mirza et al. (2020)	Survey	223 students, Lahore	Online engagement was linked to offline pro-environment behavior and social capital, but only weakly and not significantly to awareness.
3	Riaz (2022)	Conceptual paper	Water scarcity, no primary data	Argues that media long ignored water scarcity and should now push awareness.
4	Javed et al. (2023)	Content analysis	41 editorials from Dawn and The News, 2016 to 2017	Smog was covered only during crisis; the Climate Change Act 2017 was not played up.

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#	Study	Design	Sample or data	Main finding about media
5	Malik et al. (2023)	Survey	476 university students, Islamabad	Social media influenced attitude and behavior; newspapers had no influence; television had little.
6	Siddiqui et al. (2023)	Survey	150 university students	82.4% got climate information from social media; 42.2% never followed smog precautions posted there.
7	Iqbal et al. (2023)	Survey	250 students, five universities in Faisalabad	59.6% agreed that social media increases environmental awareness; 33.2% commented on such posts.
8	Asif et al. (2024)	Systematic review	23 studies, 2009 to 2023	Mainstream news coverage of climate change was insufficient, event-based and shallow.
9	Ahmed et al. (2025)	Qualitative, secondary sources	Documents and reports, Khyber Pakhtunkhwa	Regional-language media had not systematically included climate themes.
10	Abubakar et al. (2025)	Survey	256 young social media users	Social media was rated effective for awareness (mean 4.14 of 5), but taking part in advocacy scored lowest (mean 2.76).
11	Baber et al. (2025)	Mixed methods	233 survey respondents plus interviews with influencers, policymakers and experts, Punjab	Climate content on social media raised awareness, and influencer engagement raised participation.
12	Jawwad et al. (2025)	Survey	100 university students, Lahore	Exposure to social media campaigns was not significantly linked to understanding or action.
13	Safdar et al. (2026)	Survey	287 social media users aged 16 and above, Rawalpindi and Islamabad	Exposure was linked to higher awareness, attitude change and concern about severity.
14	Ali et al. (2026)	Survey	800 university students, Punjab	Awareness was high (mean 4.02) but mobilization was low (mean 2.91); misinformation lowered mobilization.
15	Haider et al. (2026)	Mixed methods	40 news items plus 25 village residents, near Lahore	Media framed smog as an urban crisis; only 8% of residents felt adequately informed by media.

Survey sample sizes ranged from 100 students (Jawwad et al., 2025) to 800 students (Ali et al., 2026). Four of the surveys used random or systematic random sampling (Iqbal et al., 2023; Mirza et al., 2020; Ramzan et al., 2019; Siddiqui et al., 2023), and four used convenience sampling (Abubakar et al., 2025; Baber et al., 2025; Jawwad et al., 2025; Malik et al., 2023). Convenience samples are easier to collect, but they do not necessarily represent the wider population, so their findings should be treated with caution. The content-based studies were small in scale: Javed et al. (2023) analyzed 41 editorials and Haider et al. (2026) analyzed 40 news items.

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4. Thematic synthesis

The studies point to four themes, followed by a short note on differences between audiences. Themes 1 and 2 relate to RQ1, theme 3 relates to RQ2 and theme 4 relates to RQ3.

4.1 Social media is the main source of environmental information for young people

Across the surveys, young people in Pakistan tend to get their environmental information through social media. In the survey of students by Siddiqui et al. (2023), 82.4% said they got information about climate change through social media, against 12.6% through radio, television and newspapers. In another survey of 476 students, Malik et al. (2023) found that 81.7% preferred social media, 13.4% television, 2.9% radio and 1.7% newspapers. In the same study, students who used social media tended to have more pro-environmental attitudes and behavior, those who watched television news tended to have more knowledge, and newspaper reading showed no link with any of the three (Malik et al., 2023).

Other studies show similar patterns. Ramzan et al. (2019) found that social media users were more aware of climate change than non-users. Safdar et al. (2026) found that social media users aged 16 years and above who were exposed to climate content tended to show more concern about severity, more attitude change and more awareness, and awareness was the strongest of these effects. Baber et al. (2025) reported that climate content and influencers on social media raised awareness and participation in Punjab. Iqbal et al. (2023) found that 59.6% of students agreed that social media increases environmental awareness. In a survey of 256 young social media users, Abubakar et al. (2025) found that respondents rated social media as an effective way to raise awareness of climate change (mean rating 4.14 out of 5).

4.2 Traditional media coverage is event-driven, urban and thin

Studies of newspapers and television describe coverage that is shallow and driven by crises. Javed et al. (2023) found that the editorials of The News and Dawn discussed smog only when it was at its worst, and that the Pakistan Climate Change Act 2017 received little attention. In a wider review, Asif et al. (2024) found that, across 23 studies, climate change was under-covered in Pakistani mainstream news and was mostly reported in relation to events. They linked this to advertisers, owners, ratings, editorial priorities and limited knowledge of climate change among journalists. Riaz (2022) made a similar point about water scarcity, arguing that for decades both the government and the media ignored the growing problem, although more space has been given to it over time.

Coverage is also uneven by place. Haider et al. (2026) compared news stories about smog in Lahore with the views of residents of a nearby village. In the news, smog was portrayed as an urban crisis, and most stories focused on its severity (35%) and on government action (30%). The villagers, however, spoke about its effects on their crops, livestock, health and governance, and only 8% felt that the media had adequately explained smog and how to avoid it (Haider et al., 2026).

4.3 Awareness does not reliably turn into action

This is the most common finding across the studies of young people. Malik et al. (2023) found that educated young people had good knowledge of the environment, but their pro-environmental behavior was well below what might be expected. In a study of 800 students, Ali et al. (2026) found high awareness (mean 4.02) but low mobilization (mean 2.91). Abubakar et al. (2025) found that participation in social media campaigns scored lowest among their awareness and advocacy items. In the study of Siddiqui et al. (2023), only 25.7% of young people belonged to a social media climate campaign, and 42.2% never followed the smog precautions posted online. Taken together, these findings suggest that exposure to environmental content on social media tends to increase awareness more easily than action.

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The evidence is not fully consistent. Mirza et al. (2020) found that students' online engagement on environmental issues was linked with offline pro-environmental behavior and social capital, although its link with awareness was weaker. Baber et al. (2025) also reported a positive effect on participation. By contrast, Jawwad et al. (2025) found no significant link between exposure to social media campaigns and either understanding or behavior among 100 students in Lahore. They suggested that passive exposure may have only a superficial effect. In general, then, the evidence is stronger for awareness than for behavior.

4.4 Barriers: misinformation, weak capacity, language and rural reach

Several studies name barriers that limit what media can do. Ali et al. (2026) found moderate levels of environmental misinformation on social media. Misinformation was linked with lower mobilization, while information that was seen as credible was linked with higher mobilization. In the sample of Siddiqui et al. (2023), only 34.5% felt that climate information on social media was always accurate. On the supply side, Asif et al. (2024) pointed to limited climate knowledge among journalists and a gap between journalists and climate scientists, and Iqbal et al. (2023) called for more funding for environmental content and for training of journalists.

Ahmed et al. (2025) found that regional-language newspapers and television channels in Khyber Pakhtunkhwa had not yet included climate themes in a systematic way. Finally, Haider et al. (2026) showed that rural communities are poorly served by national media framing, and they recommended messages in local dialects and simple language.

4.5 Audience differences

A few studies checked whether the effect of media differs by type of audience, and the results are mixed. Malik et al. (2023) found no difference in knowledge between male and female students, but women tended to show a more pro-environmental attitude and behavior than men. Abubakar et al. (2025) found no significant difference in the awareness gained from social media by education level, and no significant link between gender and advocacy. Ramzan et al. (2019) reported that interest in climate change varied by education, gender and age. Differences by place appear in the news-based and rural studies: Haider et al. (2026) found that national media framing matched urban concerns better than village concerns.

Taken together, young, educated and urban audiences are well studied, but we know much less about how media work for older, rural and less educated groups.

5. Discussion

In this review, we found that media in Pakistan can raise awareness, but they less often lead people to act. This is consistent with the youth studies (Ali et al., 2026; Malik et al., 2023) and with the argument of Jawwad et al. (2025) that exposure alone is not enough. Two reasons may lie behind this. The first is the quality of the message. In the studies of traditional media, coverage was often tied to crises and focused on government and cities (Haider et al., 2026; Javed et al., 2023). Such messages may inform people without telling them what they can do. Some of the studies suggest that, in addition to alarming news, campaigns need to give clear steps and a regular presence (Haider et al., 2026; Javed et al., 2023).

The second reason is trust. Ali et al. (2026) and Siddiqui et al. (2023) found that many people question the accuracy of what they see online, and Ali et al. (2026) linked misinformation with lower mobilization. A channel that reaches young people but is not fully trusted may raise awareness without building commitment.

In the samples of young people, social media were used more than traditional media. We should be careful, however, not to overstate this point. Much of the evidence on the use of different media came

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from students, who tend to be young, educated and active online. Malik et al. (2023) found that newspaper use was unrelated to students' knowledge, attitude and behavior on the environment, but this does not mean that newspapers do not matter for other groups. The studies offer little evidence on the use of newspapers, television or radio by rural people, older people or regional-language audiences. The two studies that looked at these groups (Ahmed et al., 2025; Haider et al., 2026) both found gaps in what the media offered.

The theories used in some of the studies help to explain why the impact of media was limited. Javed et al. (2023) and Haider et al. (2026) drew on framing theory, which holds that media coverage stresses some parts of an issue and leaves out others. Haider et al. (2026) also applied the social amplification of risk framework, and their findings show that national media stressed severity and government action, while rural residents focused more on livestock, crops and health. Safdar et al. (2026) used framing and agenda setting to argue that social media can make climate change something people think about. Malik et al. (2023) applied a knowledge, attitude and practice model, which expects knowledge to support attitude and attitude to support practice. They found good knowledge but little practice. In our reading, this suggests that awareness-raising alone is not enough, and that campaigns should also help people move from knowing to doing.

The mixed picture in section 4.3 may also be due to the different ways in which studies measured exposure to media. Some asked how much time people spent on social media, whether they used social media at all, whether they engaged with environmental content, or whether they had heard of particular campaigns. Jawwad et al. (2025) pointed out that their measure of exposure was crude, as it could not separate people who only scrolled from those who shared content, and they suggested that this may have hidden real effects. In contrast, Mirza et al. (2020) looked at engagement with content on social media and found that it was associated with offline action. We think the kind of engagement people have with media matters more than the amount of exposure. Future studies should therefore measure exposure and engagement separately. Otherwise, findings cannot be compared across studies.

The evidence base is also limited. Most of the studies were cross-sectional surveys, often of students, and several used convenience samples, so they show associations rather than causes. Several authors noted limitations such as convenience samples, social desirability in self-reported answers and the use of a single study site. Only one of the included studies is an earlier review of media coverage of climate change (Asif et al., 2024), and it did not consider audience effects or social media. Environmental issues other than climate change and smog, such as water scarcity, are covered by few studies, and the only paper on water here is conceptual (Riaz, 2022). Finally, none of the studies was experimental or long-term, so none shows whether a particular campaign changes behavior over time.

Four practical points follow from these studies. First, social media is a key channel for young people, so campaigns aimed at them should be present there, and Baber et al. (2025) suggest that influencers can help. Second, online messages should be supported by offline activity. The studies that found a link with behavior looked at active engagement rather than only viewing (Mirza et al., 2020), and Ali et al. (2026) recommend interactive campaigns that encourage offline action. Third, messages need to be credible: they should name their source and be checked for accuracy (Ali et al., 2026). Fourth, traditional media can still play a role for people who are not online, but they should raise environmental issues regularly, use regional languages and include voices from rural areas (Ahmed et al., 2025; Haider et al., 2026). These points come from a small group of studies and should be tested in further research.

6. Conclusion

These lessons from 15 studies in Pakistan suggest that young people get much of their environmental information from the media, particularly social media, while traditional media coverage tends to be

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shallow, urban and occasional. People are often aware of an issue through the media but are less likely to act. A lack of regional-language content, poor reach in rural areas, limited expertise among journalists and misinformation all reduce the value of the media.

6.1 Recommendations

- Environmental issues should feature regularly in the media, not only during crises, and should include clear actions for people (Haider et al., 2026; Javed et al., 2023).
- Journalists and training bodies should improve environmental reporting and engage more with scientists (Asif et al., 2024; Iqbal et al., 2023).
- Wherever possible, campaigns should include fact-checked messages from credible sources, and they should go beyond one-way messages to offer opportunities for engagement (Ali et al., 2026; Jawwad et al., 2025).
- Policymakers should support content in local dialects and regional languages, and should consider how to reach people in rural areas (Ahmed et al., 2025; Haider et al., 2026).

6.2 Limitations of this review

This review covers 15 studies found mainly through Google Scholar, and it included only English-language studies. One reader screened and coded the studies, so there was no second check, and we did not assess the quality of the studies. These choices kept the review simple, but they limited the number of studies we could include. A broader search across more databases could find additional studies.

6.3 Future research

Future research could involve people in rural areas, older people and those who speak regional languages. It could also cover Sindh and Balochistan. Such studies could ask whether particular campaigns change people's behavior over time, and they could consider other environmental concerns (e.g., water, waste and forests) beyond climate change and smog.

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