



Smog Issue and Public Perception: A Comparative Analysis of Conventional and Social Media

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Abstract

This study evaluates the role of media in creating awareness and prevention of smog issues. It determines public perception about the status of conventional media (broadcast or print media) content and coverage of the smog issue. This study also finds out the public perception about the status of relevant environmental information regarding smog covered by social media. This study analyzes the effectiveness of sources (print, electronic, social media) for the coverage of smog pollution. To achieve these objectives, the researcher used a mixed-method approach, and thus, the study revealed that social media is more effective for the coverage of the smog issue. Social media is extremely vibrant and has convincing power to change public opinion and government decisions. This study revealed that social media platforms highlight smog issues to monitor air pollution.

Keywords

Social Media, Conventional Media, Environmental Issues, Smog

Introduction

The media plays an important middleman role in disseminating information produced by scientists to the mass population by synthesising the information into usable knowledge (Crow & Boykoff, 2014). According to Millar (2012), media is rather an appropriate means of advocating for change and supporting sustainable development. It has a persuasive function of informing the people on matters to do with conservation in an easy-to-understand language while serving as a light in the seemingly endless black tunnel for the populace (Makali, 2003). Most of the population depends on the media to receive information and understand the flow, specifically on environmental issues, events, technologies, and measures (Hannigan, 2014).

People need to appreciate the significance of communication when it comes to questioning or solving ecological problems. Communication facilitates sending messages to any part of the world and enables an individual to participate in changing environmental status (Lincoln, 2002). Environmental health as a concept is an asset to life on this earth; without it, any endeavour towards a healthy life would not be possible. The preservation of the Earth is imperative and inherent in the process stated by Saikia (2017).

As per UN-Habitat (2010), climate change exists internationally as a global problem, and this literature also concerns Pakistan. It has become a serious issue in the modern world, particularly, and the effects are predicted to be more profound within developing countries such as Pakistan (Shahid, 2012). They are defined as poisonous materials which are evenly produced and dispersed in the required environment, affecting people's and Earth's well-being. Ground-level Ozone, a type of hazardous air pollution, is considered a public health crisis in South Asia.

This study targets Lahore, famously known as “the heart of Pakistan.” Over the recent past, the environmental conditions around Lahore have taken a terrible toll (Zehra, 2017). Lahore is found to be the most polluted city in Pakistan, at least according to the Environment Protection Department (2022). AQI for different regions in Lahore are 166-279, and Lahore is among the most polluted cities in the world. The quality of the air in the city is very dangerous and is reducing steadily.

It degrades human health in various ways, especially exposing workers who spend most of their time outdoors, children, and the elderly to dermatitis, irritation of the eyes and throat, and problems with the respiratory system. We have seen smog almost everywhere, and it affects everybody in so many ways that it threatens the lives of humans.

This indicates that the media is massively involved in addressing the immense challenge of smog since it is a key consensus-maker and information disseminator. In this regard, the media has great potential to deal with the problems and issues that emerge from smog, especially in underdeveloped countries like Pakistan. Education of the public is crucial to reversing this problem.

Significance of the Study

Thus, the purpose of this research is to assess the credibility of media in raising awareness and preventing and managing the smog problem in Lahore. The paper will also shed light on how media support the fight against smog in each area and which of the media is appropriate to use in raising awareness of smog. Since smog is a severe global problem and Lahore is one of the cities experiencing it, this research is relevant.

The result of this study implies that the Environmental Protection Department will benefit from the findings since they will help the department’s attempt to create awareness and educate the public on smog issues. Much of the awareness that needs to be disseminated is still unclear to the public, but it can be remedied with the help of departmental improvement for awareness and governmental action. This research is also of significance for the government in view of the realization that it should start media campaigns aimed at creating awareness of smog and the precautions that should be taken to guard against this major health risk.

The right to information and the responsibility to regulate the natural environment are inviolable for any inhabitant and became the inspiration for this study. It is important that the media provide enough information to the people regarding environmental problems like smog and various ways in which people can protect the environment. The media is, therefore, a very crucial participant in smog control prevention and sensitization since it is the main source of information for the public.

To the best of the researcher’s knowledge, little is known about the media’s role in these areas in Pakistan. The existing literature contains a very restricted number of studies related to the activism-promoting role of media in environmental causes, prevention, and control. This study tries to make this much-needed contribution by looking at the media's responsibility in promoting environmental literacy among the populace.

Rationale of the Study

A healthy environment is something basic to the survival of all living things since the total existence of life on earth would otherwise be in serious jeopardy. Thus, environmental pollution constitutes one of the leading problems all over the world. Furthermore, for the improvement of sustainability, all the citizens of the country must play an active role. The growing concern about the environment has thus boosted the medium’s role and relevance in the last few decades. With the focus on various environmental issues increasing, society is developing a conscience of the effects that human beings are likely to have on the environment at large. As a result, the media bear the responsibility of sensitizing the public on issues to do with the conservation of the environment.

Through Media, development is promoted, and Media has several functions, which include enlightening, educating and entertaining society. Media in its broadest sense comes in many different categories, such as print media, which may include newspapers, magazines and books, amongst others and electronic media, which is composed of television, radio and the like, among others, for the purpose of spreading information or mass communication. Listeners no longer read newspapers or stick to magazines but watch and listen to comprehend what took place or is taking place. Also, social media has advanced and is currently widely employed by the public for both information and communication. According to Zhao (2009), social media is efficient in expressing new and evolving events. The role of social media has increased immensely in the past few years for communication as

well as sharing of information in every day and working life. Today, the public employs several methods to obtain awareness.

The purpose of this research will be logistics, which entails examining conventional and social media as devices used in raising awareness, prevention, and even control of smog in Lahore, Pakistan. In relation to the above, it also examines how print, electronic, and social media influence people's perception of smog.

Statement of Problem

The EPA of Pakistan has identified and forecasted an upswing in the AQI for Pakistan particularly Lahore. Globally, Lahore's air quality is now close to the most polluted megacities (Noshab, 2021). Nowadays smog has become a prominent problem in Lahore, and there is no sign of improvement as the air quality is degrading tremendously. The Environment Protection Department (2022) has also pointed out that Lahore faces a serious problem of air pollution, as the city is often among the world's most polluted ones, with AQI values ranging from 166 to 279 depending on the district. Lahore is one of the cities wherein air quality is gradually declining to a dangerous level.

One of the primary reasons for the aggravation of this problem is that environmental consideration is not properly addressed by the government. Air pollution in the form of smog and bad-quality air continues to be one of the biggest issues, and The Silent Killer is known by environmentalists and doctors around Punjab, especially in Lahore (Raza, 2022). Incredibly, very few mitigative measures have been implemented to ameliorate the unfavourable conditions within the population of the city. For controlling the smog in Lahore, it is important that correct information should reach the public about what precautions should be taken throughout the smoggy period.

Pollution has affected the population significantly, mainly those who work and students in the outdoors (Wasif, 2016). From 2015 to the present, large-scale environmental threats are observable in Pakistan, where Faisalabad, Sargodha, Lahore, Multan, and Bahawalpur cities have been receiving large numbers effects annually, which has required the consideration of smog as a serious and growing health issue (Mukhtar, 2018). To the best of the author's knowledge, the following are some challenges that the Pakistani government faces in the prevention of smog even after attempting to make the necessary improvements to the various air pollutants (Niaz & Zhou, 2014). Citizens' support is crucial in solving problems but the problem is compounded when the public is not aware of the problem. Communications media can help a great deal in awakening the public consciousness to diseases and pests that affect them, prevention as well as in control measures.

Hence, this research seeks to explore the combination of both conventional and social media that can increase awareness, prevention, and control of smog in Lahore, Pakistan.

Objectives of the Study

- Consequently, the appraisal of the media's involvement shall be examined in terms of the enhancement of smog awareness and prevention.
- The purpose was to determine the understanding of the public about the smog issue addressed by conventional media; broadcast and print media.
- To explore the awareness of the public in relation to the extent of exposure to appropriate environmental information about smog through social media.
- With the purpose of evaluating the specificity of presenting smog pollution by means of various sources, including print media, electronic media, and social media.

Hypotheses

H₁: Currently, social media is more advantageous than conventional media in raising public awareness of smog peculiarities.

H₀: Social media is not superior to conventional media in terms of increasing awareness of the smog problem in the general population.

H₂: Public awareness of smog usually goes hand in hand with utilization of protected gear hence improved usage of security equipment by the public because of enhanced media coverage.

H₀: Therefore, more coverage of smog-related information in the media does not translate to more measures being practiced by the public.

Literature Review

A similarly important section of a research study is known as the literature that has been used while researching a certain topic explaining how the research fits into a broader study (Ridley, 2012). The primary reason that underlies the revision of literature is to call out relationships between the works

and to identify new approaches for relating to previous researchers' findings (Fink, 2019). In this chapter, a literature review is presented regarding the part played by conventional and social media in raising awareness, prevention, and control of the smog problem. It should rather be read as an introduction to a series of reflections regarding the links between media and the environment.

The knowledge of the media-environment interface is thus important. The media is an influential element of today's society because it informs and raises awareness of the community. The media can be an excellent instrument for increasing peoples' concern about the environment, though the portrayal of these problems in media has regained very little attention. This paper also acknowledges the government and non-governmental organization an influential role in tackling environmental issues through media campaigns (Kakade, Hiremath & Raut, 2013).

Depending on its consequences and its dimension as a socio-scientific question, climate change constitutes a difficulty to the sustainable development goals of the UN (Biagini et al., 2014). The study on Pakistan concludes that the government has been ineffective in undertaking policies and actions in the context of climate change and that such negligence has served to increase the existing socioeconomic dualism. Again, 65 per cent of the Pakistani population is illiterate, and many often claim to be helpless because of a lack of resources (Zaheer & Colom, 2013). Formal and informal education of the public is an important tool in combating environmental problems, as put forward by UNESCO (1997).

An investigation conducted at Fatima Memorial College of Medicine and Dentistry revealed that medical students possess considerable factual knowledge regarding smog, and social networking sites and educational intervention as the main sources of popularizing the issue should be used (Butt, Waseef, & Ahmed, 2018). Media representations of socio-scientific issues greatly influence people's perceptions, and understanding effective communication strategies may have a positive effect on climate change mitigation (Feldman et al., 2012; Jang, 2013; Qaisar et al., 2021).

Newspapers remain the most utilized print media for enlightening the public on environmental matters. Social networks are also an important method of environmental education and the management of awareness campaigns (Mallick & Bajpai, 2019). Better information calms the risks of climate change and helps in adapting to and mitigating it (Dong et al., 2018).

It becomes important in relation to the perceived function of media in raising awareness about smog. In Pakistani empirical research on media agenda setting, the researcher pointed out that there is an existential relationship between what media houses present and what the population considers important (Riaz, 2018). Media can also enlighten the public on how best to cope with the effects of environmental changes (Takashi, 2015). China and India are two countries with clear and extensive national policies on smog control: prevention and the participation of civilians (Wang et al., 2016; Ahsan et al., 2020a; Saleem et al., 2019).

The general knowledge about smog and its impact on the population also needs to be raised since, depending on sociodemographic characteristics, the population has varying concerns and awareness about smog-related issues (Mehriz & Gosselin, 2019; Ahsan et al., 2020b). This is because the knowledge and trust in the information sources regarding smog has grown in public, especially in China, thus improving the control measures (Li & Tilt, 2019). The advancement of society with a reasonable willingness to embrace environmentally friendly measures is another area that defines the fight against smog (Lopez-Navarro et al., 2015).

Public awareness is required for the involvement of the public and the putting in place of the required policies in relation to climate change risks (Bord et al., 2000; Boudet et al., 2014; Nisbet & Scheufele, 2009). Other parts of Pakistan, such as Khyber Pakhtunkhwa and the city of Lahore, are also facing serious air pollution problems and efficacious strategies such as afforestation and traffic control (Jahan et al., 2019; Saxena, 2014; Zona et al., 2014; Kamal et al., 2019; Xie et al., 2019).

Punjab Environment Protection Department formulated a policy named 'Policy on Controlling Fog 2017'; the measures designed in this policy are anti-agricultural waste burning and closure of sectors emitting smoke. Therefore, members of the public and neighbouring regions need to take an active role in combating pollution (PDMA, 2017). Social media can also be used to monitor sentiments in the public domain concerning the effects of smog on health for management purposes (Chen et al., 2017).

Focused on methodological aspects of qualitative content analysis, the results show the lack of information and values related to climate change in the context of developing countries among the

posts' authors. These issues require sound governance and communication to foster (Shahid & Adnan, 2021). Awareness-raising activities through campaigns and prevention are crucial and need to involve public health (Shi et al., 2014).

Nonetheless, Pakistan does not rank high in terms of greenhouse gas emissions; however, climate change affects the country significantly and hinders the achievement of the development agenda (IEA, 2019; Eckstein et al., 2019; Saifi & Yeung, 2018; Ali, 2021). Such a project as the Ten Billion Tree Tsunami is intended to help overcome climate change consequences (UNEP, 2021). Because environmental issues such as smog are new and cannot easily be observed by the human eye, information about them in the media is vital for creating awareness and action among the populace (Gore, 2006).

Improvement in air quality can help reduce the chances of air-borne diseases, which are known to range from simple symptoms like cough and cold to serious health complications that range from cancers to cardiovascular diseases (Gallagher et al., 2010; WHO, 2018). Control of environmental pollution needs the effort of the government, media help, and awareness among people in general (Manzoor, 2020; Ghauri & Lodhi, 2013; Giovanis, 2014; Shi et al., 2016; Bates, 2017; Mukhtar, 2017; Singh, 2018).

Global issues cannot be solved individually, and this entails that they are covered extensively by the media, with the public being incited to find solutions. In consideration of this, print media, despite the criticism, is regarded as an important source of information among users (Zehra, 2017; Hussain, 2017). People's awareness-raising at social gatherings, seminars, and training sessions, and with the help of community activities is an excellent way to minimise smog's impact on pollutants (Saleem et al., 2019). Nevertheless, the level of ecological public knowledge in Pakistan is still low; occasional media topics with a focus on climate change are present (Zaheer & Colom, 2013; Hussain et al., 2022). This research work will critically examine the awareness, prevention, and control of smog in Lahore, Pakistan, using conventional and social media.

Theoretical Framework

This study, titled "Smog and Public Perception: A Comparative Analysis of Conventional and Social Media," is based on an attempt to use the Selective Processes Theory to analyze how the public gets informed on smog pollution through media sources. It is the media that can help shape the public attitude and actions in the face of problems such as smog pollution. The Selective Processes Theory has postulated the point that people decide on the kind of media and messages to be consumed based on certain beliefs, values, and interests.

In the context of this study, the theory helps to explain the following: In the context of this study, the theory helps to explain the following:

Selective Exposure: People's discontent with the smog situation arises from personal sources of information based on their attitude towards the issues.

Selective Perception: Preconceptions play a role in how a person perceives information on smog and how he or she understands the messages.

Selective Retention: Finally, the cognitive process of reconstructing and formulating some knowledge, which corresponds to individuals' beliefs and attitudes, determines their behaviour and reaction to the smog problem.

Therefore, according to the Selective Processes Theory, the media has a central responsibility when it comes to enhancing the public's understanding as well as their perception of smog pollution. The following selective processes are the goals of the media awareness in respect of smog awareness, prevention and control in Lahore as is sought in this research

Research Methodology

In accordance with Creswell and Plano Clark (2007), this study adopted quantitative research to gain a broad understanding of the research problem. In this quantitative study, a survey design was used to collect data efficiently. The choice of research design produced a flow chart of the various activities needed to gather and analyze the collected data. The target population for this study comprised people living in Lahore, in the age group of 18-60 years, as these people fell in the desired demographic for this research (Thomas & Magilvy, 2011). 500 respondents were chosen from Lahore to respond to this study, yet an equal proportion in terms of age, gender, and family income was maintained. Stratified sampling was employed to ensure that the sample was representative of different strata within the population. The population was divided into strata based on key demographics such as age,

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gender, education level, and occupation. Participants were then randomly selected from each stratum to ensure proportional representation. The current researchers developed a questionnaire, which included 25 questions to aid in data collection. The questionnaire was structured into three sections: collecting minimum knowledge about smog, comparing conventional and social media used, and evaluating beforehand safety measures. Descriptive methods were used to analyze data to look for a correlation between variables. Minitab was used to analyze the collected data by applying Z-Test, and SPSS was used to analyze the collected data by applying chi-square tests.

Statistical Analysis

The research used Z-Test via Minitab to compare the variables and check whether they were significant or insignificant. It also accepted or rejected the hypothesis using the chi-square test and SPSS.

Hypotheses Testing

H₁: *Compared to conventional media, social media is efficient in sensitizing the public about smog.*

H₀: *Ordinal variables basically refer to the place where smog awareness can be created among the public, and conventional media outperforms social media.*

The Z-Test was conducted to determine the significance of the difference between the usage of social media and conventional media drawn to spread awareness about the smog. Table 1 presents the results:

Table 1 presents the results:

Table 1: Z-Test

Null Hypothesis	Alternative Hypothesis	Method	Z-Value	P-Value
Ho: P1 ≤ P2	H1: P1 > P2	Normal Approximation	3.06	0.001

As shown in Table 1, the p-value of 0.001 is less than the significance level of 0.05. Therefore, the null hypothesis is rejected, indicating that social media is more effective than conventional media in creating public awareness of smog.

Hypotheses Testing

H₂: *Media exposure regarding smog increases the adoption of safety measures.*

H₀: *Media exposure regarding smog does not increase the adoption of safety measures.*

The chi-square test was employed to examine the relationship between exposure to conventional media and the adoption of safety measures related to smog.

Table 2 summarises the findings:

Table 2: Chi-square Test - Exposure of Conventional Media

Statements	Pearson Chi-Square value	Df	Asymptotic Significance (2-sided)	Contingency Coefficient	Approximate Significance
Q1: Plant trees to overcome smog	10.497	1	0.001	0.184	0.001
Q2: Use of eco-friendly consumer products	3.047	1	0.081	0.100	0.081
Q3: Throw garbage in the dustbin to reduce smog	0.343	1	0.558	0.034	0.558
Q4: Avoid burning trash and leaves to reduce smog	0.011	1	0.915	0.006	0.915
Q5: Wear a face mask for the protection	9.482	1	0.002	0.175	0.002
Q6: Reduce outdoor activities to prevent smog	5.721	1	0.017	0.137	0.017
Q7: Take part in different campaigns to lighten the effects of smog	12.127	1	0.000	0.197	0.000
Q8: Take part in different debates to people aware about smog	14.641	1	0.000	0.216	0.000

Table 2 indicates that for most safety measures, exposure to conventional media regarding smog did not show significant associations. However, for Q8 (taking part in debates to raise awareness about smog), a weak association was observed.

Table 3: Chi-square Test - Exposure to Social Media

Statements	Pearson Chi-Square value	df	Asymptotic Significance (2-sided)	Contingency Coefficient	Approximate Significance
Q1: Plant trees to overcome smog	3.159	1	0.076	0.102	0.076
Q2: Use of eco-friendly consumer products	12.166	1	0.000	0.197	0.000
Q3: Throw garbage in the dustbin to reduce smog	1.938	1	0.164	0.080	0.164
Q4: Avoid burning trash and leaves to reduce smog	0.002	1	0.964	0.003	0.964
Q5: Wear face mask for the protection	3.846	1	0.049	0.113	0.050
Q6: Reduce outdoor activities to prevent from smog	12.017	1	0.001	0.196	0.001
Q7: Take part in different campaigns to lighten the effects of smog	10.919	1	0.001	0.187	0.001
Q8: Take part in different debates to aware people about smog	22.961	1	0.000	0.267	0.000

Table 3 reveals that exposure to social media significantly influenced the adoption of safety measures related to smog, especially in areas such as using eco-friendly products and participating in campaigns and debates to raise awareness.

In conclusion, the statistical analyses conducted in this study provide evidence that social media is more effective than conventional media in creating public awareness about smog. Additionally, exposure to both social and conventional media influences the adoption of certain safety measures related to smog, albeit to varying extents across different behaviours.

Discussion & Analysis

Thus, the results of this work reflect climate change as one of the most pressing environmental problems and increase people's awareness of the extent of the consequences experienced by frail states, such as Pakistan. Pulse takers remarked that 'there is an association between climate change and increased temperatures as well as the depletion of the ozone layer and effective measures should be taken to counter this since there could be disastrous results.

Due to the globalization of environmentalism, especially concerning climate change, the policies of emerging nations have been affected. However, the awareness level is still low in Pakistan, as pointed out by Zaheer & Colom (2013), considering more developed regions in SAARC Countries of South Asia.

Haze, which is air pollution that leads to poor visibility, is primarily a result of factors like population increase, industrialization, high rates of deforestation, increase in traffic, and poor public sensitization. Some of the notable approaches in creating awareness regarding smog to the public include members of the public members through various platforms and, most especially, through social media platforms (Butt, Waseef & Ahmed, 2018).

Research supports messages encouraging tree plantation as a way of eradicating environmental pollutants such as smog. According to Saxena (2014) and Zona et al. (2014), governments should create awareness and encourage people to prevent smog occurrences.

Journalism is a branch of the media that assists in creating awareness of environmental matters and possible remedies. Still, given that Pakistan pays insufficient attention to environmental journalism, the latter cannot be very effective in raising the population's awareness or encouraging it to take appropriate action (Saleem et al.: 2018).

One of the main changes observed during the past decade concerns social media as a source of news and information. Looking into the details of Only the Brave's case, Mallick and Bajpai (2019) underscore the growing adoption of social networks in spreading environmental education and awareness to an even larger populace through more approaches.

Currently, NGOs are challenged regarding operations because they are financially limited and, as such, cannot adequately engage in environmental causes. In other cases, governmental

agencies require improved cooperation and resources when arranging workshops and seminars to enhance the actual policy on the protection of the environment (Qaisar et al., 2021).

Research shows that a large part of the population is still not aware of climate change and its consequences, especially those who are not exposed to educational and media products. Such a situation means that there is a serious gap in the dissemination of knowledge about the environment, and for this reason, enhanced efforts should be made to ensure that special educational campaigns are launched that will enable many people to play an active role in preserving the environment (Zaheer & Colom, 2013).

It is noted that monitoring indices, as well as the two-way flow of climate information in the media, play a very important role in perception and consequent policymaking. The media also initiates awareness campaigns and advocacy for prophylactic measures, hence reducing the effects of environmental challenges (Pakistan's Provincial Disaster Management Authority PDMA, 2017).

Pertaining to the aspects of social concern and socioeconomic impact, respondents complained about the government's lack of attention to environmental policies. Zaheer & Colom (2013) have noted that such governmental inefficiencies in terms of mitigations on climate change impact social equity and erode the people's trust in leadership.

Finally, it elaborates on the responsibility and the roles of different media, and, most importantly, the role of the unaware public, the lack of proper policies from the government, and socio-economic factors in combating environmental problems in Pakistan. Awareness should be created through better media coverage of global climate change, the launching of intensive educational crusades, and the formulation of effective governmental policies that counteract the harmful impact of climate change, as well as encourage environmental conservation at all levels.

Conclusion

Today, media represents one of the most vital prerequisites and a powerful means of sharing information on the environment. Environmental problems remain on the rise, especially in Pakistan, and with threats such as smog being felt, it became important to look at the part that media can play in enhancing awareness and prevention.

Based on the quantitative results of this research, there is confirmation of the postulated hypotheses that social media are more effective than conventional media in creating awareness among the public about smog. This equally serves to support the confirmation of the second hypothesis stated in this research. Furthermore, the findings of the study show that education attained from media exposure in relation to smog amazingly improves compliance with safety measures amongst the population.

The public expects that environmental issues should be covered competently and in the best way possible in the media. Owning prime time on television and employing the power of social networking are two major measures through which it would be possible to mobilise as many people as possible and inculcate them in serving the environment.

Therefore, in conclusion, the research clearly defines the role of media in facilitating the fight against environmental challenges. There is a paramount need for people to be educated and encouraged to apply changes focusing on environmental protection through media. This is central to enhancing concerted actions to protect the environment and advocate for sustainability.

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