OPEN ACCESS

Volume: 4

Issue: 3

Month: July

Year: 2025

ISSN: 2583-7117

Published: 31.07.2025

Citation:

Shubham Kumar Sah "Assessing Public Awareness and Preparedness toward Rainfall-Induced Disasters in Gaya: A Quantitative Study on the Role of Media in Climate Risk Communication" International Journal of Innovations in Science Engineering and Management, vol. 4, no. 3, 2025, pp. 210–220.

DOI:

10.69968/ijisem.2025v4i3210-220

Assessing Public Awareness and Preparedness toward Rainfall-Induced Disasters in Gaya: A Quantitative Study on the Role of Media in Climate Risk Communication

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Abstract

Climate change has intensified the frequency and unpredictability of rainfall-induced disasters, posing significant challenges to disaster preparedness and risk communication, especially in vulnerable regions. Media, as a critical tool for disseminating information, plays a central role in shaping public awareness and influencing preparedness behaviors. However, the extent to which media engagement translates into effective community action remains inadequately understood, particularly in smaller urban and rural contexts. This study aims to assess public awareness, preparedness, and the role of media in relation to rainfall-induced disasters in Gaya district, Bihar, India. A structured, cross-sectional survey was conducted among 182 residents using a stratified random sampling method. The questionnaire included items on climate change awareness, disaster experience, preparedness actions, and media usage. Data were analyzed through frequency distributions. Findings indicate that while a majority of respondents are aware of changes in rainfall patterns and link them to climate change, only a smaller portion has undertaken concrete preparedness actions. Traditional media, especially television and newspapers, remain the most trusted sources of information, though social media is increasingly relevant among younger groups. However, confidence in media reporting varies, and not all respondents act on the information received. The study highlights the need for more targeted, consistent, and action-oriented communication strategies to bridge the gap between awareness and preparedness. It offers evidence to guide policy and media interventions in building climate-resilient communities.

Keywords; Awareness, Climate Change, Disaster Preparedness, Media, Rainfall.

INTRODUCTION

Climate change has emerged as one of the most pressing global challenges, contributing to a rise in the frequency and intensity of weather-related disasters (Bolan et al., 2023; Zhao et al., 2022). Among these, rainfall-induced disasters—such as flash floods, waterlogging, and erosion—pose significant threats to lives, livelihoods, and infrastructure, particularly in vulnerable regions of the Global South (Dharmarathne et al., 2024; Kundzewicz et al., 2013). As rainfall patterns become increasingly erratic due to shifting climate systems, there is a growing need for timely dissemination of risk information and proactive community-level preparedness. In this context, the role of media becomes crucial (Zhao et al., 2022b). Traditional and digital media platforms serve as vital conduits for communicating early warnings, educating the public, and fostering disaster resilience (Marshall et al., 2023).

Despite advancements in communication technologies, large sections of the population in developing countries remain inadequately prepared for climate-related emergencies (Pienaah et al., 2023). Gaya district in Bihar, India, is a pertinent example. Characterized by seasonal rainfall variability and limited infrastructural resilience, the district experiences recurring rainfall-related disruptions. However, little is known about how local residents perceive these risks, how media influences their awareness and preparedness behaviors, and what barriers hinder effective response (Sah, 2025).

While prior research has examined disaster communication broadly, few studies have empirically assessed the intersection of climate change, media exposure, and public preparedness at the local level—especially in smaller urban and rural Indian contexts (Schneiderbauer et al., 2021; Phraknoi et al., 2023). This study addresses that gap by investigating the perceptions and preparedness practices of residents in Gaya, with a focus on the role of media in shaping disaster response behavior (Sah, 2025a).

The primary aim of this research is to assess public awareness and preparedness toward rainfall-induced disasters in Gaya and examine how media influences these dimensions. By employing a quantitative survey approach, the study offers insights into demographic patterns, media usage trends, and behavioral responses.

This research contributes to the growing discourse on climate risk communication and disaster management by providing locally grounded, data-driven evidence to inform policy, planning, and media strategies for more resilient communities.

LITERATURE REVIEW

Climate change has significantly increased the frequency and severity of weather-related disasters, especially in vulnerable regions across the Global South. Bolan et al. (2023) emphasize how climate-induced extreme weather events, such as intense rainfall, disrupt environmental systems and accelerate the spread of contaminants, thereby heightening risks to human health and ecosystems. Similarly, Kundzewicz et al. (2013) provide a global and regional perspective on the heightened flood risks associated with changing rainfall patterns, underlining the urgent need for adaptive disaster risk management.

The role of communication in disaster contexts has been widely discussed in recent literature. Marshall et al. (2023) highlight how digital telecommunications have become indispensable in rural Australia for building community-level resilience. Their findings suggest that enhanced digital capability can facilitate timely and targeted disaster communication, a point highly relevant to developing regions such as Gaya, India. In a related study, Sah (2025a) explores the role of digital platforms (particularly Twitter) in navigating heatwave emergencies in Gaya. His work illustrates how localized social media strategies can enhance real-time communication and community engagement during crises.

Public perception and preparedness remain central concerns in disaster studies. Pienaah et al. (2023) found that despite receiving early warnings, many smallholder farmers in Ghana lacked adequate preparedness for climate-related events, largely due to gaps in understanding and trust in media sources. Likewise, Liao (2023) discusses how public attitudes toward media content influence behavioral responses, including altruism and risk mitigation.

Despite these valuable contributions, there remains a gap in literature focusing on how media—both traditional and digital—influences disaster preparedness behaviors at the district level in smaller urban and rural Indian settings. This study contributes to closing that gap by empirically investigating the intersection of climate change communication, media usage, and public preparedness in Gaya district.

RESEARCH QUESTION

- How does media exposure influence public awareness and preparedness toward rainfall-induced disasters in Gaya in the context of climate change?

RESEARCH OBJECTIVES

- To assess the level of public awareness regarding rainfall-induced disasters and climate change in Gaya.
- To evaluate the preparedness measures adopted by residents of Gaya in response to rainfall-related disasters.
- To analyze the influence of different media sources on public awareness and preparedness for rainfall-induced disasters.

METHODOLOGY

This study adopts a quantitative, cross-sectional survey design to assess public awareness, preparedness, and the role of media in shaping these aspects within the context of rainfall-induced disasters in Gaya district. It uses a stratified random sampling method to ensure representation from different demographic and geographic segments of the district, including urban, semi-urban, and rural areas. The sample size is determined using appropriate statistical techniques to ensure the reliability and generalizability of the findings.

Data collection is conducted through a structured questionnaire, which includes closed-ended and multiple-choice questions. The questionnaire covers key areas such as awareness of climate change and rainfall patterns, household-level disaster preparedness measures, frequency and trust in various media sources (including television,

newspapers, and social media), as well as demographic and socio-economic characteristics of the respondents.

The data is analyzed using both descriptive statistics (such as mean, percentage, and frequency). All analyses are performed using EXCEL to ensure accuracy and methodological rigor. Since the questionnaire consisted primarily of single-response items, each measuring distinct variables such as demographic characteristics, awareness, media exposure, and preparedness, internal consistency reliability (e.g., Cronbach's Alpha) was not computed. Instead, the survey tool's validity was established through expert review and pilot testing to ensure clarity, relevance, and comprehensiveness of the items.

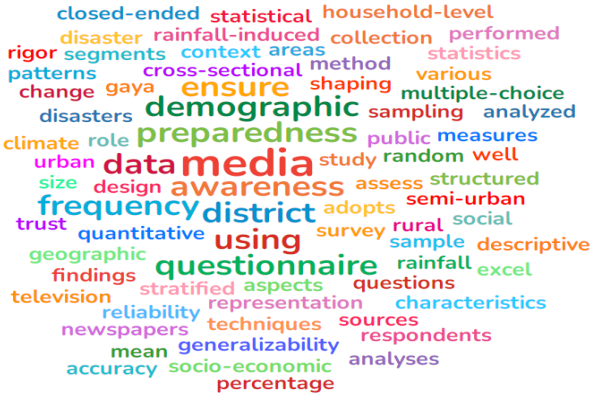

Figure 1 Word Cloud for Methodology (Source-Author)

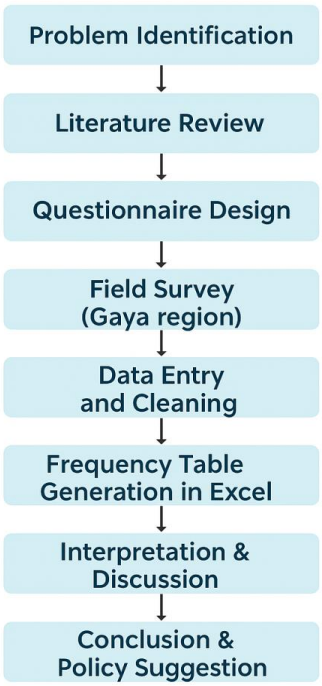

Figure 2 Flow Chart for Methodology (Source- Author)

FINDINGS & DISCUSSION

Age of Respondents	
Age Group	Frequency
Under 18	14
18–30	64
31–45	48
46–60	36
Above 60	20
Total	182

Age of Respondents

The age distribution shows that the largest segment of respondents (64 individuals) falls within the 18–30 age group, followed by 31–45 years (48 respondents), and 46–60 years (36 respondents). Only 14 respondents are under 18, and 20 are above 60. This age spread suggests that the survey mostly captured economically active and decision-making age groups, making the data valuable in assessing community-level preparedness and awareness. The inclusion of elderly and youth, although in smaller numbers, provides some age diversity. These demographics are important when examining how different age groups perceive media messages and react to climate-related risks. Younger respondents may engage more with digital media, whereas older adults might rely on traditional sources, which can affect how preparedness and awareness campaigns are designed.

Gender of Respondents	
Gender	Frequency
Male	95
Female	80
Other	4
Prefer not to say	3
Total	182

Gender of Respondents

Out of 182 respondents, 52% are male (95 respondents) and 44% female (80 respondents), with a small number identifying as Other (4) or Prefer not to say (3). This relatively balanced gender representation helps ensure that the findings are reflective of both male and female perspectives regarding disaster awareness and preparedness. Gender can influence access to resources, participation in training programs, and even exposure to media. For instance, in many households, women manage domestic preparedness (e.g., emergency food, water), while men may engage more with community-based activities or information dissemination. Understanding these roles is

crucial for creating gender-sensitive disaster response strategies and ensuring equitable access to climate communication.

Educational Qualification of Respondents	
Education Level	Frequency
No formal education	18
Up to 10th	34
12th pass	41
Graduate	55
Postgraduate and above	34
Total	182

Educational Qualification of Respondents

The educational profile shows that a majority of respondents have completed at least secondary education, with 41 having passed 12th, 55 being graduates, and 34 postgraduates or higher. A smaller portion includes 18 respondents with no formal education and 34 educated up to 10th grade. This suggests a relatively literate population, which is advantageous for media-based awareness campaigns, as people are more likely to read and interpret disaster-related information. Educated individuals also tend to trust science-based messaging and may be better prepared to act on early warnings or disaster forecasts. However, the 18 individuals with no formal education reflect a vulnerable subgroup that may need visual, oral, or community-based communication strategies for risk education

Occupation of Respondents	
Occupation	Frequency
Student	36
Farmer	29
Private job	43
Government job	21
Self-employed	27
Unemployed	26
Total	182

Occupation of Respondents

The occupational distribution indicates that private job holders (43) and students (36) make up the largest segments, followed by farmers (29) and the self-employed (27). A total of 26 respondents are unemployed, and 21 work in government jobs. These patterns highlight a mix of income levels and daily risk exposure. Farmers and the self-employed may be more directly affected by weather anomalies such as excessive rainfall or droughts, while students and private job holders might have better media access and disaster literacy. Understanding occupational roles helps in identifying who is most vulnerable and how their daily activities may intersect with rainfall risks. For instance, field workers and vendors may face higher exposure, while salaried workers may have more stable coping mechanisms and better communication access.

Area of Residence of Respondents	
Area Type	Frequency
Urban	69
Semi-urban	47
Rural	66
Total	182

Area of Residence of Respondents

Out of 182 respondents, 69 live in urban areas, 47 in semi-urban, and 66 in rural areas. This spatial distribution allows a broad analysis of how geographical context influences awareness and preparedness for rainfall-induced disasters. Urban residents often have better access to structured media, emergency services, and infrastructure. Conversely, rural and semi-urban populations might depend on community-based alerts, radio, or local leadership, and are often more vulnerable to localized hazards such as flooding, drainage failure, or crop loss. Comparing data across these residence types is vital for tailoring location-specific climate communication strategies. For example, urban areas may benefit from digital and mobile alerts, while rural regions might need public address systems or printed visual aids. This variable is also key for understanding access inequities, such as the difference in disaster training programs or infrastructure support across Gaya district.

Awareness of Change in Rainfall Patterns	
Response	Frequency
Yes	136
No	22
Not sure	24
Total	182

Awareness of Change in Rainfall Patterns

A strong majority of respondents (136 out of 182) report being aware of changes in rainfall patterns, while only 22 say no and 24 are unsure. This suggests that most residents have observed or internalized the climatic shifts occurring in Gaya, such as delayed monsoons, irregular rainfall, or increased flood events. High awareness can be attributed to personal experiences with weather extremes or effective media communication, including social media and news outlets. However, the fact that around 25% of the population is either unaware or uncertain highlights a gap in climate

education and outreach, especially among certain demographic or educational groups. This question aligns with measuring risk perception, and further analysis (e.g., by age or media use) can help identify who remains uninformed or skeptical, guiding targeted interventions. It also serves as a baseline for understanding how awareness translates into actual preparedness behavior.

Experience of Rainfall-related Disaster	
Response	Frequency
Yes	121
No	61
Total	182

Experience of Rainfall-related Disaster

A total of 121 respondents (66%) report having experienced a rainfall-induced disaster, while 61 (34%) have not. This high level of direct exposure strengthens the credibility of perceptions gathered in other parts of the survey. Personal experience with flooding, waterlogging, or infrastructure failure often increases risk awareness and can lead to improved preparedness. It also makes individuals more likely to seek information from media or participate in community-based disaster risk reduction (DRR) programs. The remaining one-third, however, may not feel the urgency or may be less inclined to take preparedness actions, which poses a challenge for awareness campaigns. Cross-tabulating this data with location and media habits can help determine whether exposure is geographically or socioeconomically concentrated, offering insights into risk distribution across Gaya.

Belief in Climate Change Causing Disasters	
Response	Frequency
Strongly agree	47
Agree	63
Neutral	39
Disagree	21
Strongly disagree	12
Total	182

Belief in Climate Change Causing Disasters

Of the 182 respondents, 110 (47 strongly agree and 63 agree) believe that climate change is contributing to rainfall-related disasters. 39 remain neutral, while a small minority (33 total) disagree or strongly disagree. This suggests a generally high acceptance of climate science, possibly shaped by media narratives, lived experiences, or education levels. The neutral group is notable—they might be unsure due to lack of scientific understanding or conflicting information from media or community sources. The few who disagree may require more localized evidence or culturally appropriate messaging. This variable is important because belief in climate change often predicts support for policy, behavior change, and preparedness actions. It also reflects how media framing—whether alarmist, scientific, or anecdotal—affects public trust and perception.

Level of Awareness about Rainfall Risks	
Awareness Level	Frequency
Very informed	39
Somewhat informed	97
Not informed	46
Total	182

Level of Awareness about Rainfall Risks

When asked how informed they are about rainfall-related risks, 97 respondents (53%) say they are somewhat informed, 39 (21%) say very informed, and 46 (26%) not informed at all. While a majority feel at least partially aware, the presence of nearly half the population being either uninformed or minimally informed is concerning, especially in a district like Gaya, which faces frequent monsoon-related disruptions. Those who are "somewhat informed" may be getting occasional updates but lack depth, while the "very informed" likely have access to reliable media or have experienced disasters firsthand. The “not informed” group may consist of marginalized populations such as the elderly, less educated, or rural poor who may not have consistent media access. Bridging this information gap is key to effective climate risk communication. Segmenting these responses by demographic groups or media source could uncover who needs more targeted outreach.

Presence of Household Disaster Preparedness Plan	
Response	Frequency
Yes	59
No	103
Don’t know	20
Total	182

Presence of Household Disaster Preparedness Plan

Only 59 respondents (32%) report having a disaster preparedness plan, while 103 (57%) do not, and 20 (11%) are unsure. This reveals a critical gap between awareness and action. Despite high levels of awareness and belief in climate change, preparedness remains low in Gaya households. This could stem from factors like lack of training, poor access to resources, or cultural norms that deprioritize planning. The “don’t know” responses indicate

either passive awareness or household-level disorganization, suggesting the need for practical, community-based interventions. Comparing this variable with occupation, income, or media use might explain why certain groups prepare better than others. For example, urban educated groups might use mobile alerts and kits, whereas rural groups may rely on traditional methods. This also signals to policymakers that media messaging alone isn't enough—preparedness must be institutionalized through training, mock drills, and resource access.

Participation in Disaster Awareness Program	
Response	Frequency
Yes	42
No	140
Total	182

Participation in Disaster Awareness Program

Only 42 respondents (23%) reported attending a disaster awareness or training program, while a significant 140 (77%) had not. This low participation rate suggests a critical gap in institutional outreach, community-based programs, or public engagement. Despite recurring climate threats in Gaya, most residents remain untouched by formal preparedness initiatives. Possible reasons include lack of awareness, inaccessible programs, or low motivation due to perceived risk levels. It's also possible that programs exist but are not well-publicized or are concentrated in specific locations (e.g., urban areas). This variable is particularly important because training enhances individual and community readiness and can increase the effectiveness of media messages. Cross-tabulating this data with education, media exposure, and occupation could highlight which demographic groups are being left out of disaster training frameworks. Policymakers and disaster managers should use this insight to improve inclusive program coverage, especially targeting farmers, the unemployed, and those living in rural or semi-urban areas. This finding underscores the need for decentralized awareness efforts through schools, local governance, and religious or community leaders to encourage wider participation in DRR (Disaster Risk Reduction) activities.

Confidence in Responding to Rainfall Disaster	
Confidence Level	Frequency
Very confident	33
Somewhat confident	94
Not confident	55
Total	182

Confidence in Responding to Rainfall Disaster

The data shows that only 33 respondents (18%) feel very confident in their ability to respond to a rainfall disaster. A majority (94 respondents, or 52%) feel somewhat confident, while 55 respondents (30%) lack confidence. This suggests that although a significant portion of the population may be aware of the risks, they do not feel adequately equipped or empowered to take action during an actual disaster. Low confidence may stem from lack of knowledge, absence of emergency plans, or previous negative experiences with disaster response. The 30% who are not confident represent a vulnerable group that could panic, delay response, or fail to act altogether during a real emergency. Importantly, confidence is not only a psychological variable—it is linked to real preparedness practices such as participation in training, having emergency kits, or knowing evacuation routes. This question correlates strongly with other variables such as training attendance, education level, and media consumption. Enhancing disaster confidence requires targeted interventions such as mock drills, informational campaigns, and simulation-based education. Media can play a major role by broadcasting clear, actionable content that reinforces protective behaviors. This indicator is vital for measuring the effectiveness of future capacity-building initiatives.

Primary Disaster Preparedness Action Taken	
Action Taken	Frequency
Stored emergency supplies	39
Identified a nearby shelter	33
Saved emergency contacts	45
No action taken	65
Total	182

Primary Disaster Preparedness Action Taken

Among respondents, 65 (36%) have taken no action toward preparedness, making it the largest single group. Others report actions like saving emergency contacts (45, or 25%), storing emergency supplies (39, or 21%), and identifying nearby shelters (33, or 18%). This breakdown highlights a key challenge: while some are taking proactive steps, a significant portion of the population remains inactive despite awareness of risks. The relatively higher number saving contacts may reflect a mobile-first approach to preparedness, especially in urban and youth segments, but lacks physical preparation such as kits or shelter planning. This lack of comprehensive preparedness could stem from limited resources, lack of knowledge, or the belief that rainfall disasters are unpredictable or non-severe. Cross-analysis with variables like confidence, disaster experience,

and media use could show whether media messaging is leading to actual behavior change. The findings also suggest that preparedness messaging must go beyond abstract warnings and provide concrete steps tailored to low-income and low-literacy populations. For example, visual infographics or radio jingles that show how to pack an emergency kit or locate community shelters can significantly improve household-level actions.

Most Frequently Used Media Source	
Media Source	Frequency
Television	63
Radio	15
Newspaper	41
Social Media	46
Mobile News Apps	17
Total	182

Most Frequently Used Media Source

Television emerges as the most used media source (63 respondents, 35%), followed by social media (46) and newspapers (41). Radio (15) and mobile news apps (17) are least used. This media consumption pattern indicates that traditional visual media still dominates in Gaya, especially for disaster information. Social media's growing role is noteworthy, especially among younger or urban populations, offering opportunities for fast, interactive, and location-specific alerts. Newspapers remain important, likely serving the educated or older demographics. Surprisingly, radio use is low, although it has traditionally been vital in rural areas. This could point to infrastructure decline or a shift in user preferences. Mobile apps being low in usage may indicate technological barriers, such as lack of smartphone access or digital literacy. These trends are vital when designing risk communication strategies. For example, authorities can invest more in television PSAs and Facebook/WhatsApp-based alerts, while also working to revive or digitize radio campaigns in rural regions. Additionally, outreach should consider integrating multiple media to reinforce messages across platforms, improving recall and response during rainfall-related emergencies.

Frequency of Media Exposure on Rainfall Disasters	
Frequency Level	Frequency
Frequently	51
Sometimes	79
Rarely	37
Never	15
Total	182

Frequency of Media Exposure on Rainfall Disasters

According to the survey, 79 respondents (43%) sometimes encounter media content on rainfall disasters, while 51 (28%) report frequent exposure. However, 37 (20%) rarely see such content, and 15 (9%) never do. This distribution suggests that while over 70% have at least occasional exposure to disaster information, there is room to significantly increase visibility and consistency. The relatively low "frequent" exposure figure may indicate a lack of dedicated airtime or targeted campaigns, especially outside peak disaster seasons. The "rarely" and "never" groups are critical because they may represent isolated or low-literacy populations who could be caught unprepared during emergencies. Media penetration is not just about quantity but quality and clarity of content. If rainfall-related messages are sporadic, vague, or overly technical, their impact on public behavior diminishes. Media organizations, in collaboration with local authorities, must consider routine broadcasting of seasonal climate forecasts, safety tips, and recovery procedures. Frequency of exposure is also a potential moderator when analyzing behavior outcomes such as preparedness levels and risk perception. A multichannel, high-frequency media strategy is likely to yield better community preparedness outcomes in regions like Gaya.

Trust in Media Reporting on Climate and Disasters	
Trust Level	Frequency
Very trustworthy	39
Somewhat trustworthy	92
Not trustworthy	51
Total	182

Trust in Media Reporting on Climate and Disasters

The level of public trust in media reporting is mixed but leans positively, with 92 respondents (51%) stating that media is somewhat trustworthy, and 39 (21%) saying it is very trustworthy. However, a significant number—51 individuals (28%)—do not trust the media on this issue. This polarization reveals a crucial barrier to effective disaster risk communication. Trust plays a vital role in determining whether people will act on warnings or recommendations. The fact that over one-quarter of the population is skeptical about media coverage suggests that either past reporting was inconsistent, sensationalist, or failed to deliver practical guidance. This skepticism may also stem from misinformation, political bias, or overreliance on social media platforms lacking editorial oversight. It becomes imperative to ensure that media coverage is accurate, localized, and timely. Media outlets should collaborate with

scientific agencies and local disaster authorities to disseminate verified content. Additionally, media literacy programs can help residents critically evaluate the information they receive. For researchers and policymakers, this indicator can be cross-analyzed with education levels and media types to identify which groups are most mistrustful and why. In regions like Gaya, where rainfall-induced disasters are recurring, improving trust in media is as important as the content itself.

Action Taken Based on Media Information	
Response	Frequency
Yes	78
No	74
Not sure	30
Total	182

Action Taken Based on Media Information

When asked if they have taken any action based on media information related to rainfall disasters, 78 respondents (43%) said yes, while 74 (41%) said no, and 30 (16%) were unsure. This suggests a moderate level of behavioral influence from media communication. The nearly equal split between action-takers and non-responders points to a gap between awareness and action, highlighting that while people may consume information, it doesn't always translate into concrete steps. The 16% who were unsure might reflect a population that either does not recognize media's role in influencing their actions or absorbs information passively. The findings underscore the importance of media crafting clear, actionable messages—not just alerts, but also guidance on what to do, where to go, and how to prepare. This is especially important for semi-literate or elderly populations who may require simplified or visual messaging. Moreover, repetition and trust-building can enhance compliance. Cross-analysis with variables such as trust in media, education level, and media frequency can reveal which combinations are most effective in prompting preparedness behavior. These insights can inform future media strategies that go beyond awareness, aiming at measurable public action during disaster seasons.

Perceived Helpfulness of Media in Disaster Preparedness	
Response	Frequency
Strongly agree	38
Agree	71
Neutral	41
Disagree	22
Strongly disagree	10
Total	182

Perceived Helpfulness of Media in Disaster Preparedness

A significant majority of respondents, 109 out of 182 (60%), either agree (71) or strongly agree (38) that media plays a helpful role in disaster preparedness. Meanwhile, 41 remain neutral, and 32 (18%) actively disagree. This generally positive perception suggests that the media holds substantial influence in shaping public understanding and readiness. However, the presence of a large neutral group hints at a communication gap, where individuals might consume media but don't find it practically useful or relatable. Those who disagree may have had negative past experiences—such as delayed alerts, conflicting messages, or overhyped coverage—which led to erosion of trust. The implication is that media effectiveness is not solely a matter of content availability, but also of clarity, consistency, relevance, and trustworthiness. The data can help identify whether perceptions vary by media type, for example, whether social media is perceived as more confusing, or TV as more reliable. If this question is cross-analyzed with education or media exposure frequency, it may reveal critical patterns. Importantly, this item serves as a subjective indicator of how the community evaluates the role of media—not just for information, but for safety and empowerment in times of climatic uncertainty.

Most Effective Media Type in Gaya	
Media Type	Frequency
Television	61
Newspaper	42
Social Media	48
Community Radio	17
Other	14
Total	182

Most Effective Media Type in Gaya

Respondents believe the most effective media types for disaster preparedness in Gaya are television (61, 34%), followed by social media (48) and newspapers (42). Community radio and other sources lag behind with 17 and 14 responses respectively. This reflects a strong preference for visual and digital platforms, suggesting that television continues to have a broad reach and impact—likely due to its accessibility and government-backed alert systems. Social media's growing importance, particularly among younger users and urban populations, reveals its potential for real-time updates, interactivity, and viral outreach. Newspapers remain relevant for educated adults and rural populations where internet penetration may be low. Community radio, once a dominant player in local disaster response, appears underutilized, perhaps due to lack of

coverage or modernization. This data should guide communication strategies by emphasizing hybrid approaches: combining traditional broadcast media with mobile and online platforms to achieve maximum reach and redundancy. Moreover, media programs should consider language, timing, and content depth to ensure engagement across diverse user groups. If this question is analyzed alongside demographic or location data, planners can determine the most trusted and accessible platforms for each subpopulation, enabling targeted dissemination in future disaster scenarios.

Willingness to Join Community Awareness Program	
Response	Frequency
Yes	89
No	53
Maybe	40
Total	182

Willingness to Join Community Awareness Program

Encouragingly, 89 respondents (49%) express willingness to join community awareness programs, with 40 (22%) saying "maybe" and 53 (29%) declining. This shows a promising base of community engagement potential, particularly if outreach programs are designed to be inclusive, accessible, and action-oriented. The 22% who are unsure may be influenced by factors such as availability, trust in organizers, or understanding of program value. Those unwilling to join might face barriers like time constraints, mobility issues, or skepticism toward institutional efforts. This response pattern reveals an opportunity: nearly 3 out of 4 respondents are either willing or persuadable, indicating fertile ground for building community-based disaster resilience networks. Programs can be promoted through trusted media, schools, and religious/community institutions to increase participation. Moreover, incentives such as certification, social recognition, or linkage to public services could improve turnout. Cross-tabulating this with variables such as education, occupation, or disaster experience might show which groups are more inclined to participate. Ultimately, this indicator supports a shift from top-down risk management to locally driven, participatory disaster governance, where informed citizens actively contribute to reducing rainfall-induced vulnerabilities.

CONCLUSION

This study set out to explore public awareness, preparedness, and the role of media in communicating climate-related risks, specifically in the context of rainfall-induced disasters in Gaya district (Global, 2025). The primary aim was to assess how residents perceive and respond to changing rainfall patterns, the influence of various media sources on disaster readiness, and the extent to which these perceptions and behaviors vary across demographic and geographic segments. Using a quantitative survey-based approach, the research offers valuable insight into the intersection of environmental vulnerability and media communication in a region increasingly exposed to climate variability (Lewis et al., 2023).

The findings reveal a community that is largely aware of shifts in rainfall patterns and climate change, with many residents acknowledging a link between climate phenomena and disaster occurrences. However, this awareness does not consistently translate into concrete preparedness actions. A significant portion of the population lacks household disaster plans or training, and confidence in responding to emergencies remains moderate at best. Media plays a pivotal role in shaping awareness, yet its ability to drive behavior change is uneven (Liao, 2023). While television remains the most trusted and widely used source, emerging platforms like social media show growing relevance—especially among younger demographics.

These insights carry important implications for disaster risk reduction policy, media strategy, and civic engagement. There is a clear need to bridge the gap between awareness and action through more localized, accessible, and actionable communication strategies. Media organizations must move beyond periodic coverage and adopt a more sustained, educational approach. Policymakers and local authorities should invest in inclusive disaster preparedness programs, ensuring equitable access for rural, semi-literate, and economically vulnerable populations. Schools, NGOs, and local community groups can also serve as critical conduits for risk education.

However, this study has limitations. It is geographically confined to Gaya district, limiting broader generalization. The cross-sectional design captures perceptions at one point in time and may not account for evolving experiences or seasonal changes in behavior. Also, while the questionnaire was structured to ensure clarity, self-reported data may involve bias or inaccuracies in recalling disaster experiences or media exposure.

Future research could adopt a longitudinal design, compare findings across different districts, or incorporate qualitative methods to deepen understanding of media influence and behavioral drivers. It would also be valuable

to assess the impact of specific media campaigns or test the effectiveness of targeted training modules.

In conclusion, this research highlights the urgent need for integrated climate communication strategies that go beyond awareness and foster real preparedness at the grassroots level. As climate risks intensify, strengthening the interface between media, policy, and public engagement will be critical in building resilient and informed communities.

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