

Research Article

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Analyzing the Role of Crisis Communication in Mitigating Polio Vaccine Hesitancy: A Media Perspective on Misinformation and Effective Messaging in Pakistan

Maryum Arif¹ Zeeshan Qadar² Hamayun khan³ Noman Ahmed Ansari⁴



Abstract: In Pakistan, polio is still a major public health concern, and vaccine hesitancy is pervasive due to misinformation and mistrust. This study investigates the critical role of crisis communication, particularly through media messaging, in addressing this hesitancy and promoting polio vaccine uptake. It looks at how different media outlets frame public issues and spread misleading information, affecting public trust and health decisions. The study was quantitative and survey-based. In Islamabad and Rawalpindi, two cities with ongoing polio immunization efforts, 101 parents of under-5s were surveyed online. According to January–May 2025 data, participants' attitudes toward the polio vaccine are influenced by their exposure to false information, their trust in TV, radio, and social media, and their perceptions of information reliability. Excel was used to discover trends and patterns in survey replies. Parents' vaccine hesitation was motivated by abundant vaccine misinformation, especially on social media. But big TV networks and doctors were trusted. The study also indicated that the public needs better, more dependable communication, and choosing intelligible, compassionate, and expert-backed messages to promote vaccine confidence. Clear, convincing, and repeated messages—especially by reliable media and powerful spokespersons—are more likely to promote vaccine uptake. Misinformation, especially on social media, increases fear and uncertainty. This study emphasizes the media's role in public health attitudes and suggests ways to improve media initiatives to counteract misinformation and boost vaccination rates in Pakistan. The findings will benefit policymakers, journalists, and health communicators working to improve emergency public health messages.

Key Words: Polio Vaccine Hesitancy, Crisis Communication, Media Misinformation, Pakistan Public Health, Social Media, Health Communication

Introduction

Polio remains a serious public health issue in Pakistan. Despite various attempts by the government as well as health organizations, vaccine hesitancy is a gigantic problem. People don't vaccinate their children because of rumors and misinformation. The major cause of this issue is the manner through which information is shared via the media, especially social media. Polio, formally known as poliomyelitis, is a devastating fatal disease capable of causing nerve damage and paralysis, posing a severe threat to public health.

¹ MS Scholar, Riphah Institute of Media Sciences, Riphah International University, Islamabad, Pakistan.

✉ Maryumarif158@gmail.com

² Lecturer, Margalla Institute of Health Sciences, Islamabad, Pakistan.

✉ Zeeshanqadar65@gmail.com

³ MS Scholar, Riphah Institute of Media Sciences, Riphah International University, Islamabad, Pakistan.

✉ Hamaayunkhan@gmail.com

⁴ Assistant Professor, Department of Media & Communication Studies, Rawalpindi Women University, Rawalpindi, Punjab, Pakistan. ✉ Noman.ansari@f.rwu.edu.pk

▪ **Corresponding Author:** Maryum Arif (✉ Maryumarif158@gmail.com)

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Polio remains endemic in Pakistan, making it one of the only two countries where the virus has not been fully eradicated (Arshad, 2023). The inception of the Global Polio Eradication Initiative in 1988 marked a remarkable stride in the battle against this communicable disease. Through vigilant surveillance, monitoring, and substantial investments in expertise and resources, the initiative successfully eliminated polio worldwide (GPEI, 2020).

However, despite this global progress, recent scholarly research has predominantly focused on Afghanistan and Pakistan, as they remain the only two countries yet to achieve polio-free status (Andrade & Hussain, 2018) (Taylor, 2017). The challenge of eradicating polio from its last strongholds in Pakistan has presented unique challenges for the (GPEI, 2020) (Ahmad T. K., 2020) (Saleem, 2018).

Despite a reduction in reported cases, environmental surveillance in 2023 still detected WPV1 in multiple sewage samples in Pakistan, indicating ongoing transmission. Crisis communication is a technique used to manage information during emergency and health crisis situations. Crisis communication enables people to know what is going on and what to do. Crisis communication, if properly conducted, has the capacity to instill trust and eradicate misinformation. In Pakistan, the media plays an influential role among the masses. Therefore, the study examines the ways through which media can utilize its potential for more effective dissemination of correct information and lessening of fear regarding the polio vaccine. Mass media continue to play a critical role in shaping public opinion and encouraging polio vaccination in Pakistan. The polio vaccine is opposed by the majority of communities in Pakistan, mostly due to fear, suspicion, and myths. The myths stem from unverified news reports on social media or poor communication from the authorities. Even though a large number of campaigns are being conducted, people remain puzzled and skeptical. This study is concerned with the communication strategy gap that results in this confusion. It seeks to learn how misinformation occurs and what type of messaging is effective. The study differs from others because it is concerned with crisis communication from a media perspective rather than a health or medical perspective. Ineffective communication strategies remain a major barrier to polio eradication in Pakistan. The aim is to learn how communication and media professionals can make health campaigns more effective. The research also aims to determine the shortcomings in existing media messaging and to suggest improved means of reaching and persuading the public. The credibility of the message source plays a crucial role in public acceptance of health communication (Arshad, 2023).

This research is important because it clarifies how communication issues have exacerbated polio vaccine hesitancy in Pakistan. It displays how uncertainty and unstable messages may lead to fear, confusion, and vaccine denial. By examining the role of media, the research opens new avenues to address such issues. For media practitioners, this study enables them to know what works and what does not work in terms of public health messaging. It also educates them on how not to disseminate misinformation and how to gain the trust of the audience.

For public health officials and policymakers, this research provides recommendations for improved communication tactics. Some of these are the use of simple language, authoritative spokespersons, local media, and social media in smart ways. The results show that if individuals are treated with dignity and are informed, they are more likely to receive the message and obey it. The research also illustrates how misinformation that becomes rapidly shared on social media websites can be addressed by assertive and prompt messaging from authentic sources. In brief, this study aids in enhancing public messaging during health emergencies. It is beneficial for mass media students, journalists, public health professionals, and anyone engaged in awareness campaigns. Knowing the effects of positive messaging enables us to better combat diseases such as polio and ensure public health in Pakistan.

Research Objective

The ultimate goal of the present study is to establish how a media-oriented crisis communication strategy can be implemented to lower vaccination hesitancy in Pakistan, particularly during the outbreaks of public health crises like in the current case of the anti-polio campaign.

The research aims to find out how various communication channels—through TV, radio, social media, and local opinion leaders—impact people's perceptions regarding the polio vaccine.

This study synthesizes media studies and public health communication theories to discover useful means to communicate clear, accurate, and credible messages to the public. It hopes to demonstrate how the media can establish trust during times of health crisis and enable individuals to make better health choices.

Research Question

- Q1:** What is the impact of crisis communication on reducing polio vaccine hesitancy among parents in Pakistan?
- Q2:** How do media-generated messages and misinformation influence public trust and polio vaccine uptake in Pakistan?

The study seeks to establish and investigate how strategic communication, particularly through the media, can mitigate vaccine hesitancy and enhance public health results.

Literature Review

Crisis communication has remained central to addressing public health emergencies, particularly instances of vaccine resistance. The level at which a health emergency is communicated determines how the public responds to vaccines. It is clear that in cases of vaccine resistance, for example, polio in Pakistan, how information is presented—by media, government, or mobilization at the community level—influences or erodes the public's faith in vaccination programs. Evidence shows that open, consistent, and clear communication is required to counter misconceptions and misinformation that fuel vaccine hesitancy (Gellin, 2007).

In Pakistan, where polio vaccination campaigns have been strongly resisted, crisis communication strategies have played a crucial role in reducing vaccine hesitancy. (Ali, 2019) explored how social media and local networks' misinformation affected vaccine uptake in Pakistan. According to the researchers, conspiracy theories, vaccine safety disinformation, and doubt in government health programs were prevalent among high-vaccine-hesitancy districts. Successful communication during crises was known as a key element of combating these issues by providing accurate information, providing answers, and building trust in the polio immunization campaign.

Misinformation is among the major drivers of vaccine hesitancy in Pakistan, especially in rural and poor areas (Mubarak et al., 2021). Investigations have revealed that misinformation and myths surrounding vaccines, communicated via social networks and local opinion leaders, are among the biggest obstacles to achieving high coverage of immunization. In research carried out by (McKee, 2018), the influence of misinformation on vaccine hesitancy was explored based on an assumption that the diffusion of misinformation not only complicates the task of health authorities but also amplifies public fear and resistance to participation in vaccination processes.

In the Pakistani polio situation, misinformation has also been focused primarily on the fact that the vaccine is utilized as a form of sterilization or that it constitutes a foreign scheme to eliminate the Muslim population (Ittefaq et al., 2021). These myths arise from a combination of political, religious, and cultural elements determining public perception of the vaccine. Research has emphasized that misinformation usually spreads via influential religious leaders, who have been central figures in both facilitating and obstructing vaccination campaigns in parts of Pakistan Concerns and Perceptions Towards Polio Vaccination in Pakistan (Kaleem, 2021). The dilemma, then, is to formulate effective crisis communication strategies that are able to neutralize these myths and offer the public credible information.

The effectiveness of crisis communication during polio immunization campaigns to a great extent depends on the strategies used for engaging with communities and disseminating information (Choudhary et al., 2021). Past research emphasizes the need to ensure that communication is culturally appropriate, context-specific, and delivered through credible means. For instance, (Programme, n.d.) found that culturally appropriate messages about local values delivered via community leaders or health workers have the impact of increasing vaccine uptake considerably. Religious leaders and local health workers are often the most trusted ones in Pakistan and thus play a vital role in the delivery of polio-related messages which



may dispel or reinforce vaccine hesitancy and Social-Behavioral and Cultural Barriers to Vaccine Refusal (Soofi).

Strong messaging efforts also entail directly addressing the concerns of vaccine-hesitant individuals. (Quinn, 2017) emphasized that messaging should emphasize giving straightforward responses to typical issues, including the safety, and efficacy of vaccines, and the good of immunization for the public. In addition, crisis communication should be reactive and adaptive because the situation might shift quickly and need to provide updates in a timely manner with real-time communication with the public.

Media have a vital role in shaping public attitudes and communicating health messages during periods of crisis. During the eradication of polio in Pakistan, mainstream media as well as new media websites have been used to disseminate polio vaccination campaigns. A study by (Deep, 2024) explored the role of media in shaping polio vaccination in Pakistan, noting that while traditional media has been instrumental in reaching mass audiences, digital media is increasingly taking center stage in reaching youth and rural communities.

But the media's role in framing public opinion is two-edged. Though it can be an influential medium through which correct health information gets disseminated, media can also use the power of misinformation, particularly during crises (Happer & Philo, 2013). With the advent of social media websites, the propagation of both authentic and spurious information has reached high speeds. (Ali, 2019) have, through their study, associated the spread of misinformation on social sites like Facebook and Twitter with enhanced vaccine reluctance in Pakistan (Programme, 2024). The challenge for health authorities, therefore, is to harness the power of media effectively while minimizing the risks posed by misinformation.

Methodology

This study adopted a quantitative, survey-based research design to investigate the role of strategic crisis communication in reducing polio vaccine hesitancy in Pakistan. The rationale behind choosing a survey approach was to gather numerical data and quantifiable insights, providing a systematic understanding of the relationship between misinformation, media messaging, and public vaccine attitudes. The quantitative component utilized a structured online survey ([Google Form](#)) to explore how exposure to vaccine-related misinformation and trust in different forms of media influence polio vaccine hesitancy among parents. This approach allows for statistical analysis, offering measurable insights into the study's objectives.

The survey instrument was designed to capture data directly from parents, who are the primary decision-makers regarding childhood vaccination. Their responses will provide measurable insights into how various factors—such as their exposure to different communication channels, their perceptions of information credibility, their experiences with misinformation, and their personal beliefs—affect their vaccine behavior and overall attitudes towards the polio vaccine. The structured nature of the survey ensures consistency in data collection, allowing for robust statistical analysis to identify significant correlations and patterns.

Population and Sampling Techniques

The research primarily targeted parents of children under the age of five residing in areas where polio vaccination is actively being conducted. To ensure a diverse representation, purposive sampling was used, focusing on geographically varied locations with a history of polio outbreaks, particularly Islamabad and Rawalpindi. These cities were selected due to their significance in Pakistan's polio eradication campaign and their exposure to both urban misinformation and rural vaccine resistance. Data collection will be conducted through the online survey platform, and disseminated via relevant community networks and local outreach programs in the selected areas.

Data Collection

Data collection took place between January and May 2025. The survey was shared digitally through WhatsApp, email, and in some cases collected in person. A total of 100 parents participated. All responses were anonymous and recorded using Google Sheets.

Data Analysis

Survey responses from 100 parents were collected and analyzed using Microsoft Excel. Basic calculations were done to identify trends in trust, information sources, and attitudes toward polio vaccination. The results gave insight into how media trust and misinformation affect vaccine decisions.

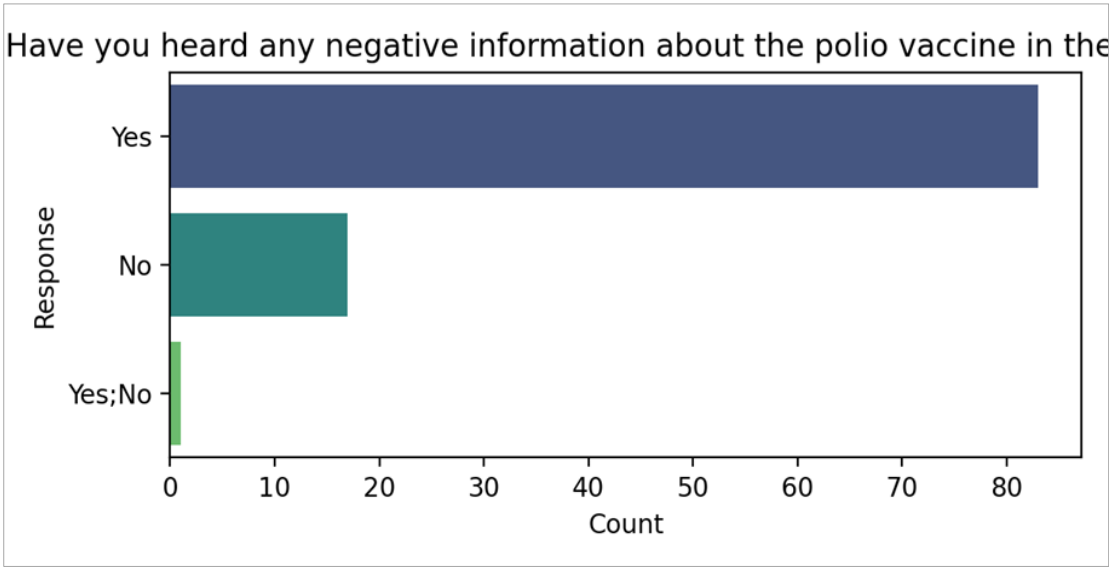
Findings

The quantitative findings from the survey, involving 101 parents, provided a detailed understanding of the factors influencing polio vaccine hesitancy and the role of media in Pakistan.

Prevalence of Misinformation

Chart 1

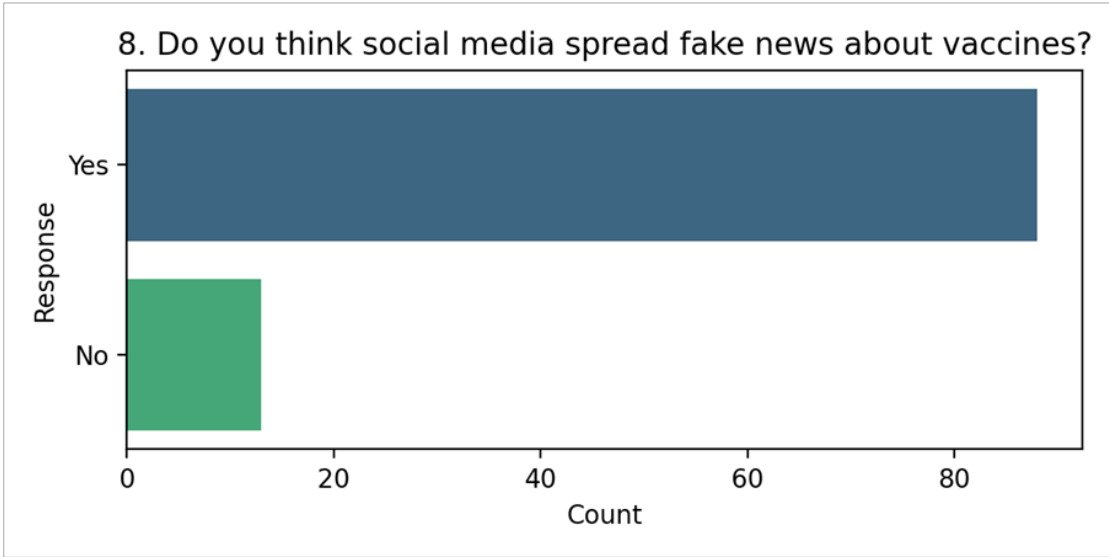
83% of respondents have heard negative information about the polio vaccine in the past year, indicating widespread exposure to potentially harmful misinformation.



A substantial majority of parents ($n = 84$, 83.2%) reported having encountered negative information about the polio vaccine in the past year.

Chart 2

88% believe social media spreads fake news about vaccines, showing awareness of misinformation.



This misinformation was frequently associated with social media platforms, with 88 (87.1%) of participants agreeing that social media spreads fake news about vaccines, and 54 (53.5%) expressing distrust in vaccine information shared on social media. Common rumors identified through open-ended

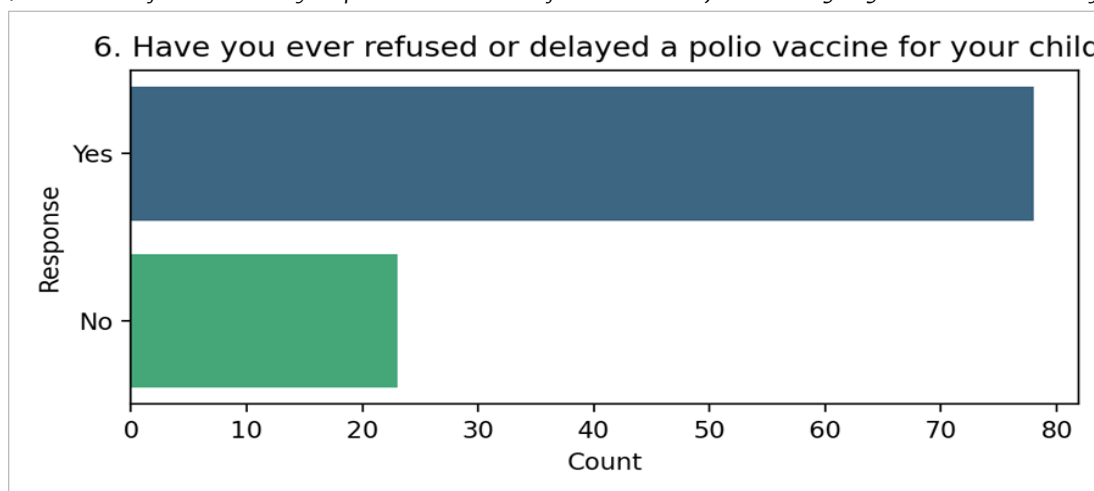


responses included claims of the vaccine causing infertility, being a Western conspiracy, or containing forbidden ingredients, often propagated through WhatsApp and Facebook.

Impact on Vaccine Hesitancy

Chart 3

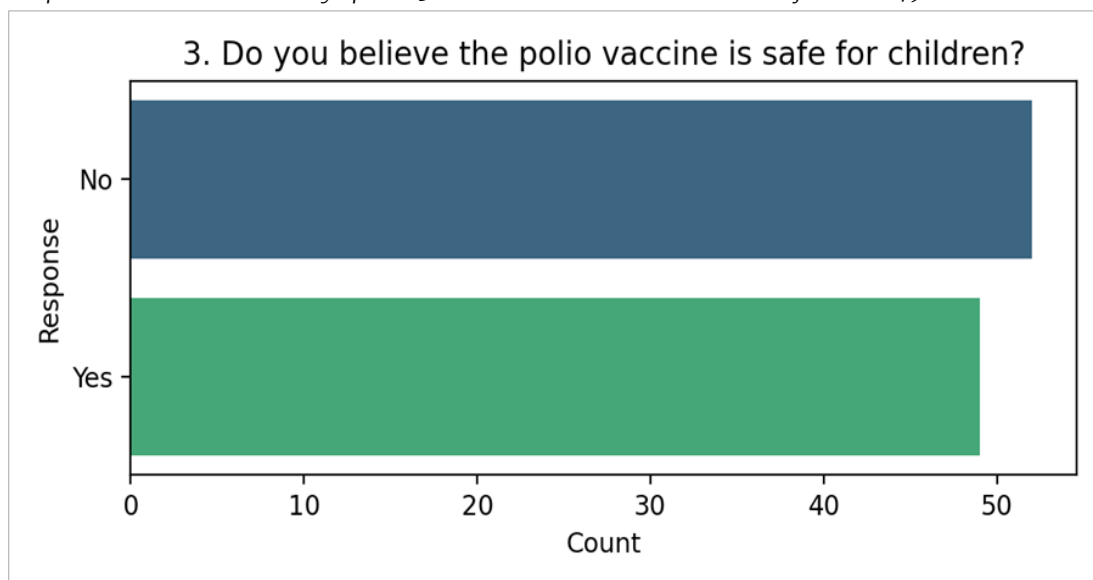
78% have refused or delayed polio vaccination for their child, indicating high vaccine hesitancy.



For those who had either refused or delayed a polio vaccine for their child ($n = 23$), 10.9% indicated that information from the media (including social media) contributed to their decision.

Chart 4

Responses are almost evenly split – 52% believe the vaccine is not safe while 49% believe it is safe.

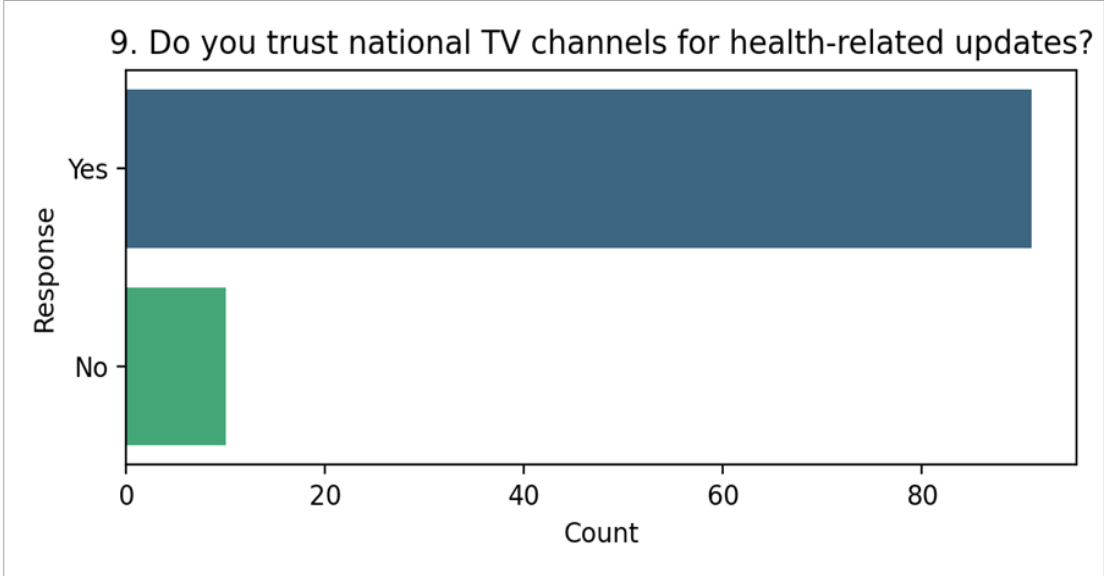


Credibility of Information Sources

Table 1

Source	Count (Not at all)	Count (Neutral)	Count (Very Much)
Doctors and nurses	4	9	88
Government health officials	0	14	87
Religious leaders in your community	5	25	71
Local community elders	7	32	62
Celebrities or well-known personalities	7	37	57
Social media influencers, Family members, Friends	62	26	9

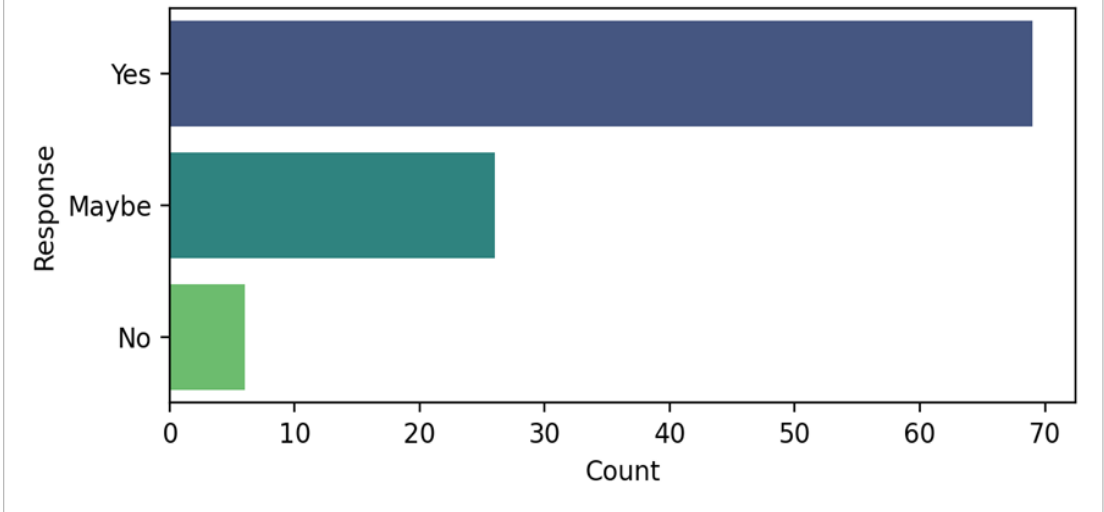
Chart 5
Trust Levels in Various Sources for Polio Vaccine Information



In contrast to social media, national television channels were highly trusted for health-related updates, with 91 (90.1%) of respondents expressing trust. Furthermore, healthcare workers were identified as the most trusted source for accurate polio vaccine information, with 88 (95%) of respondents indicating "Very Much" trust for doctors and nurses. Government health officials and religious leaders also gained high levels of trust. The impact of credible individuals was evident, as 84 (83.2%) of participants reported changing their minds about the polio vaccine after hearing a trusted person speak about it.

Demand for Better Communication

Chart 6
The public's desire for better polio vaccination information.



The public's desire for better polio vaccination information is evident. A sizable majority of parents (69; 68.3%) supported more government-led vaccine awareness initiatives, and 93 (92.1%) said that improved communication would raise their likelihood of trusting the vaccine. Clear, sympathetic, and expert-backed messaging was preferred, as seen by the use of doctor explanations, first-hand accounts from impacted families, and brief films or commercials.

Together, our results show the crucial role that both false information and reliable communication channels have in influencing Pakistani parents' attitudes and vaccination-related actions, pointing to particular areas that require focused public health initiatives.



Discussion

This study aimed to investigate the contribution of crisis communication to addressing polio vaccine hesitancy in Pakistan and how media-generated messages and misinformation affect public opinion and vaccine uptake. The findings provide critical insights into the complex interplay of these factors within the Pakistani context.

The high prevalence of participants having heard negative information about the polio vaccine (83.2%) confirms that misinformation is a pervasive issue, directly aligning with previous research by (McKee, 2018) and (Ali, 2019) who highlighted misinformation as a major cause of vaccine hesitancy in Pakistan. The specific types of rumors identified, such as those related to infertility, foreign conspiracies, or forbidden ingredients, echo the findings of (Kisa & Kisa, 2024), indicating deeply rooted cultural, religious, and political anxieties being exploited by false narratives. The role of social media platforms, particularly WhatsApp and Facebook, as conduits for this misinformation is evident, with a significant majority (87.1%) acknowledging that social media spreads fake news about vaccines, and over half (53.5%) expressing distrust in social media for vaccine information. This underscores the dual-edged nature of media, as discussed by (Shah, Ginossar, & Weiss, 2019), where digital platforms can both disseminate information and amplify falsehoods.

The direct impact of misinformation on vaccine behavior is further supported by the finding that a substantial portion of those who hesitated or refused vaccination attributed their decision, at least in part, to information received from media, including social media (Shanker & Vilaev, 2025). This reinforces the argument that ineffective communication strategies and the spread of unverified news remain major barriers to polio eradication (Shehwar, 2023). The near-even split in belief about vaccine safety further highlights the success of misinformation in creating doubt, despite scientific evidence.

Crucially, the results indicate that trust in information sources is not uniform and plays a pivotal role in countering hesitancy. Doctors and nurses, followed closely by government health officials and religious leaders, are the most trusted sources of information. This strongly supports (Jin et al., 2022) assertion that culturally appropriate messages delivered via credible means, such as community leaders or health workers, can significantly increase vaccine uptake. The high trust in national TV channels (90.1%) also highlights their continued importance as a reliable platform for public health messaging, in line with (Shah, Ginossar, & Weiss, 2019) observations about traditional media's instrumental role. Conversely, the low trust in social media influencers and even family/friends for accurate vaccine information suggests a public awareness of potential unreliability, yet their continued role in spreading rumors (as seen in Q16 responses) points to the complex social dynamics at play.

The study also offers clear direction for more effective crisis communication strategies. The overwhelming preference for messages from doctors, and the significant impact of real stories from affected families, emphasize the need for evidence-based, empathetic, and relatable communication. This aligns with the (Quinn, 2017) emphasis on straightforward responses to common concerns and the efficacy of emotionally resonant narratives in fostering trust. The high percentage of respondents who would be more confident with better communication (68.3%) and who desire more government awareness campaigns (92.1%) signifies a clear demand from the public for improved and assertive communication efforts. The finding that a substantial majority (83.2%) changed their mind about the polio vaccine after hearing a trusted person speak about it further reinforces the critical role of credible spokespersons and community engagement in overcoming resistance.

Limitation and Delimitation

This research primarily concentrates on crisis communication practices employed in Pakistan. It does not deal with medical information regarding the vaccine itself or assess the efficacy of the polio vaccine. Rather, it examines how individuals perceive and react to information regarding the vaccine.

Another limitation is that the study is conducted in areas (Islamabad and Rawalpindi) where polio cases and vaccine hesitancy are prevalent, thus the findings may not reflect the whole country. Additionally, the study is based on the responses of those who have been exposed to media campaigns, so individuals who do not have access to these media outlets are not considered. In spite of these constraints, the results

should be useful in enhancing public health crisis information sharing. By emphasizing the media role, the research provides public health professionals, journalists, and policymakers in charge of vaccination programs with useful information. The outcome could promote enhanced preparation for awareness campaigns and more efforts to counteract misinformation in the future.

This study examines the ways in which crisis communication tactics, including relying on credible local voices, appealing to emotions, and invoking religion, can sway public confidence in the polio vaccine. It examines how such tactics assist in overcoming fears and skepticism that follow from misinformation and past mistrust of health systems.

By knowing what types of messages individuals hear and accept, this research provides improved means to craft upcoming campaigns. Whether by straightforward radio announcements or online social media videos, the principle is to recite trusted messages from credible sources in a manner that is respectful of local language and culture.

The findings of this study aim to guide journalists, media planners, and public health practitioners. Messages can be more effective if delivered through identified and credible pathways—like local radio, WhatsApp forums, or good-standing community leaders.

This study calls on policymakers and producers of media to work together and create clear, repetitive, and respectful communications.

This involves raising concerns in a manner that does not shame individuals but instead informs them of the risks of polio and the value of the vaccine.

By taking these lessons, future communication efforts can not only decrease vaccine hesitancy but also establish a more solid base of public trust during health emergencies in Pakistan.

Conclusion

The main focus of this study is on parents' perceptions and crisis communication techniques used in Pakistan. It doesn't evaluate the vaccine's effectiveness or go into medical details about it. The results of the study might not apply to the entire nation because it was limited to two areas (Islamabad and Rawalpindi) where polio incidence and vaccine reluctance are common. Furthermore, replies are prone to social desirability bias and recall bias due to the use of self-reported survey data. The survey's lack of specific demographic data (such as educational background or the exact urban/rural divide within the cities it surveyed) restricts the capacity to perform more in-depth stratified analyses.

Implications for Future Research and Practice

The findings of this study have significant implications for public health communicators, media practitioners, and policymakers in Pakistan. Future campaigns should prioritize:

- I. **Leveraging Highly Trusted Sources:** Actively feature doctors, nurses, and government health officials in public health messages, perhaps through televised Q&A sessions or short, credible videos.
- II. **Engaging Religious and Local Leaders:** Work collaboratively with religious leaders and community elders to disseminate accurate information, utilizing their existing trust and influence.
- III. **Countering Misinformation Proactively:** Develop clear, rapid response mechanisms to address emerging rumors on social media, using factual information delivered by trusted sources.
- IV. **Emphasizing Real-Life Impact:** Incorporate more real stories of polio survivors and their families to highlight the devastating consequences of the disease and the protective power of the vaccine.
- V. **Utilizing Multi-Platform Approaches:** While traditional media remains crucial, develop tailored, engaging, and simple content for social media platforms, especially videos, to reach a wider audience effectively, focusing on positive narratives from parents.
- VI. **Continuous Awareness Campaigns:** Maintain consistent and repetitive awareness campaigns, as requested by the public, to reinforce key messages and build sustained trust.

In conclusion, effective crisis communication, characterized by clear, credible, and consistent messaging delivered through trusted channels, particularly healthcare professionals, religious leaders, and national television, is paramount in mitigating polio vaccine hesitancy in Pakistan. Addressing pervasive



misinformation, especially from social media, through assertive and contextually relevant counter-messaging, remains a critical challenge. By understanding the public's concerns and preferred communication styles, future efforts can enhance vaccine uptake and bring Pakistan closer to polio eradication.

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