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Article:	Combating Polio Vaccine Hesitancy: An Evaluation of Mediated Polio Eradication Campaigns in Pakistan
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ABSTRACT

Health campaign initiatives are especially tailored to the needs of their target audience and encourage vaccination adoption for polio eradication. Vaccination resistance, however, remains a serious barrier in Pakistan. The content analysis method was used to examine message appeals and message characteristics used in Pakistan's Polio National Immunization Campaigns from 2020 to 2022. Polio advertisements were obtained from the Pakistan Polio Eradication Program's internet archives. Advertisements range in duration from 40 to 60 seconds on average. The quantitative results provided to a deeper understanding of the message characteristics (credibility of message presenters, appeals, style, slogan, language) used in anti-polio advertisements broadcasted via cable and television channels during the Polio National Immunization Campaigns. It was evident that attempts were made to effectively engage the target audience via the employment of 31% knowledgeable speakers, a range of message appeals 34%, and a diversity of communication styles 72%. The necessity for ongoing evaluation and improvement of campaign message techniques was highlighted by variations in the use of slogans and regional languages.

Keywords: Mediated Polio Immunization Campaigns, Message Appeals, Polio Vaccination, Polio vaccine hesitancy

Introduction:

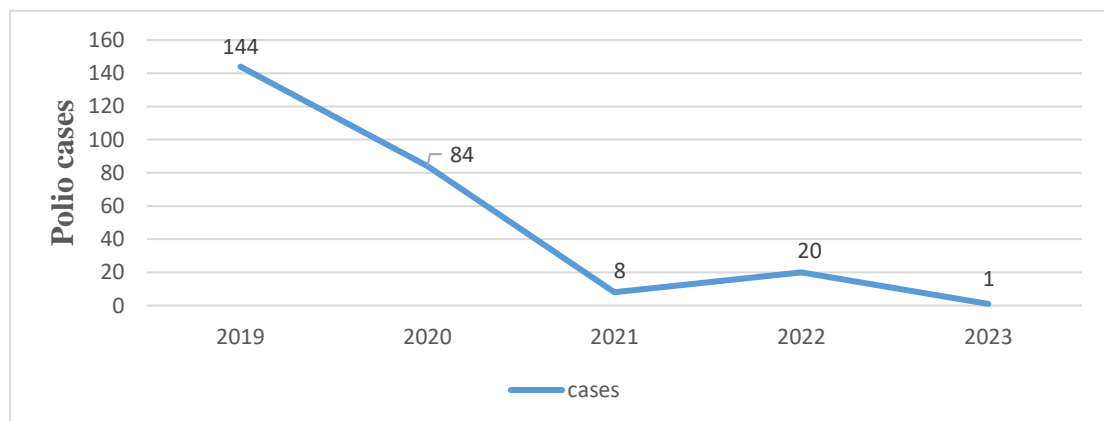
Poliomyelitis (polio) is a life-threatening virus that multiplies in the intestine and if transferred to the neurological system, can cause irreversible paralysis. It is the most severe symptom of polio that can lead to permanent disability or death. Polio has no cure, but it can be avoided by immunizing all children with safe and efficient polio vaccines. The success of these initiatives has depended not only on the availability of vaccines and the state of the healthcare system, but also on the ability to communicate and share information. Mass media, which includes a diverse range of channels, are crucial for influencing behavior, forming public opinion, and conveying important information. This present study examined the message characteristics used in mass media polio vaccination campaigns during 2020-2022.

The Global Polio Eradication Initiative (GPEI), which was started in 1988 by the World Health Organization (WHO), the Bill & Melinda Gates Foundation, the Centers for Disease Control (CDC) in the United States, Rotary International, and other significant donors, has made significant global efforts over the past few decades to eradicate this virus (Ataullahjan et al., 2021). UNICEF leads the polio eradication program by promoting public awareness campaigns through the media. The number of polio cases has dropped in all nations as a result of GPEI's commitment, collaboration, and investments in infrastructure, human, technical, and financial resources (Thompson et al., 2022). One of the two countries in the world where poliovirus transmission continues and the disease has not yet been eliminated is Pakistan. Since 1998, attempts have been made by the Pakistani government and the Global Polio Eradication Initiative to eradicate the poliovirus and each year massive vaccination drives are conducted. Despite strenuous attempts to eradicate this paralyzing virus, Pakistan continues to bear the burden of polio cases, and progress towards the global objective of polio eradication is sluggish. There were total 20 WPV1 cases recorded in Pakistan in 2022, however as of June 23, 2023, the situation has significantly improved. In 2023, just one WPV1 case, particularly in the Bannu area of Khyber Pakhtunkhwa province, has been documented. Furthermore, 11 WPV1 isolates were detected by environmental surveillance (ES) sewage monitoring in 2023. This indicates that the WPV1 virus was found in sewage samples gathered from several sites, including Karachi, the capital of Sindh Province (Mbaeyi et al., 2023).

Figure 1 depicts the current state of Polio cases and environmental surveillance in Pakistan.

Figure 1

Polio Cases in Pakistan



Note:

Figure 1 illustrates how polio cases have decreased in Pakistan during the last five years. This

drop does not imply that the illness has been entirely eradicated. Instead, it ought to serve as a powerful reminder for all stakeholders involved to step up their joint efforts in the ongoing fight against polio. Adapted from “Polio cases in provinces”, Retrieved September 2, 2023, from <https://www.endpolio.com.pk/polioin-pakistan/polio-cases-in-provinces>.

Despite the fact that the number of cases recorded between 2022 and 2023 decreased, the virus was still found in sewage samples, highlighting the necessity for continued surveillance and vaccination campaigns to completely eradicate polio. The problem of polio vaccination refusals is a serious barrier in the way of Pakistan's goal of eradicating polio due to which this disease remains endemic (Shah et al., 2019). Other nations view Pakistanis as potential poliovirus carriers as a result of these refusals, and as a result, security checks have been maintained at international airports to look for an international certificate of vaccination as proof of vaccination. Travel restrictions apply to Pakistani nationals who fail to provide proof of the necessary polio immunization (Shakeel et al., 2019). Pakistan has proclaimed polio a national emergency; yet, according to the GPEI Independent Monitoring Board (2020) in its 19th report, polio has never been considered a serious public health emergency. The persistent issue of poliovirus infection has not yet been addressed by the federal or provincial governments in a way that will be long-lasting. The Board has also voiced concern over Pakistan's insufficient campaigns and inefficient communication initiatives, which continue to be major barriers to the eradication of polio.

In the current situation, the government, healthcare institutions, and media outlets are all collaborating to aid the global campaign to eradicate polio. Therefore, the goal of this study is to look at aspects of mediated messages and message appeals utilized in anti-polio campaigns that have not been studied previously.

Problem Statement

The Pakistani government continues to invest extensively on the polio vaccine and attempt to educate people around the country. Pakistan is currently one of just two countries in the world that has not entirely eradicated polio. In many parts of the country, parents are hesitant to vaccinate their children against polio. There might be multiple reasons for their polio resistance. This study was conducted to evaluate the message characteristics and message appeals used in polio campaigns to identify what factors contribute to parental resistance to polio vaccination.

Objective

The following is the study's main objective:

1. To evaluate characteristics (credibility of message presenters, appeals, style, slogan, language) of the mediated messages used in Polio Eradication campaigns.

Message Characteristics

Public health professionals must comprehend the mechanics of message characteristics considering the growing dependence of People on media for health-related information (Muhammad et al., 2023).

In advertising, Message Presenters are often seen as reputable sources of information. It is commonly assumed that if the source is credible in a communication process, then message acceptance is high. Celebrities are commonly assumed to have the ability to influence social attitudes (Sachdeva, 2015). Although the literature on influencer credibility suggests a relationship between celebrity/model endorsement effect and advertising effectiveness, few

studies have looked at its utility in polio advertisements. Polio has been found in the majority of vaccine refusal areas in Khyber Pakhtunkhwa (Wazir & Zahoor, 2014, p. 820). To address parents who refuse to receive polio drops, Shahid Afridi, a well-known Pakistani cricketer, was chosen to deliver the message of elimination of polio. It was discovered that celebrities' physical appearance in polio advertisements has a positive impact on changing people's attitudes toward the polio campaign and its promotion, but there was a poor correlation between celebrity credibility and message compatibility, which has no significant effect on changing people's attitudes toward the polio campaign.

The Pulse Polio campaign received extensive coverage in India on several FM radio stations and TV networks. The general public became far more aware of the programme as it was endorsed by Amitabh Bachchan. The "Celebrities can affect people's attitudes" has an F value of 6.491 (significant at a 95% confidence interval). According to findings celebrity endorsement can aid in changing the attitudes of the intended audience toward a social issue (Radhika, 2016). In a different research, Ikechukwu (2016) indicated that communication tactics involving well-known people, powerful figures, and medical professionals were effective in persuading parents in northern Nigeria to take and utilize the polio vaccination. It was found that 84 % of the respondents advocate for utilizing well-known and powerful figures in the polio campaigns to make it successful and convince people to take and utilize the polio vaccination.

The use of appeals to change attitude and behavior is probably the most significant factor in persuasive campaigns. Fear appeals have been utilized as effective tactics to persuade message receivers to adopt healthy behaviors by picturing dreadful things that could happen to them if they do not follow the advice. Mahra and Mondal (2015) studied the effectiveness of logical and emotive appeals in Polio eradication campaigns in India from 2002 to 2003. They found that campaigns focused on fear appeals, highlighting the negative consequences of not vaccinating children against polio were ineffective in convincing parents. However, after 2003, the campaign shifted its focus to emphasize the positive role of the polio vaccine in children's health. This change in approach was successful in persuading parents to participate in the campaign, as it associated fear with effective solutions, ultimately boosting persuasion levels. On the contrary, Covolo et al. (2017) found the fear argument was the most prevalent one 72 % in YouTube videos on general vaccination in Italy, with worries about vaccine supplementary therapies and fear of communicable illnesses being highlighted. Su et al. (2021) discovered that youth reacted more favorably to messages emphasizing specific advantages of vaccination, such as caring for oneself and dear ones, than to messages emphasizing common benefits or fear-based appeals, while assessing the choices of young individuals for influenza vaccination campaign messages and the ramifications for designing effective interventions for COVID-19 vaccine promotion.

Language serves as a major cultural instrument for the transmission of ideas from media to another person. This is true whether the information is being communicated for educational, political or health campaigns. According to (Amidu, 2016), local languages must be employed in malaria campaigns to effectively communicate. Participant responses revealed that 75% of them preferred learning about malaria prevention and treatment in their mother tongues. Furthermore, the study discovered that using local languages increased understanding and retention of malaria-related material by 60% when compared to campaigns delivered purely in

the official national language. Likewise, the study's findings on risk communication activities during the COVID-19 epidemic in India highlight the need of customizing marketing messaging to the target audience's language preferences. 85% of participant stated that videos delivered in their regional language were more effective in conveying COVID-19 information than videos delivered in their national language (Purohit & Mehta, 2020). Thus, these researches have highlighted the importance of taking linguistic variety and cultural context into account when creating and conducting health campaigns.

Numerous studies have been done on the importance of slogans in advertisements in affecting customer perceptions and behavior. Sachdeva (2015) discovered that slogans, whether in written or spoken form, were used in almost 83% of commercials, showing their prevalence and potential influence. Only 17% of commercials really included a tagline, according to the survey, indicating that advertisers may not always be utilizing this persuasive technique to its fullest. Additionally, just one out of every eight radio advertisements in a specialized examination of those advertising 12.5% had a slogan, demonstrating a relatively low usage of slogans in radio communication. Similarly, Heryono's (2021) study sought to analyze the impact of various slogan language types employed in fast food advertising. The study discovered that phrases with positive emotional appeals, such as joy and satisfaction, were very successful in influencing customers' views and attitudes. In particular, 65% of participants favored phrases that included pleasant emotions, showing a high correlation between favorable emotional appeals and customer reaction.

The employment of right message styles is crucial while creating polio vaccination advertisements in order to properly communicate the needed information and engage the target audience. Style consists of linguistic decisions such as word choice and other aspects like editing, music, and pacing in mediated messages (Dillard & Shen, 2013).

Informational messages style made up 45% of all the messages evaluated, according to (Ngai et al., 2020), making them the leading style dimension. The usage of informative messages emphasized how crucial it is to provide the public with accurate and trustworthy information when a health emergency arises. Of the messages evaluated, conversational communications made about 30% of the total. It is crucial to provide correct information and promote participation on social media platforms, and this is why informational and conversational messages predominate. In a separate study, 80% of advertisements were found to use a conversational tone. Only the advertising featuring celebrities spoke directly to the viewer. The percentage of conversation and speech styles on radio was the same, 37.5% each. Music and songs were used in both radio and television polio ads to convey the message (Sachdeva, 2015). To examine the effectiveness of message characteristics used for addressing polio vaccination refusals, a wide study question was developed.

RQ 1. What type of message characteristics (credibility of message presenters, appeals, style, slogan, language) are used in Polio Eradication campaigns?

Encoding/Decoding Model

Encoding/decoding model of Stuart Hall (1973) sets a theoretical foundation for this study to examine what mediated Polio messages were produced to influence the Parents who refuse to administer Polio drops for their children.

The encoding and decoding paradigm includes the notions of media power and the limited and active participation of the public in the understanding of media information.

Encoding is the process of converting a message, meaning, intention, or point of view that has been conveyed in verbal or nonverbal form into a symbolic code or information form that has clear rules and is simple to comprehend and translate. Decoding refers to the process by which the information's recipient decodes the message and recreates the ideology being transmitted (Ang, 2022). Encoding research focuses on how messages are formed and how many factors may influence this production. Azhar (2020) for instance, looked at how message creators employed a variety of techniques to connect with Pakistani women and promote family planning, including the use of culturally appropriate images and messaging that stressed the advantages of family planning for women's health and wellbeing. The study did, however, also point out a number of difficulties in the encoding and decoding of these messages, such as low literacy rates and cultural norms that might make it more difficult for women to access and use family planning services.

In the context of a polio campaign, the encoding process refers to what messages are constructed by the public health officials and communication experts who design the messages.

Methodology

A content analysis is a basic research tool used to determine the presence, meanings, and relationships of words and concepts that are quantified and analyzed by researchers, who draw conclusions about the messages contained within the texts (Venkat & Janakiram, 2021). In order to determine what polio messages used in national vaccination campaigns were conveyed to parents, the content analysis technique was applied in this study.

The population includes anti-polio campaigns that aired through national and local cable television channels during the years 2020 to 2022. The polio messages were the unit of analysis for this study, and the message appeals (fear, rational) and message characteristics (credibility of message presenters, style, slogan, language) were the units of observation.

A total of 239 polio advertisements from 13 different national campaigns created by the government in partnership with UNICEF and broadcast on national and local cable television channels from February 2020 to November 2022 were examined using the Census technique. The advertisements were accessed from the online archives of the Pakistan Polio eradication program. The polio advertisements were analyzed in terms of message characteristics (credibility of message presenters, appeals, style, slogan, language) and message appeals.

Priori and emergent strategies were used to create content categories. Holsti's formula was used by the researcher to calculate the degree of agreement between the coders. The reliability of the coding categories in this study was found to be 0.8 %, it shows a high degree of agreement among the coders.

Measures

Message Characteristics (Credibility of presenters, Message Appeals, Language, Style and Slogan)

The content and structure of what is said are referred to as message characteristics (Nimmo, 2010). The message characteristics have the following message qualities. First, credibility is primarily conveyed by the trustworthiness and competence of the source and the provision of convincing evidence (Atkin, 2013). Second, style refers to how message content is expressed (Seo & Dillard, 2019). The message style can also influence public involvement in advertisements. Ngai et al. (2020) have discovered that narrative style was helpful in

improving public knowledge of health hazards and preventative steps to halt the growth of pandemic diseases. Narratives are tales that individuals use and share, and they include anecdotes and personal stories with storylines. Nonnarrative communications, on the other hand, rely on rationally stated arguments and facts and are seen as informative (Shen et al., 2015). Thus, what style of polio messages narrative or non-narrative are being employed in anti-polio advertisements was the focus of this study.

Language, the third attribute, is a powerful tool for communicating messages and establishing a bond between the communicator and the audience (Q. Khan et al., 2020). The language was operationalized as four primary regional languages which are mostly spoken and understood in Pakistan's Punjab, Sindh, Baluchistan, and KP regions. Furthermore, Urdu is a national language that is used as a medium of instruction in all four provinces of the country and serves as a bridge amongst Pakistanis from all ethnic groups. Slogans are frequently employed in health campaigns to convey the purpose of specific messages. Slogans are short, memorable, and catchy phrases used in advertising campaigns (Sachdeva, 2015). This study thus examined the presence and absence of slogans intended to provoke actions in favor of vaccines.

Message Appeals

Message appeals refer to cues used in promotional messages to capture the interest and attention of recipients (Koinig, 2021). Message appeals are measured in this study as follows: What type of message appeals are being used in anti-polio advertisements?

Rational Appeals

A rational appeal uses logical arguments and strong factual evidence to persuade the target audience about the benefits of adopting healthy behavior (Singh Mahra & Mondal, 2015). A measure of these appeals is: Are there any facts, figures, statistics, and reasoning in favor of using vaccinations to prevent polio?

Emotional Appeals

An emotional appeal aims to evoke emotions in the audience and utilize those feelings as the foundation for persuading (Singh Mahra & Mondal, 2015). It involves both positive and negative type of message appeals.

What type of negative appeals e.g. Fear, Threat, Anger, Regret, Sadness or Combination were present in Polio advertisements?

What type of positive appeals e.g. Treat, Protect, Love, Healthy Life, Vaccination Gains or Combination were present in Polio advertisements?

Message Presenters

According to Atkin (2001) the person who appears in the message as the messenger to convey information, exhibit behavior, or offer a testimonial is referred to as the presenter. In this study, the appearance and character traits of celebrities, governmental figures, expert specialists, religious leaders, community leaders, parents, polio sufferers, and polio workers were all evaluated in anti-polio spots of national immunization campaigns.

Results

The findings began with an examination of the frequency distribution of anti-polio advertisements broadcasted during a three-year period.

Table 1

Frequency distribution of Polio advertisements televised during three years

As shown in Table 1, In 2020, (n=75, 31%) of polio ads were shown which suggests that polio

Year of Polio Campaigns	n	%
2020	75	31%
2021	114	48%
2022	50	21%
Total	239	100%

advertising was less prevalent in 2020 than they were in 2021 i.e. (n=114, 48%). In 2022, (n=50, 21%) polio advertisements were broadcasted through cable and television channels during three polio national immunization campaigns.

Table 2

Duration of anti-Polio advertisements televised in years 2020-2022.

Year of Polio Campaigns	Very Short (less than 30 seconds)		Short (30-60 seconds)		Medium (61-90 seconds)		Long (>90 seconds)		Total	
	n	%	n	%	n	%	n	%	n	%
2020	6	19%	29	30%	33	35%	7	39%	75	31%
2021	14	45%	50	52%	40	43%	10	56%	114	48%
2022	11	35%	18	19%	20	22%	1	6%	50	21%
Total	31	100%	97	100%	93	100%	18	100%	239	100%

The Table 2 details the duration of the anti-Polio advertisements that were aired during polio national immunization campaigns of years 2020 to 2022. A medium time length category was noticed for (n=33, 35%) of the advertising in 2020, and for (n=20, 22%) of the advertisements in 2022. However, in 2021, (n=50, 52%) of the advertisements were of a short duration. This demonstrates how advertisers created medium- to short-length advertisements to capture viewers' attention.

Table 3
Model/Message Presenters Featured in the Advertisements

Type of Message Presenters	2020		2021		2022		Total	
	n	%	n	%	N	%	n	%
Experts	13	17%	15	13%	8	16%	36	15%
Public officials	22	29%	27	24%	9	18%	58	24%
Religious Scholars	9	12%	16	14%	5	10%	30	13%
Community leaders	7	9%	10	9%	2	4%	19	8%
Famous Personality	4	5%	2	2%	4	8%	10	4%
Parents	2	3%	3	3%	4	8%	9	4%
Polio Sufferers	2	3%	4	4%	3	6%	9	4%
Polio workers	4	5%	8	7%	4	8%	16	7%
Combine Package	7	9%	8	7%	5	10%	20	8%
Others	1	1%	15	13%	2	4%	18	8%
Presenters not featured	4	5%	6	5%	4	8%	14	6%
Total	75		114		50		239	

The Table 3 depicts that public officials consistently appeared as prominent message presenters over the course of the three years, accounting for (n=58, 24%) of the total count. The second-most common message presenters were experts, who accounted for (n=36, 15%) of the total. Their significant appearance in polio advertisements suggests that disseminating accurate and reliable information to the public is a top concern. Religious Scholars on contrary appeared in (n=30, 13%) of the anti-Polio ads, highlighting their importance in raising awareness regarding polio vaccination. Also, Community leaders made an active appearance, making up (n=19, 8%) of the Polio ads. Famous personalities include Celebrities, cricketers and anchor persons etc. appeared less frequently i.e. (n=10, 4%). Parents, Polio sufferers, Polio workers working to eradicate the disease all made up 4-7% of the overall polio advertisements and were less prevalent. Overall, the findings emphasized the deliberate choice of message presenters in Polio Ads to maximize campaign efficacy.

Table 4

Traits	2020		2021		2022		Total	
	n	%	n	%	N	%	n	%
Knowledgeable	26	35%	35	31%	14	28%	75	31%
Qualified	6	8%	10	9%	12	24%	28	12%
Concerned	25	33%	36	32%	8	16%	69	29%
Empathetic	5	7%	10	9%	5	10%	20	8%
Others	8	11%	6	5%	2	4%	16	7%
Not Applicable	5	7%	17	15%	9	18%	31	13%
Total	75		114		50		239	

Personality Traits of Message Presenters appeared in anti-Polio advertisements

A substantial number of message presenters were identified for being “Knowledgeable” in anti-polio advertisements as seen in Table 4. In 2020, (n=26, 35%) of the message presenters were characterized as knowledgeable, followed by (n=35, 31%) in 2021 and (n=14, 28%) in

2022. In contrast a minor percentage of message presenters were classified as “Empathetic” (n=5, 7%) in 2020, (n=10, 9%) in 2021, and (n=5, 10%) in 2022. These findings demonstrated that the qualities of message presenters as knowledgeable, qualified, and concerned were frequently emphasized in Polio Ads during the course of the three-year period.

Table 5

Frequency of message appeals employed in anti-polio advertisements

Message appeals	2020		2021		2022		Total	
	n	%	n	%	N	%	n	%
Rational Appeals	23	31%	48	42%	10	20%	81	34%
Emotional Negative Appeals	7	9%	15	13%	9	18%	31	13%
Emotional positive Appeals	16	21%	17	15%	11	22%	44	18%
Combination of appeals	22	29%	21	18%	16	32%	59	25%
No Appeals used	7	9%	13	11%	4	8%	24	10%
Total	75	100%	114	100%	50	100%	239	100%

The results in Table 5 indicates that “Rational Appeals” were the most prevalent message appeal utilized in anti-polio advertisements over the course of three years. In 2020, the advertising used (n = 23, 31%) of the rational appeals. This percentage increased to (n = 48, 42%) in 2021 and (n = 10, 20%) in 2022. This implies that rational and evidence-based arguments were frequently used to persuade the audience of the need of polio prevention. Emotional Negative and Emotional Positive appeals accounted for (n =31,13%) and (n =44, 18%) of total polio advertisements, respectively. The use of combination appeals in anti-polio advertisements received the second highest percentage (n =59, 25%) in total that shows variety of message appeals were used to target and involve the public in the fight against polio.

Table 6

Frequency Distribution and type of Emotional Positive appeals

Emotional positive Appeals	2020		2021		2022		Total	
	n	%	n	%	n	%	n	%
Treat	3	4%	5	4%	1	2%	9	4%
Protect	4	5%	4	4%	3	6%	11	5%
Love	5	7%	4	4%	1	2%	10	4%
Healthy Life	4	5%	7	6%	4	8%	15	6%
Gains	7	9%	11	10%	6	12%	24	10%
Others	7	9%	4	4%	8	16%	19	8%
Combination	9	12%	13	11%	4	8%	26	11%
Not used	36	48%	66	58%	23	46%	125	52%
Total	75		114		50		239	

The frequency distribution in Table 6 shows that the combination of numerous positive emotions with a total percentage of (n=26, 11%), was the most prevalent in polio advertisements. While the findings also revealed that the year 2021 (n=11, 10%) had the highest usage of positive “vaccination gains” appeals, it was probably meant to highlight the advantages or benefits of polio vaccination. On the contrary, the “Not used” category had the highest frequency, accounting for (n = 36, 48%) in 2020, (n = 66, 58%) in 2021, and (n = 23, 46%) in 2022. This demonstrated that many polio advertisements lacked unique emotional positive appeals, and these appeals likely tried to maximize their persuasive effectiveness by combining numerous emotional negative and positive appeals.

Table 7

Frequency Distribution and type of Emotional Negative appeals

	2020		2021		2022		Total	
	n	%	n	%	n	%	n	%
Negative appeals								
Fear	4	5%	5	4%	8	16%	17	7%
Threat	3	4%	1	1%	4	8%	8	3%
Anger	3	4%	5	4%	0	0%	8	3%
Regret	6	8%	7	6%	4	8%	17	7%
Sadness	3	4%	4	4%	1	2%	8	3%
Others	2	3%	7	6%	2	4%	11	5%
Combination	7	9%	11	10%	7	14%	25	10%
Not used	47	63%	74	65%	24	48%	145	61%
Total	75		114		50		239	

The table provides information on the different type of emotional negative appeals that were utilized in polio advertisements during National Immunization Days from 2020 to 2022. The findings depict that Fear-based appeals raised significantly from (n=4, 5%) in 2020 and (n=5, 4%) in 2021 to (n=8, 16%) in 2022. Additionally, a sizable part of the advertising, ranging from (n=47, 63%) in 2020 and (n=74, 65%) in 2021 to (n=24, 48%) in 2022 did not use any specific negative appeals, representing the use of appeals in diversity and innovation for polio prevention.

Table 8*Styles of Polio Messages employed in anti-polio advertisements*

Message Styles	2020		2021		2022		Total	
	n	%	n	%	n	%	n	%
Narrative	6	8%	8	7%	4	8%	18	8%
Dramatic	2	3%	1	1%	4	8%	7	3%
Visuals/Music	4	5%	11	10%	2	4%	17	7%
Conversational	56	75%	82	72%	33	66%	171	72%
Combination of above	7	9%	12	11%	7	14%	26	11%
Total	75		114		50		239	

As shown in Table 8 the most prominent style was conversational, accounting for (n = 56, 75%) in 2020, (n = 82, 72%) in 2021, and (n = 33, 66%) in 2022. With a casual and interactive tone, this style was employed to build a personal connection with the audience. Narrative and dramatic message styles were accounted for (n = 18, 8%) and (n = 7, 3%) of the total, indicating efforts to convey personal stories of parents to evoke emotional effects. The utilization of visuals/music style and combination styles accounted for (n = 17, 7%) and 20% (n = 26, 11%) in total of Polio ads, respectively, indicating a focus on improving the visual and aural components to increase engagement.

Table 9*Slogans used in anti-polio advertisements*

Slogan Appearance	2020		2021		2022		Total	
	n	%	n	%	n	%	n	%
Yes	40	53%	38	33%	20	40%	98	41%
No	35	47%	76	67%	30	60%	141	59%
Total	75		114		50		239	

The table 9 demonstrates that total of 239 anti-polio ads produced throughout the three years, (n = 98, 41%) of them included slogans and (n = 141, 59%) were without it. These results imply that while slogans were used in a significant number of advertising, their frequency fluctuated over time.

Table 10*Language used in anti-Polio campaigns*

Language	2020		2021		2022		Total	
	n	%	N	%	n	%	n	%
Urdu	58	77%	84	74%	40	80%	182	76%
Punjabi	2	3%	5	4%	0	0%	7	3%
Pashto	2	3%	5	4%	6	12%	13	5%
Sindhi	0	0%	6	5%	0	0%	6	3%
Saraiki	1	1%	2	2%	0	0%	3	1%
Balochi	3	4%	1	1%	0	0%	4	2%
Pahari-Pothwari	0	0%	1	1%	0	0%	1	0%
English	1	1%	1	1%	0	0%	2	1%
Combination	8	11%	6	5%	1	2%	15	6%
Others	0	0%	3	3%	3	6%	6	3%
Total	75		114		50		239	

Table 10 suggests a substantial preference for using Urdu as the main language making up (n=182, 76%) in total for disseminating information about polio immunization campaigns. These results are compatible with the larger context of Urdu being the national language of Pakistan. Even if other regional languages were used to a lesser extent, the existence of category combination demonstrates the mix of languages with (n=15, 6%) and that some effort was made to cater to specific linguistic preferences. Understanding the target audience's diverse linguistic needs is crucial for effective communication in polio campaigns.

Discussion and Conclusion

Insightful information on the frequency and prevalence of polio messages broadcasted on cable and television channels throughout the national vaccination campaigns of 2020–2022 was obtained from the content analysis results of this study. One of the main outcomes of the content analysis was the relatively low frequency of polio awareness advertising during the research period. In 2020, only (n=75, 31%) of polio spots were broadcasted, demonstrating that polio advertising at that time gained less attention in Media. In the next year, 2021, there was a substantial increase in the number of advertisements for polio, with (n=114, 48%) of them being seen. However, only (n=50, 21%) of polio advertising was shown on television during the three national vaccination campaigns in 2022. According to Ahmad et al. (2021), one factor contributing to the observed variances in Polio campaigns of year 2020 was the shift of resources by the Global Polio Eradication Initiative (GPEI) to battle the COVID-19 epidemic. This diversion in focus put the polio eradication campaign on hold until September 2020. The polio campaign's visibility suffered as a result of COVID-19 receiving more financial support, media attention, and public awareness initiatives at that time. Furthermore, the reduced frequency of polio campaign advertisement in 2022 could be because of factors like current political events, floods in various parts of Pakistan, and public perceptions of immunization campaigns as explained by Ali & Hamid (2022). These factors may have influenced the prioritization and distribution of polio advertising throughout the year 2022. This concept of

low frequency in polio advertisement campaigns due to political instability was also supported by an earlier study done in Pakistan's Sindh region. The results implied that political situations and policies may have an influence on the priority and funding of polio communication and advertising techniques, which may have an impact on the general success and visibility of polio vaccination programs in the area (Nizamani et al., 2019).

The results of the low frequency of polio advertising between 2020 and 2022 suggested a decrease in the significance of polio awareness efforts, which is consistent with the findings of another study carried out in India. It was revealed that ads for oral and general health were included in the media only 39% of oral health occurrences, a very small percentage, were broadcasted during prime time, suggesting that oral health messages were not as prominent during peak watching times (Venkat & Janakiram, 2021). These results highlighted the necessity of focused initiatives to enhance the visibility and promotion of polio vaccination messages, particularly during prime-time television transmission, in order to successfully raise awareness and resolve challenges related to polio vaccine refusals.

The duration of anti-polio advertisements broadcasted during national polio vaccine campaigns from 2020 to 2022 showed patterns of short duration (30-60 seconds) in year 2021 (52%) and medium duration (61-90 seconds) in year 2020 (35%) and 2022 (22%). The results were consistent with Sachdeva's (2015) research, which found that public service announcements for seven different health issues varied in length from 28 to 52 seconds on average. Shorter communications, usually up to 120 seconds, are normally more successful in grabbing the audience's attention. Therefore, an important factor in the success of the message is its duration. It was indicated that advertisers might have created medium- to short-length advertisements to draw viewers' attention towards polio vaccination.

Models/Message presenters are being employed to spread public health messages, especially to change perceptions about important topics like vaccination. Through analysis of anti-polio advertisements, it was discovered that over the course of three years, public officials accounted for 24% of the total number of significant message presenters, while medical experts and religious leaders were the other two most common presenters, representing 15% and 13% of the total. The message presenters were projected as knowledgeable 31%, concerned 29% and 12% qualified in Polio Ads during the course of the three-year period. Their prominent placement in polio advertisements suggests that giving the public with accurate and factual information is a top concern of Polio Eradication program. These results were in accordance with Ikechukwu's (2016) findings regarding communication tactics utilized in the polio vaccination campaigns in the Nigerian states of Kaduna and Sokoto. This advocated for the employment of well-known and prominent persons in the polio campaign to persuade people to get and use the polio vaccine.

To educate parents of the need of polio prevention, message appeals in national polio vaccination campaigns were carefully crafted. The results indicated that rational justifications were widely employed, making about 34% of all message appeals, to emphasize the significance of polio prevention. It is implied that the target audience was frequently persuaded of the need of polio prevention through logical and fact-based arguments. These observations were in line with the findings of Su et al. (2021), where participants stressed the need of thorough knowledge of the topics covered in health campaigns and the need for factual, accurate, balanced, and current information.

Emotional positive and negative appeals were used 25% in combination to convince the parents for polio prevention. Vaccination gains (benefits of vaccination) accounted for 10% of the total content of positive appeals in Polio advertisements. The results of positive appeals and use of appeals in combination are consistent with prior studies undertaken by (Mahra & Mondal, 2015; Casais & F. Proenca, 2021). Mahra and Mondal (2015) investigated the effectiveness of the positive appeals in an Indian anti-polio campaigns that stressed the need of providing children polio drops. This demonstrated the potency of encouraging parents and inspiring their active participation in eradication efforts through positive appeals.

Conversational style messages were more commonly employed (72%) in anti-polio advertisements of national immunization campaigns to communicate with the target group. These findings were noteworthy because they highlight the value of both what to convey and how to convey it in molding parents' perceptions regarding polio vaccination. This result is consistent with the literature, which indicates that conversational exchanges accounted for around 30% of all messages concerning the Covid-19 virus. These messages aimed to engage the audience in discussion and foster engagement by establishing a personal connection. Informational and conversational messages predominate because they are necessary to disseminate accurate information and encourage use of social media platforms (Ngai et al., 2020).

Slogans can help raise awareness, encourage immunization, and mobilize community support in the efforts to eliminate polio. The findings revealed that the use of slogans was inconsistent across all national polio campaigns televised in the years 2020-2022. Slogans used in national vaccination campaigns were not new, and they frequently repeated the same old slogans. Furthermore, 59% of adverts were shown without slogans. These findings contradicted prior studies (Sachdeva, 2015; Heryono's, 2021), which revealed that slogans used in public health campaigns are vital for conveying strong and memorable messages to the target audience. Slogans can be effectively used for spreading awareness, encouraging immunization, and enlisting community support in the efforts to remove hesitation and promote vaccination.

The data found that Urdu was the major and 76% most commonly used language for spreading information regarding polio vaccine, whereas other regional languages were used less frequently. These results are compatible with the larger context of Urdu being the national language of Pakistan. These results were in line with past studies (Amidu, 2016; Purohit & Mehta, 2020) that stressed the need of using native languages in health programs in order to ensure effective communication. Therefore, it is essential for efficient communication in polio campaigns to take into account the target audience's diverse language demands. Regional language use can promote greater understanding and involvement, increasing the effectiveness of polio vaccination efforts.

In conclusion, the quantitative findings help in a better understanding of the message characteristics employed in anti-polio advertising broadcasted through cable and television channels during Polio national immunization campaigns of 2020-2022. The use of credible speakers, a variety of message appeals, and a diversity of message styles show that efforts were taken to effectively connect with the target audience. Variations in the usage of slogans and regional languages highlight the need for constant assessment and refinement in campaign message strategies. This emphasizes how crucial it is to do constant research and analysis to determine the best effective strategies for promoting polio prevention.

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